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Changes in Consumer Market Preference and Purchase Frequency in Response to the Covid-19 Pandemic

Sean Thomas Dial
Western Kentucky University, seantdial@gmail.com

CHANGES IN CONSUMER MARKET PREFERENCE AND PURCHASE FREQUENCY IN RESPONSE TO THE COVID-19 PANDEMIC

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Fatemeh (Mahtab) Orooji Digitally signed by Fatemeh (Mahtab) Orooji Date: 2021.04.08 09:27:52 -05'00'

Dr. Fatemeh (Mahtab) Orooji, Thesis Director

Asghar Rezasoltani Digitally signed by Asghar Rezasoltani Date: 2021.04.08 09:31:04 -05'00'

Dr. Asghar Rezasoltani

Dr. Kenneth Askins

Associate Provost for Research and Graduate Education

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Directed by: Dr. Fatemeh Orooji, Dr. Asghar Rezasoltani, and Dr. Kenneth Askins

School of Engineering and Applied Sciences Western Kentucky University

Research literature throughout 2020 indicate consumer behavioral changes in response to the systemic effects of the global COVID-19 pandemic, but these studies investigate transient adaptations in consumer behaviors during the early quarantine period of the pandemic. This study intends to investigate lasting or permanent changes in consumer market preference and purchase frequency between BAM and online retail due to the effects of the pandemic. The principal investigator designed a survey for participants to estimate purchase frequencies and market preferences for apparel, electronics, groceries, and general purchases before and after the pervasive effects of the pandemic (N = 1195; n = 61). The principal investigator utilizes descriptive statistics to characterize response distributions and differences/changes of rank/preference to evaluate statistically significant differences between markets and changes between temporal periods. The only product category that demonstrates a consensus preference for online retail before and after the effects of the pandemic is electronics; there was and remains a consensus preference for BAM to purchase apparel, groceries, and general purchases. However, changes of net differences between markets after the effects of the pandemic indicate a statistically significant minority of the sample have increased purchase frequency through online retail for all product categories and general purchases after the effects of the pandemic, suggesting a minority have developed adaptations to utilize a less preferred market (i.e., online retail) to supplement purchases through a preferred

market (i.e., BAM) due to real/perceived product scarcity at BAM, compliance with health and safety mandates, and/or personal agency and self-preservation in avoidance of contagion, perceived danger, or inconveniences of altered business operations. The effects of the pandemic appear to have had insignificant influence on consumer behaviors, wherein there are no lasting or permanent changes in consumer market preference and estimated purchase frequency per market, rather only a minority have developed transient adaptations to utilize an alternate market to ensure the acquisition of products at a desired rate while the effects of the pandemic persist.

Introduction

The pervasive influence of epidemics or pandemics upon the operations of entire populations, such as general social interactions, manufacturing, and commerce, are not novel (Larson & Shin, 2018; Laato, Islam, Farooq, & Dhir, 2020), but the year of 2020 marks a precedent for the dramatic impact of a global pandemic in the contemporary state of the Information Age. The Information Age describes a broad timeline of invention and innovation in information technology from the mid-20th century that extends until the present; however, the contemporary state of the Information Age is characterized by interdependent information and communication systems, disruptive marketing utility of social media platforms, "smart" devices, advanced analytical and predictive algorithms, an escalation of digital media, entertainment media conglomeration into an oligopoly of streaming services, customer-tailored advertisements online, ever-increasing consumer reliance upon online retail, and cryptocurrencies.

The events of 2020 pertaining to the global COVID-19 pandemic indicate the advent of a new technological age because information technology has become so seamlessly integrated into social structure and institutions that unpredictable, remarkable stress upon information systems at a national and international scale can cause catastrophic disruption to societal operation and national economies. The adaptive measures of various organizations indicate a trend toward remote participation/operation for eligible services, such as distanced learning for education or telecommuting for "nonessential" services (i.e., services that do not require access to a localized facility, equipment, etc.) (Duygun & Şen, 2020; Laato et al., 2020; Nguyen, Hoang, Tran, Vu, Fodjo, Colebunders, Dunne, & Vo, 2020; Teng-Calleja, Caringal-Go, Manaois, Isidro, &

Zantua, 2020); furthermore, quarterly reports throughout 2020 from various business organizations indicate an increased demand for online retail, digital retail, streaming services, and food deliveries, suggesting consumer habits for various categories of products and goods are shifting away from "brick-and-mortar" (BAM) shopping ventures to home delivery and digital "ownership" (Duygun & Şen, 2020; Jeżewska-Zychowicz, Plichta, & Królek, 2020; Sheth, 2020; Teng-Calleja et al., 2020; Neger & Uddin, 2020; Wang, An, Gao, Kiprop, & Geng, 2020). While the adaptations are intended as indefinite, requisite measures to mitigate the contagion of the pandemic, governments and business organizations have learned requirements and methods for adaptation that will allow these entities to respond faster and more effectively in the future occurrence of national/international emergencies or catastrophes, such as pandemics or natural disasters. The adaptations may not be permanent, but the events of 2020 pertaining to COVID-19 indicate the advent of a new technological age characterized by extensive, interdependent networks of remote individuals within organizations and/or the capability to convert to remote services immediately, an emphasis on delivery facilitated internally or through partnerships with delivery services utilizing independent contractors, and the complete transformation of information technology from a facilitative utility into a necessity for the sustainability of any organization.

Multitudes of studies and reports in the last decade suggest that consumer habits have trended away from BAM retail toward online retail (Karim, 2013; Liu, Xiao, Lim, & Tan, 2017), and those throughout 2020 suggest consumers have increased utilization of online retail in response to the effects of COVID-19, including quarantine or "stay-at-home" orders (Kaur, Kunasegaran, Singh, Salome, & Sandhu, 2020; Laato et al., 2020;

Nguyen et al., 2020), occupancy and health mandates for business facilities (Teng-Calleja et al., 2020; Nguyen et al., 2020; Betsch, Korn, Sprengholz, Felgendreff, Eitze, Schmid, & Böhm, 2020; Laato et al., 2020), and inconsistent inventory availability or scarcity at BAM stores due to panicked hoarding behaviors that characterize preparation for anticipated emergencies (Duygun & Şen, 2020; Jeżewska-Zychowicz et al., 2020; Kaur et al., 2020; Laato et al., 2020; Parlapani, Holeva, Voitsidis, Blekas, Gliatas, Porfyri, Golemis, Papadopoulou, Dimitriadou, Chatzigeorgiou, Bairachtari, Patsiala, Skoupra, Papigkioti, Kafetzopoulou, & Diakogiannis, 2020; Sheth, 2020; Neger & Uddin, 2020; Wang et al., 2020). However, most available data for changes in consumer habits between BAM and online retail since impact of the pandemic are measured internally, and organizations may withhold proprietary information from the public. Furthermore, most research on the effects of the pandemic investigates transient changes in consumer behavior to adapt to early quarantine orders and collateral effects rather than lasting or permanent changes in consumer behavior for market preference and purchase frequency after the effects of the pandemic. Research literature is bereft of the Voice of the Customer (VOC) in regard to the potential differences in consumer preferences and purchases frequencies between BAM and online retail before the sweeping effects of the global COVID-19 pandemic and those preferences after the pervasive impact of COVID-19.

Problem Statement

The dearth of information on consumer preferences in the selection of offline or online markets before and after the pervasive impact of the global COVID-19 pandemic indicates a need for studies that address this concern. The VOC is not represented for

these preferences in existing literature, and business organizations suggest changes in consumer habits (e.g., purchase frequency) and preferences after the sweeping effects of COVID-19 from their interpretations of internal measures and metrics that merely imply changes in consumer habits, not preferences.

Significance of the Research

Business organizations will directly derive benefits from an investigation of consumer preferences and purchase frequencies between BAM and online retail through achieving a more comprehensive understanding of customers' general preferences in the utilization of BAM or online retail in response to the effects of the global COVID-19 pandemic. Business organizations may utilize VOC to inform strategic planning, organizational restructuring, process changes, etc. that prioritize customer requirements for the generally preferred access to products and goods. Furthermore, the knowledge of consumer preferences between BAM and online retail informs business organizations of opportunities for improvement in the less-preferred market; business organizations whose primary structure is the less-preferred market may restructure to the preferred market, if possible, or they may adapt the existing structure and current-state processes to satisfy key customer requirements in approach to the preferred market. An understanding of any potential changes in general preferences and purchase frequencies between BAM and online retail after the impact of the COVID-19 pandemic is foundational for any type of organization to evaluate its responses to the pandemic, standardize effective adaptations to improve response time and efficacy in similar contexts, and learn the value of adaptive flexibility to sustainability and customer satisfaction.

Purpose of the Research

The purpose of this study is to investigate the potential changes in general preference for a market (i.e., BAM or e-commerce markets) and changes in purchases frequencies for each market after the pervasive impact of the global COVID-19 pandemic through VOC. This study intends to investigate the aforementioned changes for general (i.e., all/total) purchases and three categories of products and goods: apparel, electronics, and groceries.

Research Questions

Research Question 1: Is there a consensus preference for a market *before* the effects of the global COVID-19 pandemic?

- H_0: There is no consensus preference for market *before* the effects of the global COVID-19 pandemic
- H_1: There is a consensus preference for BAM *before* the effects of the global COVID-19 pandemic.
- H_2: There is a consensus preference for online retail *before* the effects of the global COVID-19 pandemic.

Research Question 2: Is there a consensus preference for a market *after* the effects of the global COVID-19 pandemic?

- H_0: There is no consensus preference for market *after* the effects of the global COVID-19 pandemic
- H_1: There is a consensus preference for BAM *after* the effects of the global COVID-19 pandemic.
- H_2: There is a consensus preference for online retail *after* the effects of the global COVID-19 pandemic.

Research Question 3: Is there a difference in the consensus preference for a market between the temporal periods *before* and *after* the effects of the global COVID-19 pandemic?

- H_0: There is no statistically significant difference in the consensus preference for market between the temporal periods *before* and *after* the effects of the global COVID-19 pandemic.
- H_1: There is a statistically significant difference in the consensus preference for market between the temporal periods *before* and *after* the effects of the global COVID-19 pandemic.

Research Question 4: Is there a difference in the reported purchase frequency between BAM and online retail *before* the effects of the global COVID-19 pandemic?

- H_0: There is no statistically significant difference in the reported purchase frequency between BAM and online retail *before* the effects of the global COVID-19 pandemic.
- H_1: There is a statistically significant difference in the reported purchase frequency between BAM and online retail *before* the effects of the global COVID-19 pandemic, in which subjects reported higher frequency of BAM purchases than online retail purchases.
- H_2: There is a statistically significant difference in the reported purchase frequency between BAM and online retail *before* the effects of the global COVID-19 pandemic, in which subjects reported higher frequency of online retail purchases than BAM purchases.

Research Question 5: Is there a difference in the reported purchase frequency between BAM and online retail *after* the effects of the global COVID-19 pandemic?

- H_0: There is no statistically significant difference in the reported purchase frequency between BAM and online retail *after* the effects of the global COVID-19 pandemic.
- H_1: There is a statistically significant difference in the reported purchase frequency between BAM and online retail *after* the effects of the global COVID-19 pandemic, in which subjects report higher frequency of BAM purchases than online retail purchases.
- H_2: There is a statistically significant difference in the reported purchase frequency between BAM and online retail *after* the effects of the global COVID-19 pandemic, in which subjects report higher frequency of online retail purchases than BAM purchases.

Research Question 6: Is there a difference in the reported purchase frequency of a market *after* the effects of the global COVID-19 pandemic?

- H_0: There is no statistically significant difference in the reported purchase frequency of a market *after* the effects of the global COVID-19 pandemic.
- H_1: There is a statistically significant difference in the reported purchase frequency of a market *after* the effects of the global COVID-19 pandemic, in which subjects reported higher purchase frequency after the effects of the pandemic.
- H_2: There is a statistically significant difference in the reported purchase frequency of a market *after* the effects of the global COVID-19 pandemic, in which subjects reported lower purchase frequency after the effects of the pandemic.

Assumptions

There is assumed access to the student and faculty populations of Ogden College at Western Kentucky University (WKU). The sample is assumed to represent the population. Survey data are non-parametric.

Limitations and Delimitations

The survey will be delimited to the student and faculty population of Ogden College at Western Kentucky University (WKU) for feasibility in sample acquisition. The survey responses are limited to subjective, ordinal Likert scales for purchase frequency and closed-ended selections between markets, and quantitative analyses are limited to non-parametric descriptive statistics and differences of rank/preference. The Mann-Whitney U Test is inapplicable to this research design because the test can only indicate a difference in sample sizes for frequency; as the sample sizes of responses for each survey question are always the same and known to be identical in composition of participants, the Mann-Whitney U Test will always indicate no statistically significant difference between any two samples because the distribution of responses across choices on the Likert scale is limited to the sample size. Furthermore, if the research design

satisfied the requirements to conduct a Mann-Whitney U Test, the test is still inapplicable to the assessment of statistically significant difference in consensus market preferences between temporal periods because there is no critical value for $n = 3$ if $\alpha = 0.05$. The Wilcoxon Signed Ranks Test is inapplicable to the research design due to similar violations for frequency of ranks described for the Mann-Whitney U Test; moreover, there are no critical values for $n \leq 8$ if $\alpha = 0.05$, and increasing α will always result in no significant difference in samples between any given comparison of survey questions. The Kruskall Wallis Test is inapplicable because the samples for each survey question are not randomly assigned to product categories, markets, or temporal periods and are not mutually independent, as the samples are known to be identical for each survey question.

Definition of Terms

- *COVID-19 pandemic*
    - In December 2019, reports from Wuhan, China indicated the emergence of an incipient national-scale pandemic of severe acute respiratory syndrome coronavirus 2 (SARS-COV-2), now dubbed the coronavirus disease of 2019 (COVID-19). The pandemic escalated to the global scale by the spring of 2020, resulting in various approaches to mitigating contagion across the world that have remarkably stressed and altered societal operation, particularly commerce and economy.
- *"brick-and-mortar"*
    - AKA *BAM*, *physical retail/commerce*, *traditional retail/commerce*, and *physical stores/storefronts*
    - BAM refers to a traditional market that offers stock of products and goods or provides services at physical stores
- *online retail*
    - AKA *electronic commerce (e-commerce)*
    - Online retail is a disruptive market that offers products and goods for home delivery and instantaneous access to digital products and services through utilization of the Internet.
- *market*
    - AKA *market type*
    - Market refers to the type of market between BAM and online retail.

- *consumer market preference*
    - In the context of this thesis, consumer market preference refers to an individual's satisfaction with and tendency to prioritize utility of a market when purchasing products and goods. The options for preference in this context are BAM and online retail.
- *consensus preference*
    - A consensus preference refers to the consumer preference shared by the majority (approximately 51% or more) of individuals in a sample or population
- *purchase frequency*
    - In the context of this thesis, purchase frequency refers to a sample subject's estimation of his/her frequency of utilization of a specific market within a period of time (within any given month for this study) from a subjective, ordinal Likert scale of descriptive terms for purchase frequency (e.g., rarely, sometimes, often, etc.).

Literature Review

Kukar-Kinney, Scheinbaum, and Schaeffers (2016) compared compulsive and non-compulsive online shoppers in the scenario of deals offered in response to unit sales with a focus on the behaviors of the use of social shopping platforms, purchases on these platforms, and the use of sale certificates when applicable. The sample consisted of 236 participants who completed an online survey submitted to an undefined subject pool of students at an undisclosed university. The results suggested that the time pressure of limited-time offers and the social pressure of generating deals through purchases are primary factors that increase compulsive online shoppers' probability to purchase products on compulsion. The authors propose that the pressures that enable these behaviors are potentially detrimental to consumers because compulsive buyers may be manipulated to make numerous purchases in order to accrue sales vouchers and certificates that they fail to redeem.

Petre, Minocha, and Roberts (2006) investigated how human-computer interaction (HCI) and customer relationship management (CRM) strategies can be incorporated into e-commerce design in order to promote customer retention, trust, and loyalty through comprehension of consumers' requisites and perceptions about service quality. The phase of the study concerned with e-commerce was composed of twelve volunteers who were observed during e-commerce transactions; the authors admitted that the sample was not representative of a diverse e-commerce population. The observations, interviews, and evaluations allowed the authors to develop and refine an evaluation instrument for the total consumer experience, dubbed E-SEQUAL. The authors suggest that E-SEQUAL

can be applied to other electronic domains for the evaluation of user satisfaction, such as e-government platforms and business-to-business e-commerce relationships.

Liu, Xiao, Lim, and Tan (2017) promoted product appeal and website appeal as principal psychological mechanisms for business-to-consumer e-commerce platforms to utilize in alleviating the issues of information asymmetry by improving consumers' purchase intention through trust. Through a marketing research firm, 423 e-commerce consumers were recruited by e-mail invitations, but only 293 viable responses were included in the sample. The results suggested that website appeal has partial influence on the positive effect of product appeal on purchase intention, and trust in e-commerce platforms increases purchase intention while improving the positive relationships between website appeal and purchase intention and between product appeal and purchase intention. Due to the results, the authors recommend that e-commerce platforms improve service qualities most relevant to product and website appeal.

Pappas, Kourouthanassis, Giannakos, and Lekakos (2017) explored consumers' purchase behavior for online shopping through complexity theory in order to assess online shopping experience and to determine online shopping motivations. The sample was composed of 401 Greek citizens recruited through a snowball sampling method. The results suggested nine arrangements of online shopping experiences and motivations that cause higher purchase intentions. The results suggest to researchers and e-commerce retailers alike the development of novel theories in personalized e-commerce and its processes for providing service.

Chiang and Dholakia (2003) investigated consumers' purchase intentions for online shopping through surveys that focused on three variables likely to influence

purchase intention: convenience characteristics of e-commerce platforms, product type characteristics, and perceived product price. The sample consisted of 160 returned questionnaires that had been submitted at random to travelers on a train in Northeast Rhode Island. The results suggested that convenience and product type influence purchase intention for online shopping, purchase intention for online shopping was greater when offline shopping was perceived as inconvenient, and purchase intention for online shopping was greater when a product is perceived as a "search" good rather than an "experience" good.

Karim (2013) examined customer satisfaction in online shopping in order to determine the primary reasons that motivate and inhibit consumers' rationales for online shopping. The sample consisted on sixty respondents to surveys randomly distributed at various locations in Wrexham, North Wales. The results suggested that the major motivations for online shopping are the perceived conveniences of time saving, information availability, ease of use, reduced stress, and price, while inhibitions to online shopping include online payment security, personal privacy, unclear warranties and return policies, and lack of customer service. The author recommended that e-commerce retailers can reduce inhibitions by improving transaction security and consumer privacy, streamlining processes for placing orders, and improving delivery times and return policies.

Larson and Shin (2018) investigated customer reactions to natural disasters because the incredibly disruptive events are difficult to predict or unpredictable yet common. The authors targeted a sample of US residents impacted by Hurricane Matthew, with 231 respondents (n = 231) to investigate the potential relationships among fear

induced by the experience of a natural disaster, perceptions of shopping convenience, and shopping behavior during a natural disaster. The results of the survey suggest that fear induced by the hurricane is inversely related to perception of shopping convenience, in which individuals with higher fear perceived the shopping environment as more difficult and inconvenient (perhaps dangerous); however, individuals with higher fear are also more likely to engage in utilitarian (i.e., practical necessities; e.g., food, water, medicine, batteries, gas fuel, etc.) and hedonic (i.e., excessive, gratuitous, hoarding) shopping behaviors.

Betsch, Korn, Sprengholz, Felgendreff, Eitze, Schmid, and Böhm (2020) investigated the social and behavioral consequences of mandatory and voluntary mask policies related to the efficacies of the policies, stigmatization, and perceived fairness. Serial cross-sectional data from April 14 to May 26, 2020 suggest that mandatory policies tend to increase compliance regardless of moderate acceptance, and the practice of wearing a mask has a positive correlation with other protective behaviors (e.g., hand-washing, social distancing of at least six feet, etc.). Betsch et al.'s experiment (n = 925) further suggests that voluntary policies would likely elicit inadequate compliance, are perceived as less fair, and have the potential to exacerbate stigmatization. The authors suggest that a mandatory mask-wearing policy is a more effective, perceivably fair, and socially responsible countermeasure to mitigate contagion by airborne viruses.

Duygun & Şen (2020) evaluated and compared consumer reports for various nations and Turkey to determine consumer behavior relative to Maslow's hierarchy of needs. The authors suggest that consumer behaviors have prioritized products, goods, and services that satisfy the two lowest, foundational tiers of Maslow's hierarchy:

physiological needs (e.g., air, water, food, shelter, sleep, clothing, and reproduction) and safety needs (e.g., personal security, resources, health, property, etc.). The authors remark on hoarding behaviors with the initial enforcement of mandates for quarantine/"stay-at-home" orders, mask-wearing policies, social-distancing rules, etc. by observing increases in online purchases, increases in gun and ammunition sales in the US (particularly first-time gun purchases; these data may be confounded by concurrent sociopolitical events), and increases in sales of personal protective equipment (PPE; especially masks). While the authors emphasize that consumer behaviors have prioritized satisfaction of physiological and safety needs, they note remarkable increases in sales of products pertaining to home improvement and leisure activities, suggesting a priority for esteem and self-actualization in consumers who have satisfied physiological and safety needs.

Hoenig and Wenz (2020) state that education is a primary cause of health inequality due to its influence on health behavior and living and working conditions, primarily differences in professional opportunities relative to highest level of education completed, and they conducted a survey to investigate health behavior (e.g., social distancing, increased hygiene, mask-wearing, etc.) and working conditions (e.g., working from home, reduced work hours, unemployment, etc.) in different levels of education (i.e., highest level of education completed) during the initial response to the COVID-19 pandemic in Germany. The authors defined three broad levels of education: low (high school education or less), intermediate (associate degree, bachelor's degree, or trade degree), and high (master's degree or higher). For all three educational levels, more than 75% of respondents reported compliance with recommended social-distancing and hygiene behaviors, with a difference less than 10% between any two groups. Highly

educated respondents reported a probability of over 45% to work from home; intermediately educated respondents reported a probability of 17%; and, lowly educated respondents reported a probability of 11%. The authors suggest that socioeconomic and occupational inequalities in the risk of infection by COVID-19 primarily result from differences in working conditions, such as the inability to work from home for low socioeconomic occupations, rather than differences in health behaviors.

Jeżewska-Zychowicz, Plichta, and Królek (2020) investigated the potential of trust in circulating information and perceived stress as predictors for consumers' fear/paranoia of restricted access to food and for food purchase behaviors during the COVID-19 pandemic. The authors utilized online video-conferencing to perform interviews with 1,033 Polish adults in March 2020, and then they utilized logistic regression to estimate probability of fear of restricted access to food and the probability to purchase greater amounts of food than usual. The authors suggest the probability of experiencing the fear of restricted access to food increased by 16% with higher perceived stress, by 50% with higher trust in "mass media and friends" (i.e., circulating information), and by 219% with perceived changes in food availability within the previous month; however, trust in "Polish government institutions" decreased the probability of fear by 22%. The probability of purchasing significantly more food than usual increased by 9% with higher perceived stress, by 46% with trust in circulating information, by 81% with perceived changes in food availability in the previous month, and by 130% with fears of restricted access to food as the pandemic escalates. The authors suggest that government institutions may struggle to disseminate information and recommendations regarding the pandemic through mass media due to the inefficacy upon

individuals exhibiting low trust for media organizations and, more significantly, due to the increasing probability of the aforementioned fears and panic-induced food-hoarding behaviors as trust in mass media increases. The authors recommend the development of interventions to reduce perceived stress and increase trust in information from reputable, accredited sources.

Kaur, Kunasegaran, Singh, Salome, and Sandhu (2020) conducted a survey to investigate Malaysian consumer behavior (i.e., consumption behaviors, purchase frequency, transaction lot sizes, etc.) during the first phase of movement order control (MCO) and lockdowns mandated in response to COVID-19. The authors were specifically concerned with the influences of depression, uncertainty, panic, and fear on consumption behaviors. The study featured 231 respondents (n = 231) chosen by convenience sampling. The results of the study demonstrate mass and social media were perceived by consumers as instrumental in evaluating the severity of the crisis, and their consumer behaviors adapted commensurately to the perceived severity of the crisis. The authors propose that Malaysian Fear of Missing Out (FoMO) was a vital variable in consumer behavior during initial MCO, and likely it is a vital variable in consumer behavior in identical crisis scenarios.

Laato, Islam, Farooq, and Dhir (2020) investigated unusual consumer behaviors (e.g., hoarding toilet paper) during the COVID-19 pandemic. The authors utilized the stimulus-organism-response (SOR) framework to compose a structural model for the relationship of exposure to online information sources (i.e., environmental stimuli) to the behaviors of unusual purchases and voluntary self-isolation. The authors conducted an online survey with 211 Finnish respondents, and they discovered a strong relationship

between self-intention to isolate and intention to make unusual purchases, suggesting that the reported consumer behavior was directly related to anticipated time of isolation. The study further suggests exposure to online information sources caused as increase of information overload (i.e., circulation of inconsistent, contradictory, and opinion-based information) and cyberchondria (i.e., a form of hypochondria, in this instance for contraction of COVID-19, induced by perceived or unfounded common symptomology from review of online medical literature in the attempt of self-diagnosis). Moreover, the authors determined information overload was a strong predictor of cyberchondria. The perceived severity of the crisis and cyberchondria had significant influence upon intention for unusual purchases and voluntary isolation.

Nguyen, Hoang, Tran, Vu, Fodjo, Colebunders, Dunne, and Vo (2020) conducted a survey from March 31 to April 6, 2020 to evaluate the compliance of Vietnamese adults to COVID-19 preventative measures and to investigate the effects of the pandemic on their daily lives. The survey assessed personal preventative behaviors (e.g., social distancing, mask-wearing, consistent handwashing, etc.) and community preventative behaviors (e.g., isolation, avoiding large gatherings, etc.). The survey featured 2,175 respondents and yielded a mean adherence score of 7.23 ± 1.63 on a scale from 1-9 for personal preventative measures and a mean adherence score of 9.57 ± 1.12 on a scale from 1-11 for community preventative measures. Perceived adaptation of the community to lockdown procedures, fears/concerns for one's health, residence in large cities, access to official sources for COVID-19 information, and healthcare professions/education were associated with higher adherence scores to anti-COVID instructions. The authors suggest

there is high compliance with personal and community preventative behaviors among Vietnamese residents.

Parlapani, Holeva, Voitsidis, Blekas, Gliatas, Porfyri, Golemis, Papadopoulou, Dimitriadou, Chatzigeorgiou, Bairachtari, Patsiala, Skoupra, Papigkioti, Kafetzopoulou, and Diakogiannis (2020) conducted an online study from April 10 to April 13, 2020 to investigate COVID-19-related fear, depression and anxiety symptoms, social responsibility, and behavioral responses during the COVID-19 pandemic in Greece. The sample consisted of 3,029 respondents who met inclusion criteria. 35.7% of the sample reported high levels of fear, 22.8% reported moderate to severe depressive symptoms, and 77.4% reported moderate to severe anxiety symptoms.

Sheth (2020) examined existing literature related to COVID-19 to determine trends in adaptive behaviors. First, punctuated periods of hoarding have been reported globally, particularly for personal protective equipment and hygienic products. Second, consumers have become resourceful and creative in improvisations to operate within the restraints of COVID-19 mandates and policies for events (e.g., sidewalk weddings, Zoom funeral services, etc.) and resource acquisition. Third, restrictions for events (e.g., movies, concerts, etc.) have created pent-up demand for consumers who are denied access. Fourth, out of necessity, the convenience of availability and utility, and the boredom of quarantine/lockdown procedures, consumers have embraced digital technology for information, communication, commerce, and entertainment. Fifth, consumers have increased reliance on e-commerce, home delivery, and digital media, particularly in countries with strict lockdown procedures. Sixth, for individuals able or required to work from home experience an unclear boundary between work and home.

Seventh, people tend to treat social reunions after the separation of lockdown orders with greater significance. Eighth, the increased availability of leisure time has allowed people to discover or refine talents. Sheth suggests consumer and social behaviors will resume a semblance of normalcy eventually, but existing consumer behaviors and value stream processes will become modified to comply with health regulations and to increase market access. New consumer behaviors will emerge from legislation and policies, technological innovation and invention, and shifts in dynamic demographics (e.g., age).

Teng-Calleja, Caringal-Go, Manaois, Isidro, and Zantua (2020) conducted an online survey in the Philippines to investigate organizational responses and personnel coping behaviors intended to mitigate the effects of the COVID-19 pandemic. The authors utilized crisis in context theory (CCT) as an ecological framework to study human behavior, and they also incorporated perspectives from psychology, organization development, and management. The sample included 216 employed residents of the Philippines. The study identified six organizational actions/responses to facilitate personnel adaptation to the crisis: 1) flexible work arrangements (i.e., schedule changes, workhour changes, working from home, etc.) , 2) mental health programs (e.g., social media groups), 3) physical health and safety measures (i.e., personal protective equipment, social-distancing rules, temperature checks, etc.), 4) financial support (i.e., early disbursement of salaries and benefits, advances, cash loans, suspension of loan deductions, hazard pay for onsite personnel, subsidized payments for remote workers, and processing government aid), 5) provision of material resources (e.g., requisite technological resources for remote operation, temporary housing and amenities, transportation, groceries and vitamins, etc.), and 6) communication of short- and long-

term plans and goals. The authors extracted seven themes for individual coping strategies: 1) task-focused coping (i.e., remaining "busy" or occupied with tasks and feasible goals), 2) stress management (i.e., stress-relieving activities like hobbies and leisure activities), 3) social coping (i.e., comfort and security in social relationships), 4) cognitive strategies (i.e., mental exercises to relieve stress and anxiety, particularly perseveration), 5) learning and development activities (i.e., learning or refining knowledge and skills; discovering talents), 6) faith-oriented coping, and 7) maladaptive strategies (i.e., the development of behaviors that adversely affect physical and/or mental health, social relationships, etc.; e.g., substance abuse, verbal and physical abuse of others, self-harm, etc.). The authors' qualitative analysis by CCT identified interrelationships between organizational responses and personnel actions, in which organizational responses (e.g., permission or requirement to work from home with necessary technological resources to operate remotely) enabled/facilitated individual coping strategies and behaviors.

Neger and Uddin (2020) conducted a study to investigate the factors influencing consumers' online shopping behavior during the COVID-19 pandemic in Bangladesh. The authors measured the influence of the following factors: product, price, time saving, payment, security, administrative, and psychological. The authors conducted interviews by an online survey sampling method from May 10 to June 10, 2020 with 230 Bangladeshi online consumers (n = 230), and the interviews were structured with a questionnaire with five-point Likert scales for responses. The authors analyzed data utilizing descriptive statistics analysis, reliability analysis, and multiple regression

analysis. The results suggest that all factors except price and security had significant, positive associations with online shopping behavior during the COVID-19 pandemic.

Wachyuni and Kusumaningrum (2020) conducted a descriptive study of tourist travel intentions for Indonesia from February to April 2020 with a sample of 128 respondents (n = 128) obtained by simple random sampling through WhatsApp broadcast messages. Sample subjects competed a questionnaire, and the authors conducted simple quantitative analyses

(i.e., descriptive statistics analysis) of the data. The results suggest 78% of respondents would return to Indonesia on tour, approximately 65% intend to travel to Indonesia within six months after the pandemic is "officially" declared "over," and 66% report a preference for nature tourism. The majority of respondents reported a preference for a short-period tour (i.e., 1-4 days). The results suggest travel intention mean is greater than travel anxiety (the authors treat the Likert-scales as continuous, which is debatably acceptable but atypical). The authors construed optimism for the quick recovery of the Indonesian tourist industry due to the reported travel intentions and preferences.

Wang, An, Gao, Kiprop, and Geng (2020) analyzed food stockpiling (i.e., hoarding) behavior, including the changes in food reserve scale and willingness to purchase fresh food reserves during the COVID-19 pandemic in China. The authors suggest that the scale of food reserve ranges from 3.37 to 7.37 days (i.e., estimated days of food per household) after the initial reports of COVID-19; if fresh food reserves were available, consumers were willing to pay a premium of 60.47% (mean of 18.14 yuan) for fresh reserves. The authors suggest food hoarding is propelled by a set of multiple motivations and subjective risk perception. The authors' characterization of

demographics suggest highly educated female and high-income consumers were more likely to reserve larger scale food reserves (i.e., hoard food), and willingness to pay premiums for fresh reserves increased with income.

The existing literature pertaining to the social, industrial, and economic effects of the COVID-19 pandemic demonstrate global trends in consumer behavior changes (e.g., an increase in hoarding behavior and online shopping), perception changes (e.g., perception of crisis severity and trust in mass media), health and safety mandates for preventative behaviors (e.g., social distancing, consistent hand-washing, mask-wearing, etc.), public compliance with mandates, and organizational actions/responses to mandates to maintain operations in compliance and to facilitate personnel. While some studies have investigated consumer motivations, adaptive consumer behaviors, and mental health coping strategies, there is an absence of research investigating VOC to identify estimations for purchase frequency through either market type (BAM or e-commerce) or general preferences for market types in the contexts of different product categories.

Methodology

The study will employ pragmatic philosophy with a convergent mixed methods design to allow flexible adaptation to best understand the research problem within the current social and economic paradigms (Creswell, 2014, p. 39-40) through the analysis of demographic information and ranked responses between two temporal periods. The researcher designed a survey that will require sample subjects to estimate purchase frequency for both markets and report a general preference for either market in the temporal periods before and after the pervasive effects of the global COVID-19 pandemic. Subjects will report purchase frequency through subjective, ordinal Likert scales and a general preference for a market through a selection between BAM and online retail. The survey will investigate estimated purchase frequency for typical purchases (i.e., any and all purchases within a period of time) and for three distinct categories of products and goods: apparel, electronics, and groceries. The survey will then utilize descriptive statistics and differences of rank/preference to assess the survey responses for potential differences in estimated purchase frequency between markets within temporal periods, changes in estimated purchase frequency within markets between temporal periods, and changes in market preference after the systemic effects of the global pandemic.

Participants and Sample

The surveys will be distributed to the students and faculty of Ogden College at Western Kentucky University (WKU) via the university's internal e-mail system to obtain a representative sample of the college-educated, adult population of the United States. The principal investigator has readily available access to the population. The

population consists of college-educated, adult consumers of various combinations of the demographics of gender, age, ethnicity, and education level. The study requires at least fifty respondents for a representative sample ($n \geq 50$).

Variables

The researcher intends to compare estimations for purchase frequency and preferred market before and after the pervasive effects of the global COVID-19 pandemic. The social and economic paradigms of the two time periods represent independent variables that influence consumer behaviors (i.e., purchase frequency), preferences, and requirements. The responses to survey questions pertaining to purchase frequency occur on a seven-point Likert scale: never (1), rarely (2), sometimes (3), half the time (4), often (5), most of the time (6), and always (7); responses pertaining to preference are close-ended between BAM and online retail. The survey responses represent dependent variables that are influenced by the contemporary social and economic paradigm. Any identity descriptors reported through demographic information and unknown idiosyncratic consumer motivations and behaviors represent confounding variables that influence purchase frequency and preference.

Instrumentation and Materials

The researcher has composed a simple survey (Figure 1) to collect data of estimated purchase frequencies per market and preferences during the time periods before and after the pervasive effects of COVID-19. The survey is intentionally designed to be completed in under five minutes to encourage participation, and the language of questions is simple and unambiguous. The first section of the survey contains four questions pertaining to demographic information for gender, age, ethnicity, and highest

level of education completed. The core structure of the remainder of the survey consists of three questions: 1) How frequently do you shop in person at a store? 2) How frequently do you shop online for home delivery? 3) Which experience do you prefer? These three questions are repeated for typical shopping, apparel shopping, electronics shopping, and grocery shopping for each temporal period, yielding a total of 24 questions.

The researcher designed a subjective, ordinal Likert scale for sample subjects to estimate purchase frequencies for each market from the period of time stated in the question. The scale is intentionally designed to investigate consumers' personal estimations of how frequently they utilize either market when shopping from subjective descriptions of frequency because individual consumer habits and available capital for transactions are highly variable and disproportionate; the researcher intends to investigate the estimated proportions of purchases conducted through each market for different product categories, and sample subjects are likely to report truly inaccurate quantitative estimations for purchase frequency. The descriptors of the Likert scale are subjective yet distinct, and they are intended to elicit an intuitive, quick response that better reflects VOC than dwelling on equally broad quantitative estimations. The Likert scale features seven descriptors ranging from "never" to "always:" never (1), rarely (2), sometimes (3), half the time (4), often (5), most of the time (6), and always (7).

The third core question is closed-ended with the choice between BAM and online retail. Within each temporal period and for each product category, the sample subjects will report a preference for either market. The researcher intends to identify consensus preferences in the sample population for each product category within each time period

and to determine if changes have occurred in consensus preferences from the social and economic effects of the global COVID-19 pandemic.

Preferred Market Survey

Thank you for taking the time to complete this survey. Answer questions to the best of your ability.

Estimated time to complete: 5 minutes

Please volunteer your demographic information. If you choose to decline, answer "prefer not to say."

1	What is your gender?	Female	Male	Other: _____	Prefer not to say				
2	What is your age?	18-25	26-35	36-45	46-55	55-64	65+	Prefer not to say	
3	What is your ethnicity?	Caucasian	African-American	Latino or Hispanic	Asian	Native American	Native Hawaiian or Pacific Islander	Other	Prefer not to say
4	What is your highest level of education completed?	High school or equivalent	Associate's degree	Bachelor's degree	Master's degree	Doctorate degree	Trade degree	Prefer not to say	

***Before* the Effects of the COVID-19 Pandemic**

Answer the following questions based on your shopping experiences ***before*** the COVID-19 pandemic.

5	In any month, how frequently did you buy clothing and apparel in person at a store?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
6	In any month, how frequently did you order clothing and apparel online for home delivery?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
7	Which experience did you like more?	In person	Online					

8	In any month, how frequently did you buy electronics in person at a store?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
9	In any month, how frequently did you order electronics online for home delivery?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
10	Which experience did you like more?	In person	Online					

11	In any month, how frequently did you buy groceries in person at a store?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
12	In any month, how frequently did you order groceries online for home delivery?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
13	Which experience did you like more?	In person	Online					

14	In general, how frequently did you shop in person at a store?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
15	In general, how frequently did you shop online for home delivery?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
16	Which experience did you like more?	In person	Online					

***After* the Effects of the COVID-19 Pandemic**

Answer the following questions based on your shopping experiences ***after*** the COVID-19 pandemic.

17	In any month, how frequently do you buy clothing and apparel in person at a store?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
18	In any month, how frequently do you order clothing and apparel online for home delivery?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
19	Which experience do you like more?	In person	Online					

20	In any month, how frequently do you buy electronics in person at a store?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
21	In any month, how frequently do you order electronics online for home delivery?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
22	Which experience do you like more?	In person	Online					

23	In any month, how frequently do you buy groceries in person at a store?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
24	In any month, how frequently do you order groceries online for home delivery?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
25	Which experience do you like more?	In person	Online					

26	In general, how frequently do you shop in person at a store?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
27	In general, how frequently do you shop online for home delivery?	Never	Rarely	Sometimes	Half the time	Often	Most of the time	Always
28	Which experience do you like more?	In person	Online					

Figure 1. Preferred Market Survey

Procedures

The researcher will disseminate invitations to the survey to WKU students and faculty of Ogden College through the university's internal e-mail system. The estimated date to initiate survey dissemination is February 1, 2021. The researcher will issue the invitations every Monday at 7:00 am (CST), and the surveys will remain active until 11:59 PM the following Sunday. The researcher will issue surveys by this pattern from February 1, 2021 through February 22, 2021 for a total of four data collection cycles. Sample subjects may only respond to the survey once. The researcher requires at least 50 respondents for a representative sample ($n \geq 50$). Upon completion of the final data collection cycle at 11:59 PM on February 28, 2021, the researcher will begin quantitative and qualitative analyses of the compiled data for the sample.

Method of Data Analysis

The principal investigator will utilize descriptive statistics analysis to characterize the frequency distributions of responses for each question to determine potential consensus purchase frequencies and preferences for market. Then, the principal investigator will assign numerical ranks to responses to examine the individual and net differences/changes in purchase frequencies and changes in preferences between paired survey questions. The possible combinations of survey question comparisons include the comparison between markets for a product category within a temporal period, the comparison of the previous article between temporal periods, and the comparison of a market for a product category between temporal periods. Utilizing a confidence interval of $\alpha = 0.05$, the criteria to satisfy a statistically significant difference (or "change" for comparison of temporal periods) between the distributions of responses for a pair of

survey questions are as follows: there is a difference in median and/or mode of at least ±1 AND there is a directional net difference/change of 4 or more individual reports [if α = 0.05, a difference of ranks between markets or a change of ranks within a market between temporal periods of $n \geq 4$ (n = 61, 61 x 0.05 = 3.05 » 4) indicates a statistically significant difference/change that is likely not random], AND there are remarkable differences in distribution shape, primarily skew (note: distributions are assumed to non-parametric, but the distributions of paired responses can be assumed to be identical if independent variables have no influence because the participants are known to be the same across all survey questions, which allows comparison of distribution shape between any permissible pair; differences in distribution characteristics and statistically significant net differences/changes of rank/preference indicate an independent variable likely does influence consumer behaviors and, thus, survey responses). With the knowledge of distributions and statistically significant differences between temporal periods, the researcher will interpret the relationship of consumer market preference with estimated purchase frequency through each market and the potential causation relationships for changes in purchase frequencies and preferences after the pervasive social and economic effects of the global COVID-19 pandemic in comparison to existing literature.

Threats to Validity

As the survey design is novel, validity and reliability are unknown. The distributions of survey responses are assumed to be non-parametric and the data are ordinal, thus quantitative analyses are prohibited. The comparisons of medians, modes, net rank/preference differences/changes, and distribution shapes lack the validity and reliability of quantitative analyses, but they can adequately assess statistically significant

differences between distributions upon satisfying the principal investigator's criteria. The study intends to collect a random sample through voluntary respondence, but the study will likely become biased toward specific demographics for age and highest level of education due to the target population. Furthermore, the validity of responses depends significantly upon the participants' gravity and honesty; thus, the potential exists for participants to report false information intentionally for personal amusement. Any analysis requires a minimum of $n = 30$ for adequate power, but the principal investigator desires a sample size of $n \geq 50$ to improve power. Any individual demographic represented within the sample will likely lack the statistical power for any accuracy or meaningful practical significance to suggest trends in consumer behavior specific to an individual demographic.

Results

During February 2021, the survey invitations were issued via e-mail to the student and faculty population of WKU's Ogden College (N = 1195) on February 1st, February 8th, and February 18th. Due to security concerns, the principal investigator, as a student, was not permitted access to the mailing list for Ogden College, therefore requiring the dissemination of e-mail surveys by a faculty member with permitted access. Thus, the procedure for data collection deviated from the reported plan, in which survey invitations were not issued according to the reported schedule. Nevertheless, on March 1, 2021, the principal investigator closed the survey to further response, yielding 72 respondents, of which 11 were excluded due to failure to complete the survey. Only respondents who had successfully reported ranks for every pair of purchase frequency questions are included in data analysis (n = 61).

Demographics Distributions

The first four questions of the survey request demographic information for gender, age, ethnicity, and highest level of education completed (Q1-Q4 respectively). While the sample size (n = 61) satisfies the statistical power to analyze the sample as a whole with adequate validity, there are few individual identifiers that meet the minimum size (n = 30) to represent a specific demographic with any remarkable validity or accuracy in regard to potential trends or associations with reported ranks/preferences or changes in ranks/preferences between temporal periods (i.e., *before* and *after* the systemic effects of the pandemic).

Gender

The sample is composed of nearly two-thirds males (n = 38; 62.30%), slightly over one-third female (n = 22; 36.06%), and a single respondent who prefers not to report gender (1.64%) (Table 1; Figure 2).

Gender Distribution		
Gender	**Count**	**%**
Female	22	36.06
Male	38	62.30
Other	0	0.00
Prefer not to say	1	1.64
Total	61	100.00

Table 1. Gender Distribution

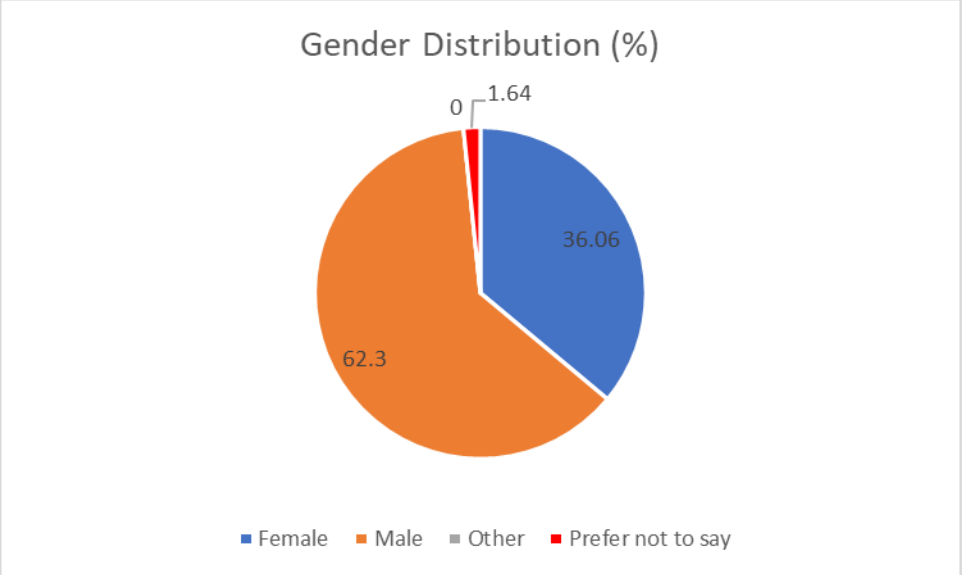

Figure 2. Gender Distribution (%)

Age

The sample demonstrates some variety in the distribution of age ranges, in which 63.93% (n = 39) respondents are 18-25 years old, and the distribution skews toward the older age ranges (Table 2; Figures 3 and 4); when compared with the highest level of education completed, the principal investigator can infer that the majority of 18-25 year-

olds in the sample are students and the spike in the quantity of 55-64 year-olds is likely attributed to faculty members with master's and/or doctorate degrees.

Age Distribution		
Age Range	**Count**	**%**
18-25	39	63.93
26-35	5	8.20
36-45	5	8.20
46-55	2	3.28
56-64	6	9.84
65+	1	1.64
Prefer not to say	3	4.92
Total	**61**	**100.01**

Table 2. Age Distribution

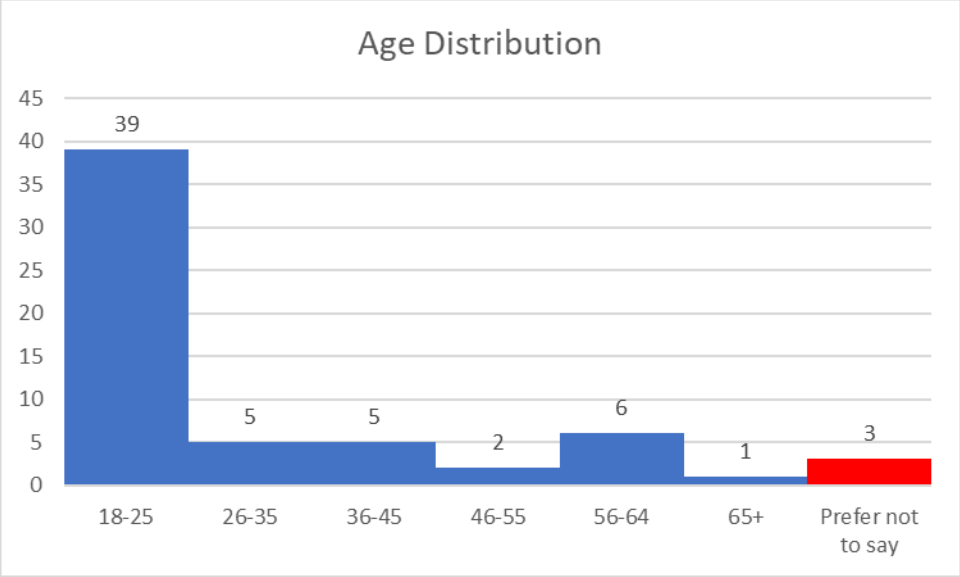

Figure 3. Age Distribution Histogram

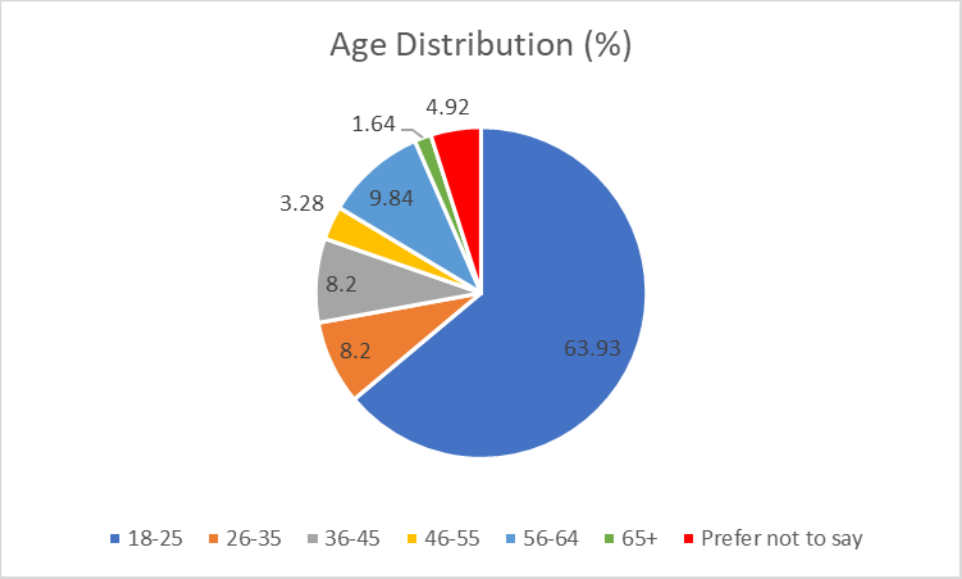

Figure 4. Age Distribution (%)

Ethnicity

A vast majority of the sample identifies as Caucasian (n = 48; 78.69%) (Table 3; Figure 5), which is technically an umbrella term for a plethora of distinct European cultures who are associated by a common pale skin tone and cultural similarities; thus, the proportion of the sample identifying as Caucasian may actually represent a greater diversity of ethnic heritages, but the homogeneity of American culture negates the relevance of such a notion or that pertaining to any other ethnicity choice in the survey. The second greatest proportion of the population is composed of four individuals who prefer not to report ethnicity (6.56%). Next, another three individuals identify as "other" (4.92%), which is nearly as nondescript as reporting "prefer not to say," but these individuals still demonstrated a willingness to report ethnicity if only the accurate identifier was an available choice. Otherwise, the remainder of the sample consists of two individuals who identify as African-American (3.28%), three who identify as Hispanic or Latino (4.92%), and one who identifies as Asian (1.64%). While the aforementioned demographics of ethnicity tend to be broader in constituency, the most specific choices

for ethnicity, Native American and Native Hawaiian or Pacific Islander, are not represented in the sample.

Ethnicity Distribution		
Ethnicity	**Count**	**%**
Caucasian	48	78.69
African-American	2	3.28
Hispanic or Latino	3	4.92
Asian	1	1.64
Native American	0	0.00
Native Hawaiian or Pacific Islander	0	0.00
Other	3	4.92
Prefer not to say	4	6.56
Total	**61**	**100.01**

Table 3. Ethnicity Distribution

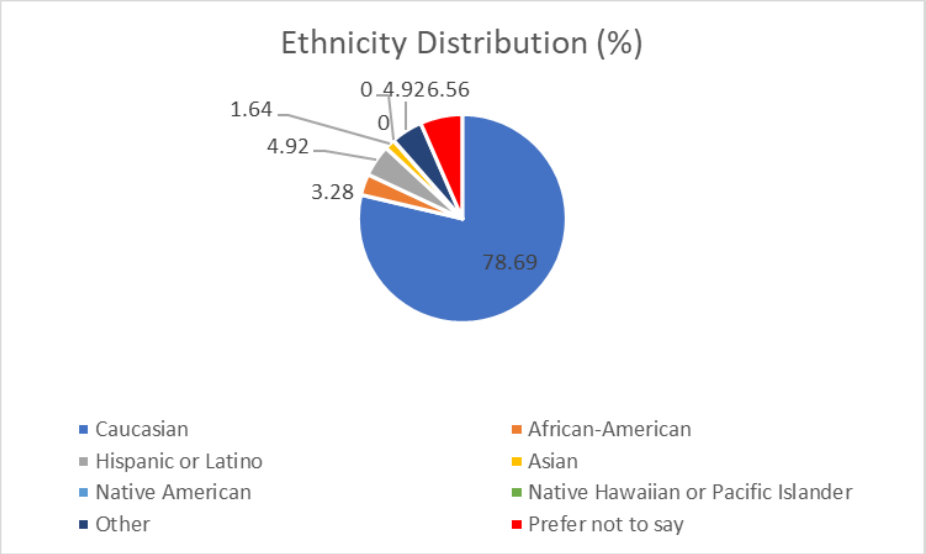

Figure 5. Ethnicity Distribution (%)

Highest Level of Education Completed

The sample's characterization of the highest level of education completed reflects a similar distribution to age, in which the majority of the sample is composed of individuals with high school or equivalent (e.g., GED) (n = 26; 42.62%) as the highest level of education completed, and the distribution skews toward the higher levels of education (Table 4; Figure 6). No respondents report completion of a trade degree,

licensure, or certification. The majority of individuals reporting high school or equivalent, an associate degree, or a bachelor's degree are likely current students, and the majority of individuals with master's or doctorate degrees are likely faculty members.

Distribution of Highest Level of Education Completed		
Highest Level of Education Completed	**Count**	**%**
High school or equivalent	26	42.62
Associate's degree	11	18.03
Bachelor's degree	12	19.67
Master's degree	3	4.92
Doctorate degree	8	13.11
Trade degree	0	0.00
Prefer not to say	1	1.64
Total	**61**	**100.00**

Table 4. Distribution of Highest Level of Education Completed

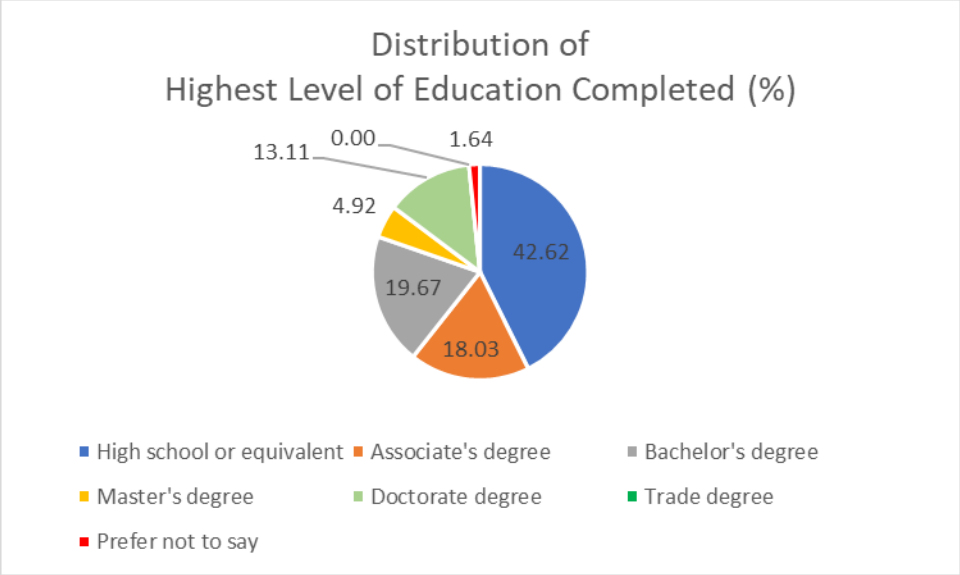

Figure 6. Distribution of Highest Level of Education Completed (%)

Purchase Frequency Ranks and Market Preferences

Sample Rank and Market Preference Distributions

Q5: Estimated Purchase Frequency for Apparel through BAM (Pre-pandemic)

The median and mode of the sample is Rank 3 (Sometimes), and the distribution skews toward higher ranks (Table 6; Figure 7). There are 47 respondents reporting Ranks 1, 2, and 3 (the low to moderate purchase frequency region of the Likert scale; Table 5) (77.05%), whereas 12 respondents report Ranks 5, 6, and 7 (the moderate to high purchase frequency region of the Likert scale) (19.67%). The distribution of estimated purchase frequency ranks suggests a majority of the sample had low to moderate purchase frequency for apparel through BAM before the effects of the pandemic.

Likert Scale Rank Assignments	
Survey Choice	**Rank**
Never	1
Rarely	2
Sometimes	3
Half the time	4
Often	5
Most of the time	6
Always	7

Table 5. Likert Scale Rank Assignments

Purchase Frequency Rank Distributions																
	Pre-pandemic Effects								Post-pandemic Effects							
	Q5	Q6	Q8	Q9	Q11	Q12	Q14	Q15	Q17	Q18	Q20	Q21	Q23	Q24	Q26	Q27
Rank 1	4	11	8	11	3	42	0	5	9	7	13	10	3	30	3	5
Rank 2	20	21	25	14	4	11	5	12	23	23	29	13	5	14	12	14
Rank 3	23	17	17	14	3	2	11	19	16	15	12	14	5	6	17	15
Rank 4	2	6	3	6	4	3	13	12	3	3	3	6	4	2	10	7
Rank 5	3	4	2	11	8	2	12	11	3	7	1	8	5	4	10	12
Rank 6	7	2	3	4	8	0	12	2	5	3	1	6	13	2	7	7
Rank 7	2	0	3	1	31	1	8	0	2	3	2	4	26	3	2	1
Median	3	2	2	3	7	1	5	3	2	3	2	3	6	2	3	3
Mode	3	2	2	2, 3	7	1	4	3	2	2	2	3	7	1	3	3

Table 6. Purchase Frequency Rank Distributions

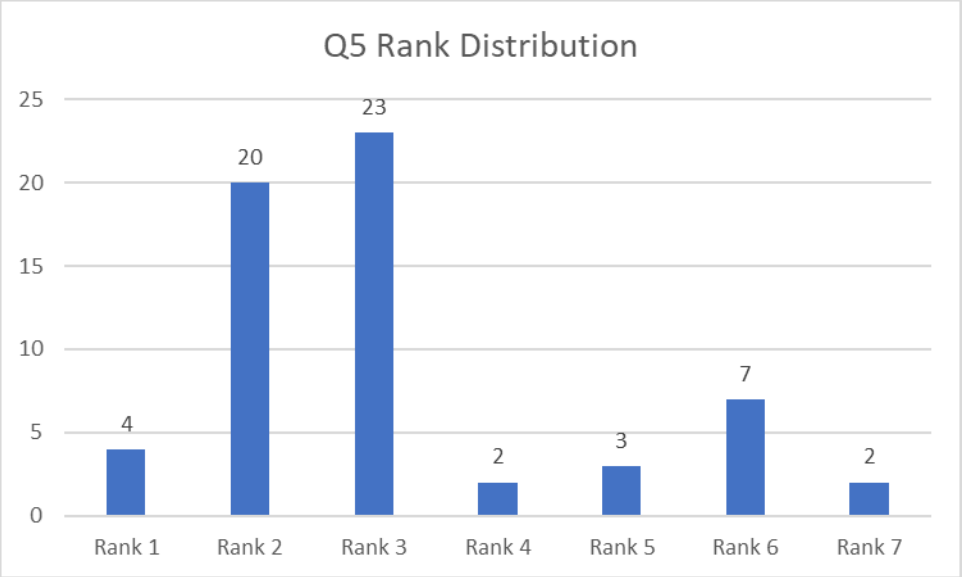

Figure 7. Q5 Purchase Frequency Rank Distribution

Q6: Estimated Purchase Frequency for Apparel through Online Retail (Pre-pandemic)

The median and mode of the sample is Rank 2 (Rarely), and the distribution skews toward higher ranks (Table 6; Figure 8). There are 49 respondents reporting Ranks 1, 2, and 3 (80.33%), whereas six respondents report Ranks 5, 6, and 7 (9.84%). The distribution of estimated purchase frequency ranks suggests a majority of the sample had

very low to moderate purchase frequency for apparel through online retail before the effects of the pandemic.

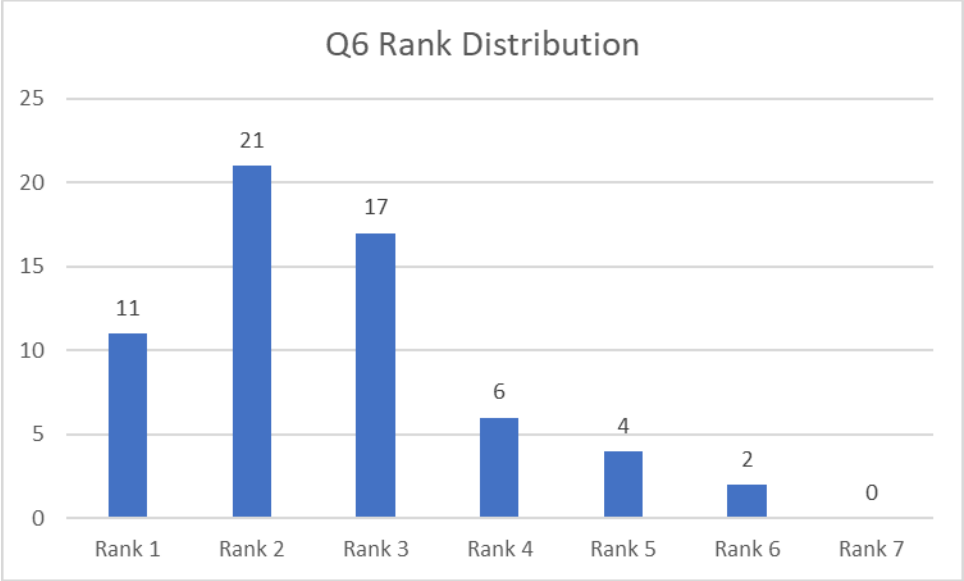

Figure 8. Q6 Purchase Frequency Rank Distribution

Q7: Market Preference for Apparel (Pre-pandemic)

The sample distribution of market preference is 46 respondents who report a preference for BAM (75.41%), 13 respondents who report a preference for online retail (21.31%), and two respondents who do not report a preference (3.38%) (Table 7; Figure 9). The distribution of market preference suggests a majority of the sample preferred purchasing apparel through BAM before the effects of the pandemic, but over a fifth of the sample preferred utilizing online retail.

Preference Distributions								
	Pre-pandemic Effects				Post-pandemic Effects			
	Q7	Q10	Q13	Q16	Q19	Q22	Q25	Q28
BAM	46	22	52	38	42	21	51	34
Online	13	38	7	23	18	39	9	25
N/A	2	1	2	0	1	1	1	2

Table 7. Preference Distributions

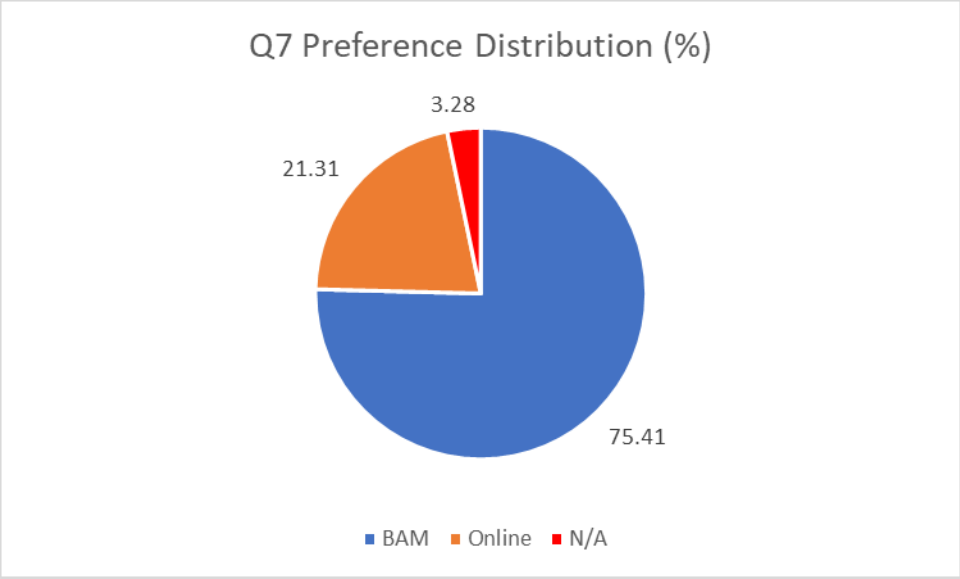

Figure 9. Q7 Preference Distribution (%)

Q8: Estimated Purchase Frequency for Electronics through BAM (Pre-pandemic)

The median and the mode of the sample is Rank 2 (Rarely), and the distribution skews into a plateau toward higher ranks (Table 6; Figure 10). There are 50 respondents reporting Ranks 1, 2, and 3 (81.97%), whereas eight respondents report Ranks 5, 6, and 7 (13.11%). The distribution of estimated purchase frequency ranks suggests a majority of the sample had low to moderate purchase frequency for electronics through BAM before the effects of the pandemic.

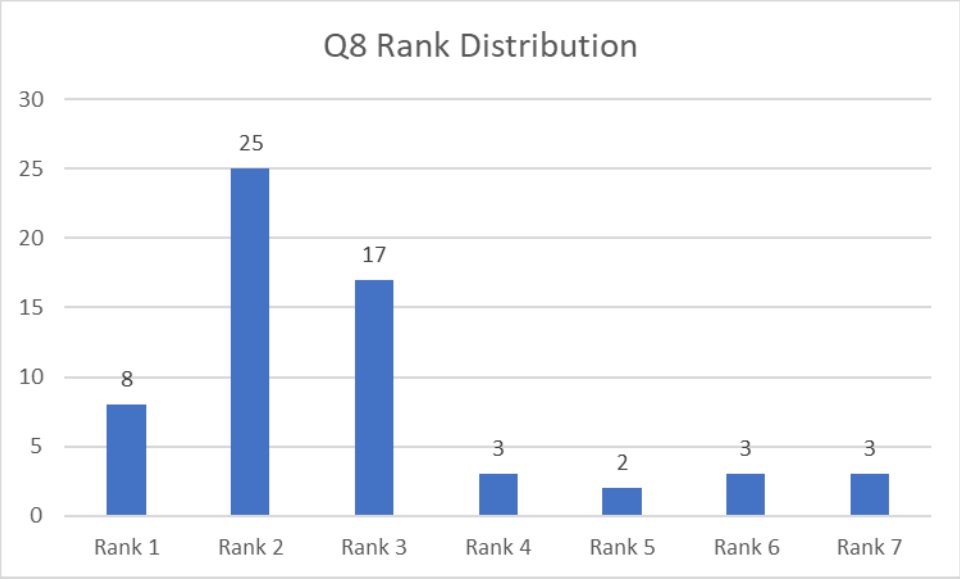

Figure 10. Q8 Purchase Frequency Rank Distribution

Q9: Estimated Purchase Frequency for Electronics through Online Retail (Pre-pandemic)

The median of the sample is Rank 3 (Sometimes), the modes are Ranks 2 and 3 (Rarely and Sometimes), and the distribution is relatively even around the bimodality of Ranks 2 and 3 before skewing toward higher ranks past Rank 5 (Table 6; Figure 11). There are 39 respondents reporting Ranks 1, 2, and 3 (63.93%), whereas 16 respondents report Ranks 5, 6, and 7 (26.23%). The distribution of estimated purchase frequency ranks suggests a majority of the sample had very low to moderate purchase frequency for electronics through online retail before the effects of the pandemic, but over a quarter of the sample report moderate to high purchase frequency.

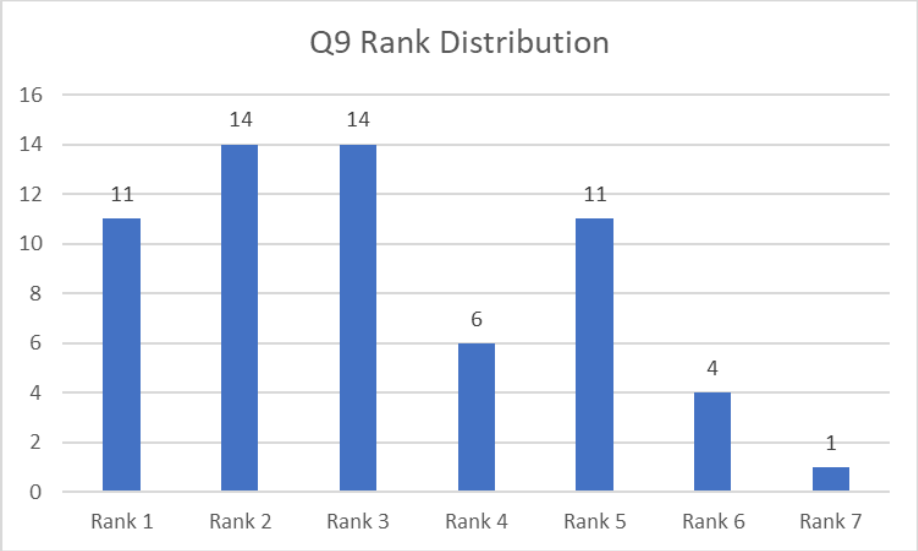

Figure 11. Q9 Purchase Frequency Rank Distribution

Q10: Market Preference for Electronics (Pre-pandemic)

The sample distribution of market preference is 22 respondents who report a preference for BAM (36.07%), 38 respondents who report a preference for online retail (62.30%), and one respondent who does not report a preference (1.64%) (Table 7; Figure 12). The distribution of market preference suggests a majority of the sample preferred purchasing electronics through online retail before the effects of the pandemic, but over a third of the sample preferred utilizing BAM.

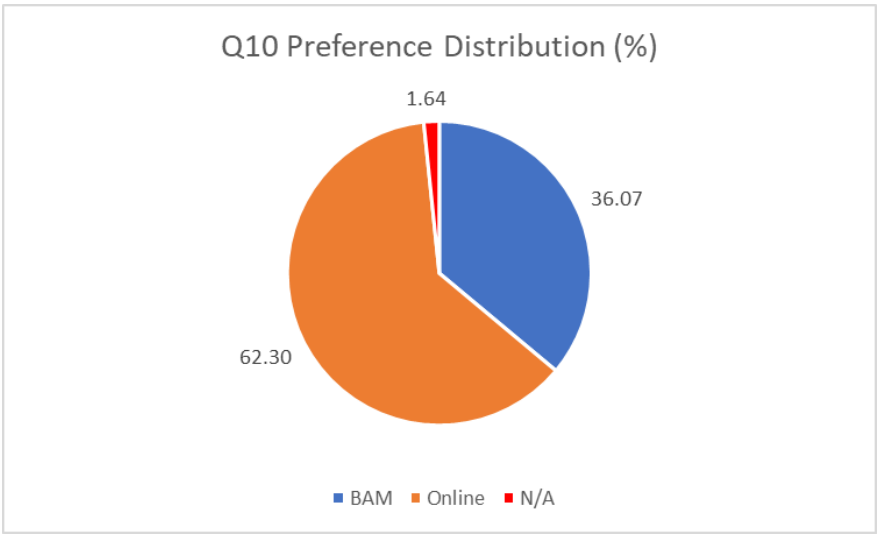

Figure 12. Q10 Preference Distribution (%)

Q11: Estimated Purchase Frequency for Groceries through BAM (Pre-pandemic)

The median and mode of the sample is Rank 7 (Always), and the distribution skews severely toward lower ranks below Rank 7 and diminishes in a step pattern of plateaus from Rank 6 to Rank 5 and from Rank 4 to Rank 1 (Table 6; Figure 13). There are ten respondents reporting Ranks 1, 2, and 3 (16.39%), whereas 47 respondents report Ranks 5, 6, and 7 (77.05%), of which 31 report Rank 7 (50.82%). The distribution of estimated purchase frequency ranks suggests a majority of the sample, with literally half the sample reporting the highest purchase frequency rank, had very high purchase frequency for groceries through BAM before the effects of the pandemic.

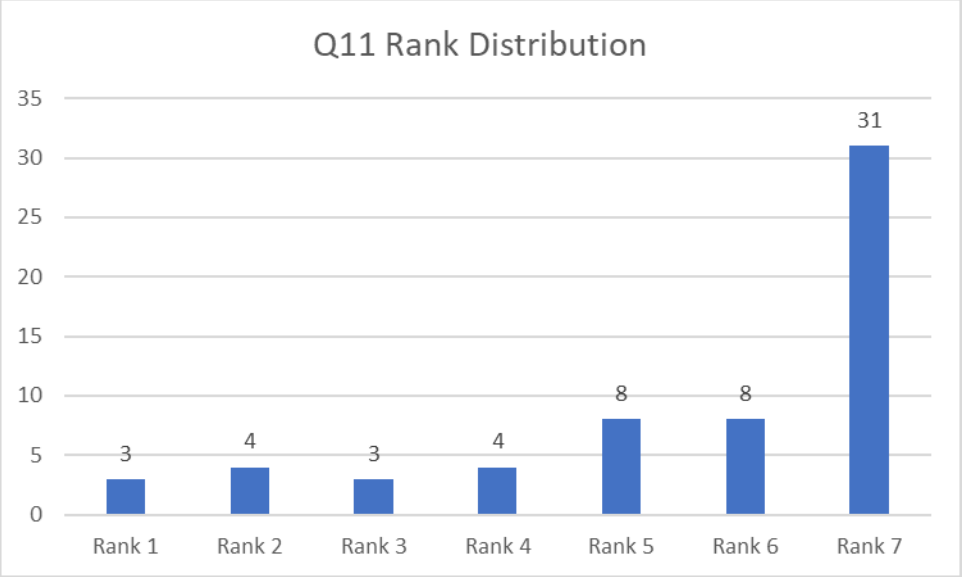

Figure 13. Q11 Purchase Frequency Rank Distribution

Q12: Estimated Purchase Frequency for Groceries through Online Retail (Pre-pandemic)

The median and mode of the sample is Rank 1 (Never), and the distribution skews severely toward higher ranks past Rank 1 (Table 6; Figure 14). There are 55 respondents reporting Ranks 1, 2, and 3 (90.16%), of which 42 report Rank 1 (68.85%), whereas three

respondents report Ranks 5, 6, and 7 (4.92%). The distribution of estimated purchase frequency ranks suggests a majority of the sample, with over half the sample reporting the lowest purchase frequency rank, had very low to practically no purchase frequency for groceries through online retail before the effects of the pandemic.

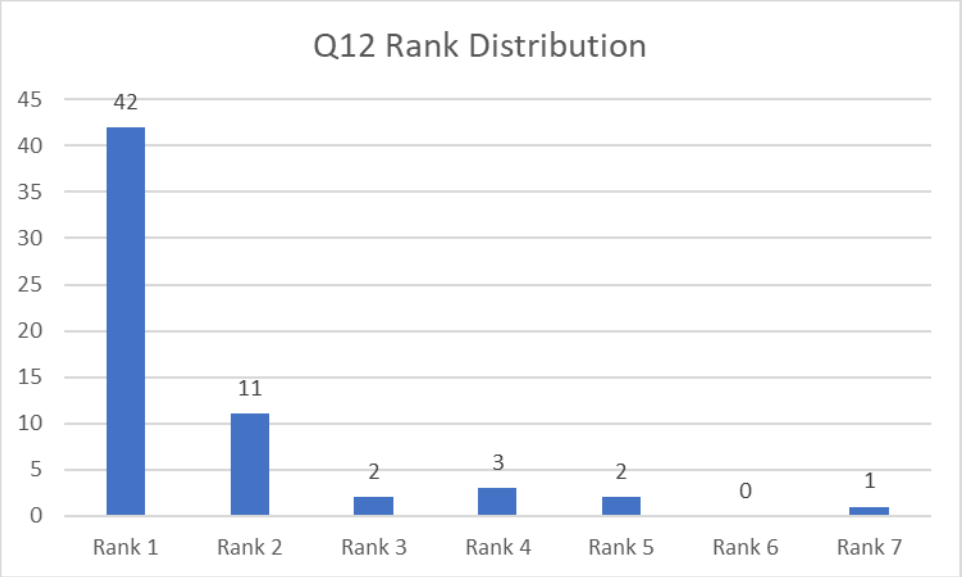

Figure 14. Q12 Purchase Frequency Rank Distribution

Q13: Market Preference for Groceries (Pre-pandemic)

The sample distribution of market preference is 52 respondents who report a preference for BAM (85.25%), seven respondents who report a preference for online retail (11.48%), and two respondents who do not report a preference (3.28%) (Table 7; Figure 15). The distribution of market preference suggests a vast majority of the sample preferred purchasing groceries through BAM before the effects of the pandemic, but over a tenth of the sample preferred utilizing online retail.

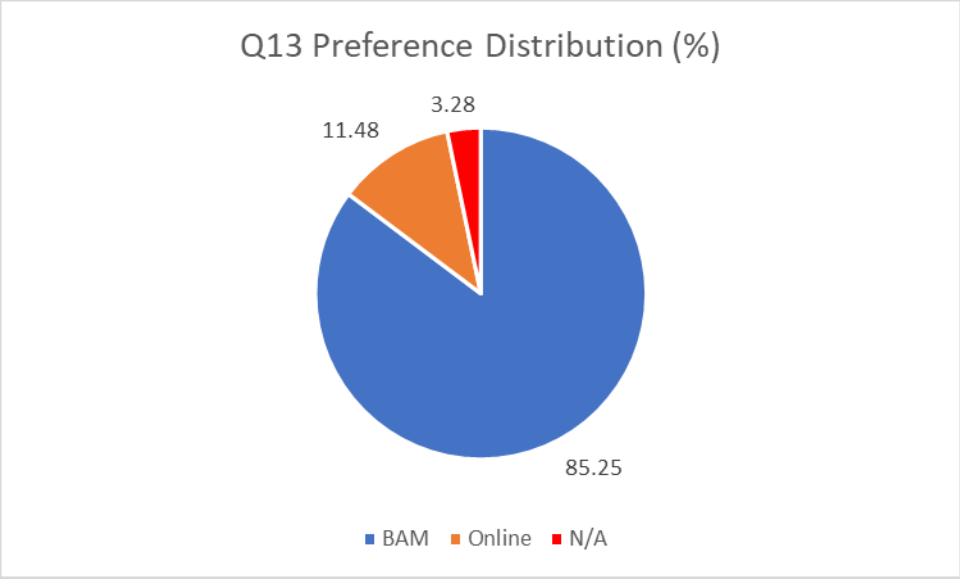

Figure 15. Q13 Preference Distribution (%)

Q14: Estimated Purchase Frequency for General Shopping through BAM (Pre-pandemic)

The median of the sample is Rank 5 (Often), the mode is Rank 4 (Half the time), and the distribution is a plateau centered around the median (Table 6; Figure 16). There are 16 respondents reporting Ranks 1, 2, and 3 (26.23%), 13 respondents reporting Rank 4 (21.31%), and 32 respondents report Ranks 5, 6, and 7 (52.46%). The distribution of estimated purchase frequency ranks suggests a majority of the sample had moderate to high purchase frequency in general through BAM before the effects of the pandemic.

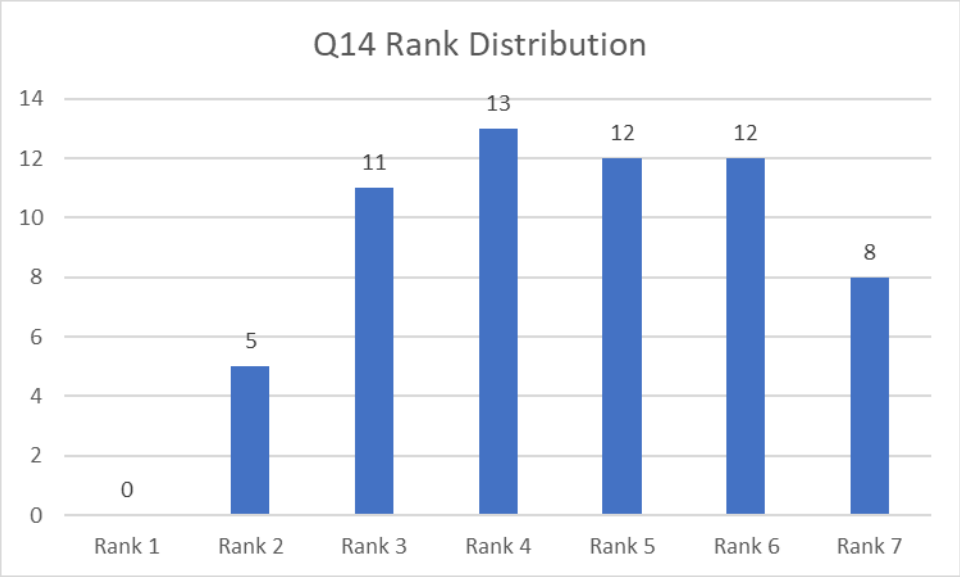

Figure 16. Q14 Purchase Frequency Rank Distribution

Q15: Estimated Purchase Frequency for General Shopping through Online Retail (Pre-pandemic)

The median and mode of the sample is Rank 3 (Sometimes), and the distribution resembles a normal distribution centered around the median (Table 6; Figure 17). There are 36 respondents reporting Ranks 1, 2, and 3 (59.02%), 12 respondents reporting Rank 4 (19.67%), and 13 respondents report Ranks 5, 6, and 7 (21.31%). The distribution of estimated purchase frequency ranks suggests a majority of the sample had very low to moderate purchase frequency in general through online retail before the effects of the pandemic.

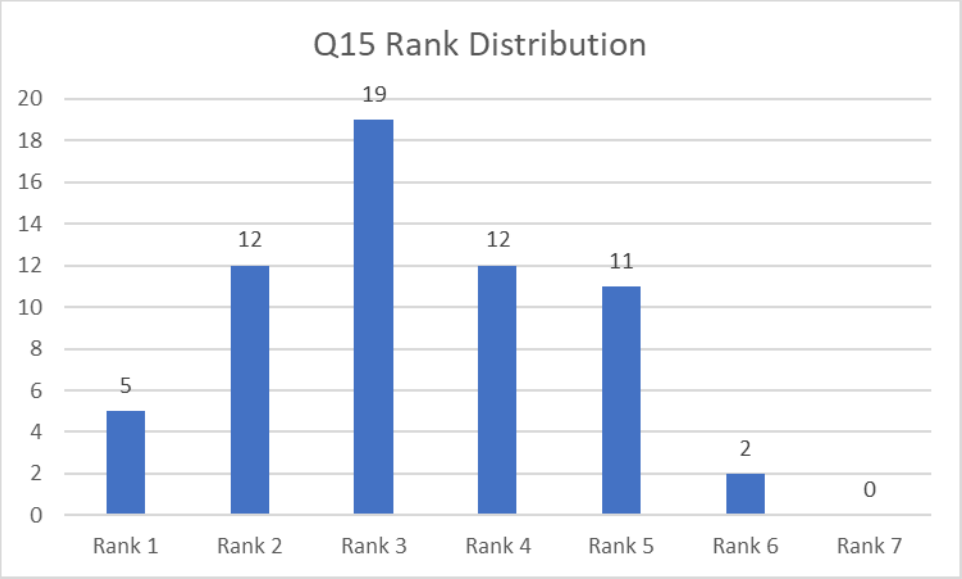

Figure 17. Q15 Purchase Frequency Rank Distribution

Q16: General Market Preference (Pre-pandemic)

The sample distribution of market preference is 38 respondents who report a preference for BAM (62.30%) and 23 respondents who report a preference for online retail (37.70%) (Table 7; Figure 18). The distribution of market preference suggests a majority of the sample preferred utilizing BAM for general (i.e., all/total within a month) purchases before the effects of the pandemic, but over a third of the sample preferred utilizing online retail.

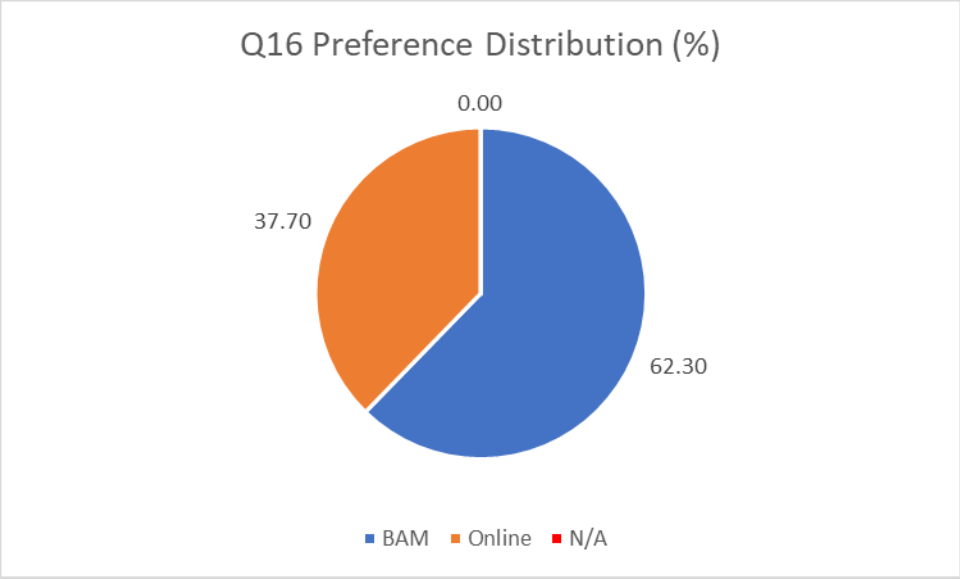

Figure 18. Q16 Preference Distribution

Q17: Estimated Purchase Frequency for Apparel through BAM (Post-pandemic)

The median and mode of the sample is Rank 2 (Rarely), and the distribution sharply skews toward higher ranks past Rank 3 (Table 6; Figure 19). There are 48 respondents reporting Ranks 1, 2, and 3 (78.69%), whereas ten respondents report Ranks 5, 6, and 7 (16.39%). The distribution of estimated purchase frequency ranks suggests a majority of the sample has very low to low purchase frequency for apparel through BAM after the effects of the pandemic.

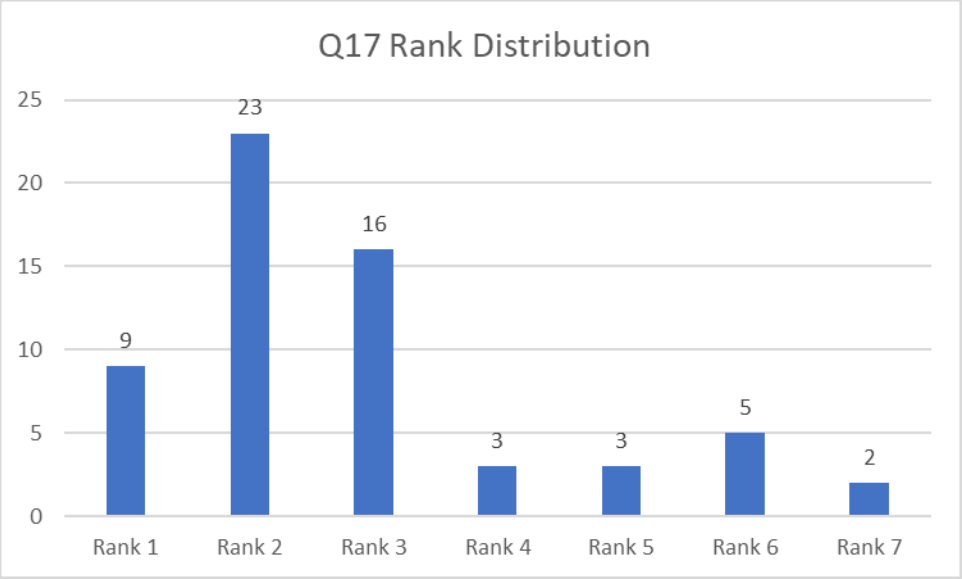

Figure 19. Q17 Purchase Frequency Rank Distribution

Q18: Estimated Purchase Frequency for Apparel through Online Retail (Post-pandemic)

The median of the sample is Rank 3 (Sometimes), the mode is Rank 2 (Rarely), and the distribution sharply skews toward higher ranks past Rank 3 (Table 6; Figure 20). There are 45 respondents reporting Ranks 1, 2, and 3 (73.77%), whereas 13 respondents report Ranks 5, 6, and 7 (21.31%). The distribution of estimated purchase frequency ranks suggests a majority of the sample has very low to low purchase frequency for apparel through online retail after the effects of the pandemic.

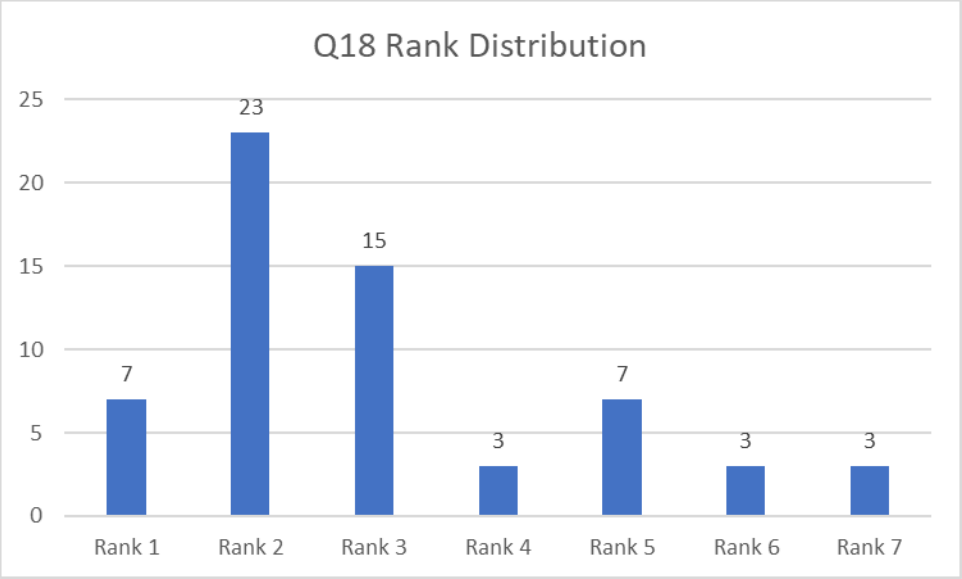

Figure 20. Q18 Purchase Frequency Rank Distribution

Q19: Market Preference for Apparel (Post-pandemic)

The sample distribution of market preference is 42 respondents who report a preference for BAM (68.85%), 18 respondents who report a preference for online retail (29.51%), and one respondent who does not report a preference (1.64%) (Table 7; Figure 21). The distribution of market preference suggests a majority of the sample prefers purchasing apparel through BAM after the effects of the pandemic, but nearly a third of the sample prefers utilizing online retail.

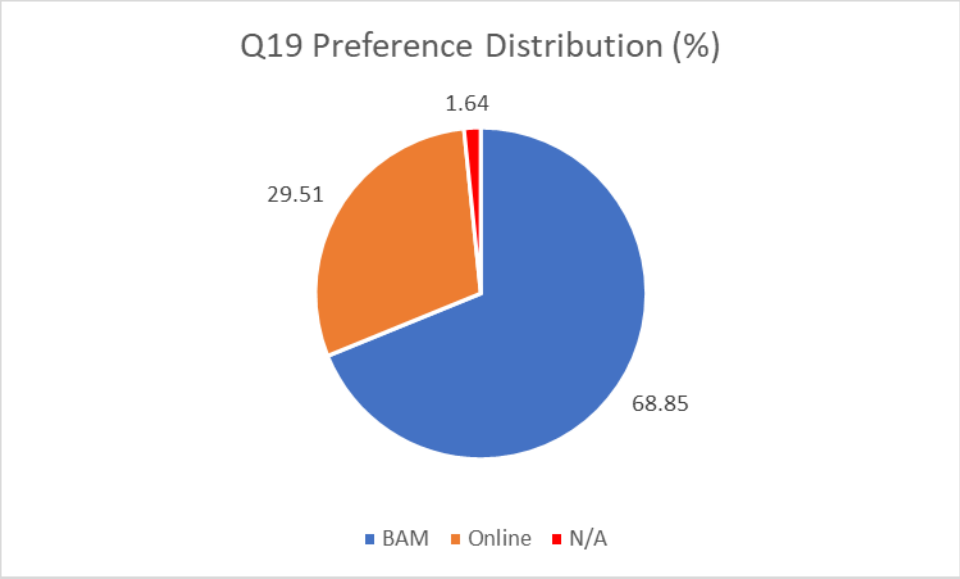

Figure 21. Q19 Preference Distribution (%)

Q20: Estimated Purchase Frequency for Electronics through BAM (Post-pandemic)

The median and the mode of the sample is Rank 2 (Rarely), and the distribution severely skews toward higher ranks past Rank 3 (Table 6; Figure 22). There are 56 respondents reporting Ranks 1, 2, and 3 (91.80%), of which 29 report Rank 2 (47.54%), whereas four respondents report Ranks 5, 6, and 7 (6.56%). The distribution of estimated purchase frequency ranks suggests a majority of the sample has very low to low purchase frequency for electronics through BAM after the effects of the pandemic.

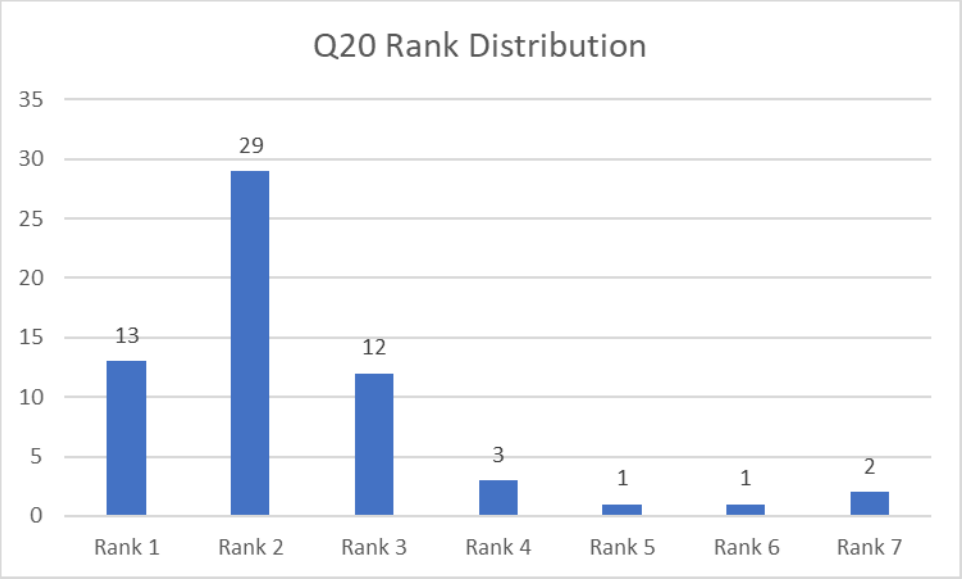

Figure 22. Q20 Purchase Frequency Rank Distribution

Q21: Estimated Purchase Frequency for Electronics through Online Retail (Post-pandemic)

The median and mode of the sample is Rank 3 (Sometimes), and the distribution skews toward higher ranks past the median (Table 6; Figure 23). There are 37 respondents reporting Ranks 1, 2, and 3 (60.66%), whereas 18 respondents report Ranks 5, 6, and 7 (29.51%). The distribution of estimated purchase frequency ranks suggests a majority of the sample has very low to low purchase frequency for electronics through online retail after the effects of the pandemic, but nearly a third of the sample reports moderate to high purchase frequency.

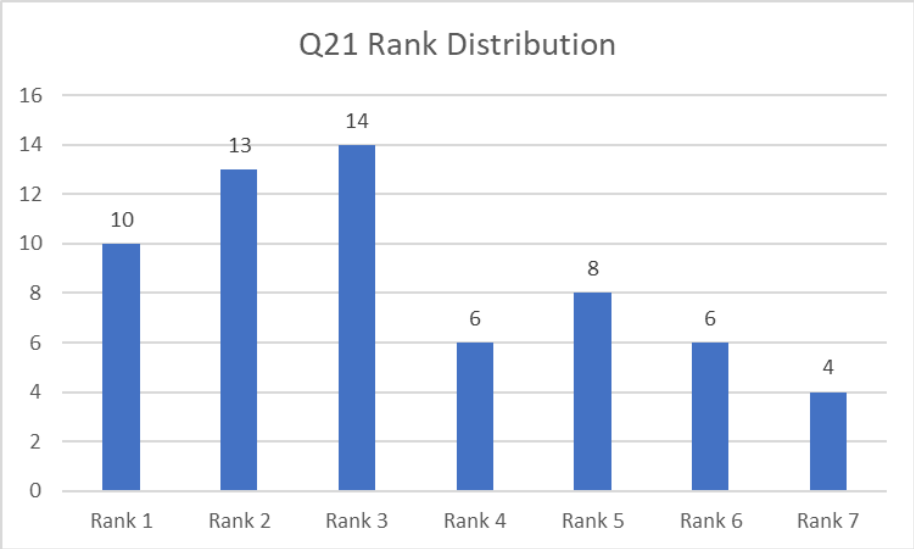

Figure 23. Q21 Purchase Frequency Rank Distribution

Q22: Market Preference for Electronics (Post-pandemic)

The sample distribution of market preference is 21 respondents who report a preference for BAM (34.43%), 39 respondents who report a preference for online retail (63.93%), and one respondent who does not report a preference (1.64%) (Table 7; Figure 24). The distribution of market preference suggests a majority of the sample prefers purchasing electronics through online retail after the effects of the pandemic, but over a third of the sample prefers utilizing BAM.

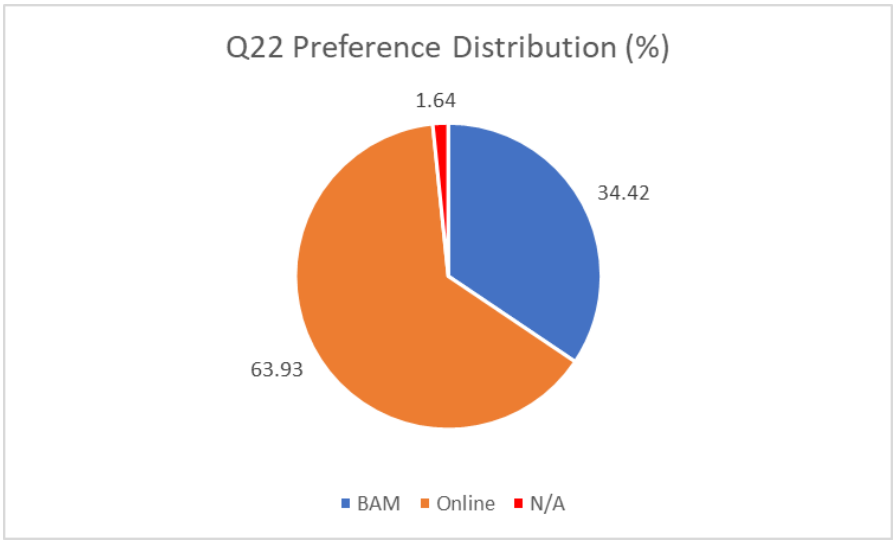

Figure 24. Q22 Preference Distribution (%)

Q23: Estimated Purchase Frequency for Groceries through BAM (Post-pandemic)

The median of the sample is Rank 6 (Most of the time), the mode is Rank 7 (Always), and the distribution skews toward lower ranks into a plateau below Rank 6 (Table 6; Figure 25). There are 13 respondents reporting Ranks 1, 2, and 3 (21.31%), whereas 44 respondents report Ranks 5, 6, and 7 (72.13%), of which 26 report Rank 7 (42.62%). The distribution of estimated purchase frequency ranks suggests a majority of the sample, with nearly half the sample reporting the highest purchase frequency rank, has very high purchase frequency for groceries through BAM after the effects of the pandemic.

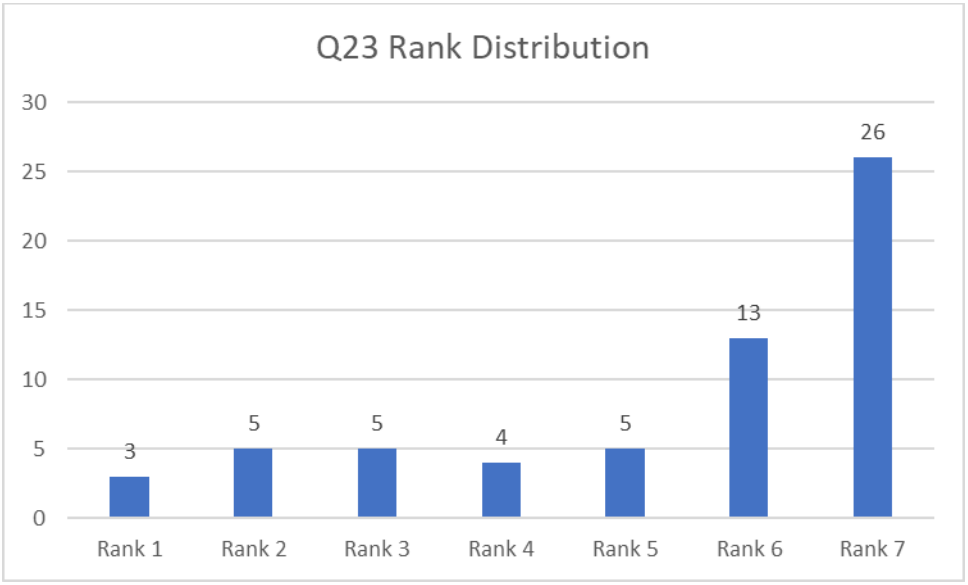

Figure 25. Q23 Purchase Frequency Rank Distribution

Q24: Estimated Purchase Frequency for Groceries through Online Retail (Post-pandemic)

The median of the sample is Rank 2 (Rarely), the mode is Rank 1 (Never), and the distribution skews severely toward higher ranks past Rank 1 (Table 6; Figure 26). There are 50 respondents reporting Ranks 1, 2, and 3 (81.97%), of which 30 report Rank 1

(49.18%), whereas nine respondents report Ranks 5, 6, and 7 (14.75%). The distribution of estimated purchase frequency ranks suggests a majority of the sample, with nearly half the sample reporting the lowest purchase frequency rank, has very low to practically no purchase frequency for groceries through online retail after the effects of the pandemic.

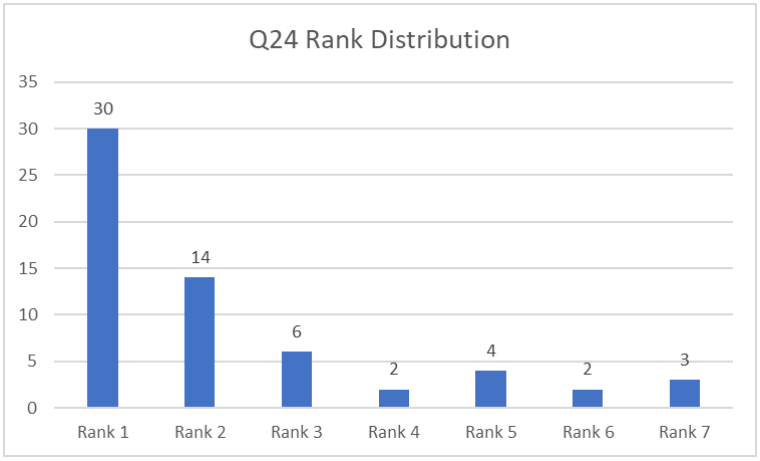

Figure 26. Q24 Purchase Frequency Rank Distribution

Q25: Market Preference for Groceries (Post-pandemic)

The sample distribution of market preference is 51 respondents who report a preference for BAM (83.61%), nine respondents who report a preference for online retail (14.75%), and one respondent who does not report a preference (1.64%) (Table 7; Figure 27). The distribution of market preference suggests a vast majority of the sample prefers purchasing groceries through BAM after the effects of the pandemic, but over a tenth of the sample prefers utilizing online retail.

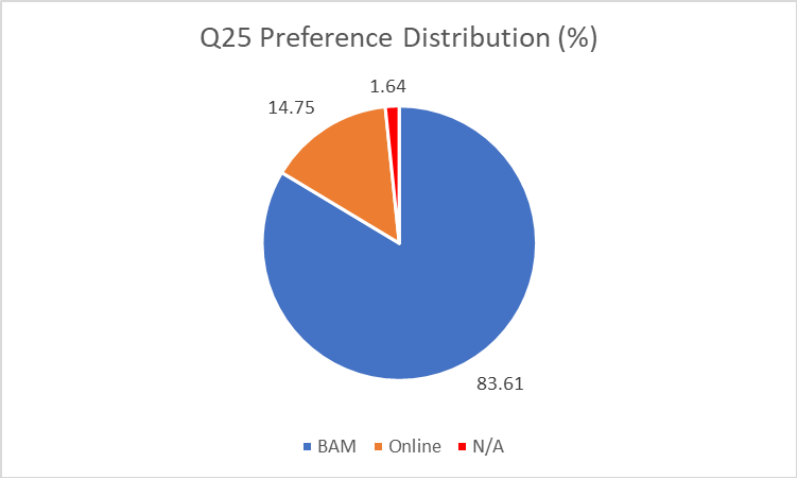

Figure 27. Q25 Preference Distribution (%)

Q26: Estimated Purchase Frequency for General Shopping through BAM (Post-pandemic)

The median and mode of the sample is Rank 3 (Sometimes), and the distribution mimics a normal distribution centered around the median (Table 6; Figure 28). There are 32 respondents reporting Ranks 1, 2, and 3 (52.46%), ten respondents reporting Rank 4 (16.39%), and 19 respondents report Ranks 5, 6, and 7 (31.15%). The distribution of estimated purchase frequency ranks suggests a majority of the sample has low to moderate purchase frequency in general through BAM after the effects of the pandemic.

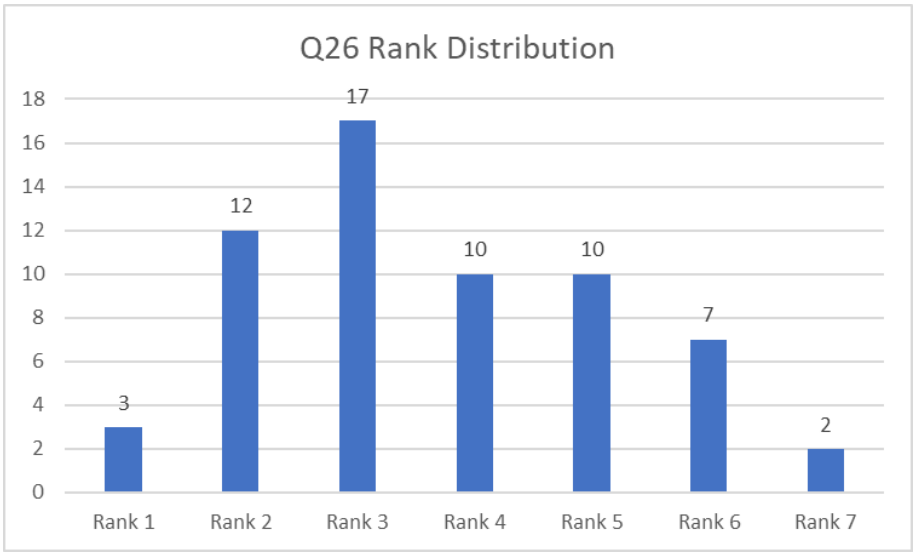

Figure 28. Q26 Purchase Frequency Rank Distribution

Q27: Estimated Purchase Frequency for General Shopping through Online Retail (Post-pandemic)

The median and mode of the sample is Rank 3 (Sometimes), and the distribution skews toward higher ranks past Rank 3 with a second, albeit not bimodal, peak at Rank 5 (Table 6; Figure 29). There are 34 respondents reporting Ranks 1, 2, and 3 (55.74%), seven respondents reporting Rank 4 (11.48%), and 20 respondents report Ranks 5, 6, and 7 (32.79%). The distribution of estimated purchase frequency ranks suggests a majority of the sample has very low to moderate purchase frequency in general through online retail after the effects of the pandemic.

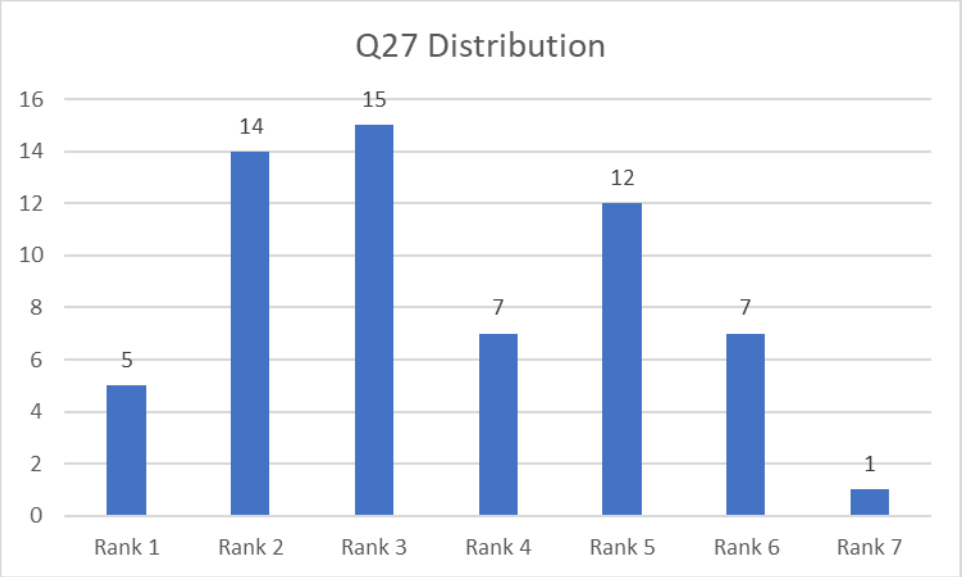

Figure 29. Q27 Purchase Frequency Rank Distribution

Q28: General Market Preference (Post-pandemic)

The sample distribution of market preference is 34 respondents who report a preference for BAM (55.74%), 25 respondents who report a preference for online retail (40.98%), and two respondents who do not report a preference (3.28%) (Table 7; Figure 30). The distribution of market preference suggests a majority (i.e., over half) of the

sample prefers utilizing BAM for general purchases after the effects of the pandemic, but nearly half the sample prefers utilizing online retail.

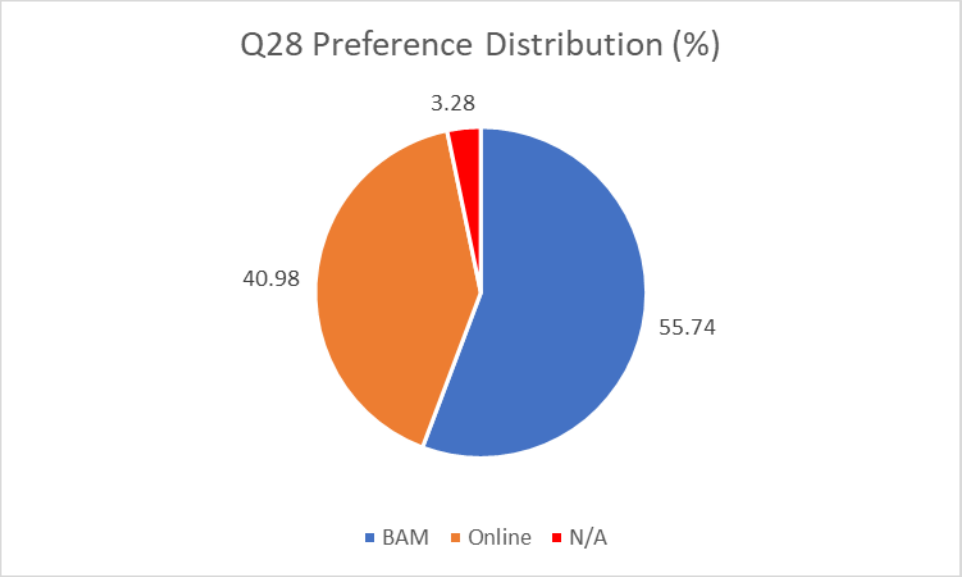

Figure 30. Q28 Preference Distribution (%)

Rank Differences between Markets within Temporal Periods

Difference of Markets for Apparel before the Effects of the Pandemic (Q5:Q6)

In the comparison of purchase frequency for apparel between BAM and online retail before the effects of the pandemic, the difference of medians and of modes is -1 (Tables 8 and 9). The net differences of rank are two for low ranks (sum of differences for Ranks 1, 2, and 3), four for Rank 4 ("Half the time" implies no difference in proportion of market utilization), and -6 for high ranks (sum of differences for Ranks 5, 6, and 7), indicating a net of six individual reports that decrease from high ranks to Rank 4 and low ranks (Tables 8 and 9; Figure 31). The differences in median and mode, the net difference of ranks, and the differences in distribution patterns indicate a statistically significant difference between the reported purchase frequencies for apparel through BAM and online retail before the effects of the pandemic, in which the sample

demonstrates slightly lower purchase frequency for apparel through online retail than BAM before the effects of the pandemic.

Net Differences of Rank, Median, and Mode between Markets								
	Pre-pandemic Effects				Post-pandemic Effects			
	Q5:Q6	Q8:Q9	Q11:Q12	Q14:Q15	Q17:Q18	Q20:Q21	Q23:Q24	Q26:Q27
Net Low	2	-11	45	20	-3	-17	37	2
Net Mid	4	3	-1	-1	0	3	-2	-3
Net High	-6	8	-44	-19	3	14	-35	1
Median	-1	1	-6	-2	1	1	-4	0
Mode	-1	0, 1	-6	-1	0	1	-6	0

Table 8. Net Differences of Rank, Median, and Mode between Markets

Q5:Q6 Net Differences of Rank			
	Q5	Q6	Net Difference
Rank 1	4	11	7
Rank 2	20	21	1
Rank 3	23	17	-6
Rank 4	2	6	4
Rank 5	3	4	1
Rank 6	7	2	-5
Rank 7	2	0	-2

Table 9. Q5:Q6 Net Differences of Rank

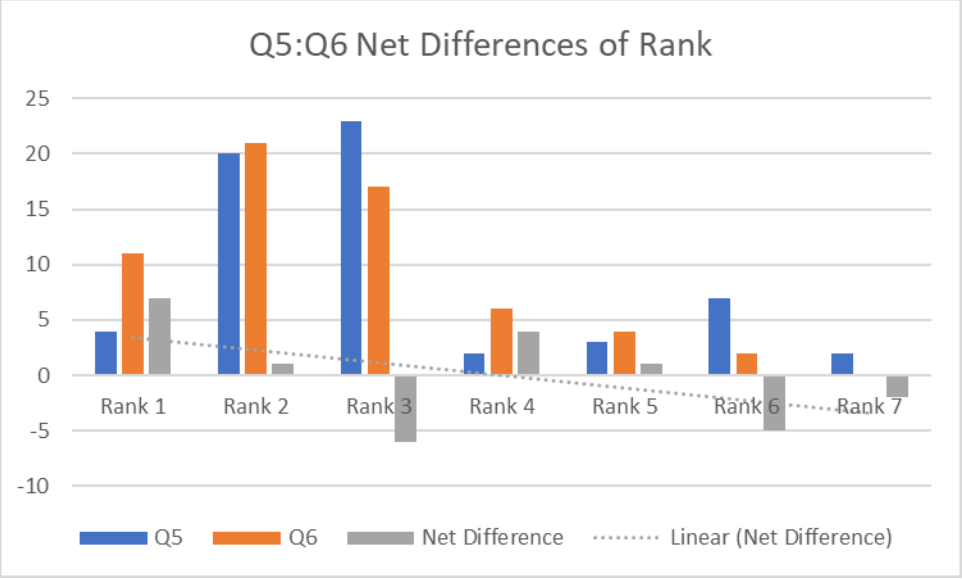

Figure 31. Q5:Q6 Net Differences of Rank

Difference of Markets for Electronics before the Effects of the Pandemic (Q8:Q9)

In the comparison of purchase frequency for electronics between BAM and online retail before the effects of the pandemic, the difference of medians is one, and the differences of modes are zero and one (the sample distribution for Q9 is bimodal) (Tables 8 and 10). The net differences of rank are -11 for low ranks, three for Rank 4, and eight for high ranks, indicating a net of 11 individual reports that increase from low ranks to Rank 4 and high ranks (Tables 8 and 10; Figure 32). The differences in median and mode, the net difference of ranks, and the differences in distribution patterns indicate a statistically significant difference between the reported purchase frequencies for electronics through BAM and online retail before the effects of the pandemic, in which the sample demonstrates moderately higher purchase frequency for electronics through online retail than BAM before the effects of the pandemic.

Q8:Q9 Net Differences of Rank			
	Q8	Q9	Net Difference
Rank 1	8	11	3
Rank 2	25	14	-11
Rank 3	17	14	-3
Rank 4	3	6	3
Rank 5	2	11	9
Rank 6	3	4	1
Rank 7	3	1	-2

Table 10. Q8:Q9 Net Differences of Rank

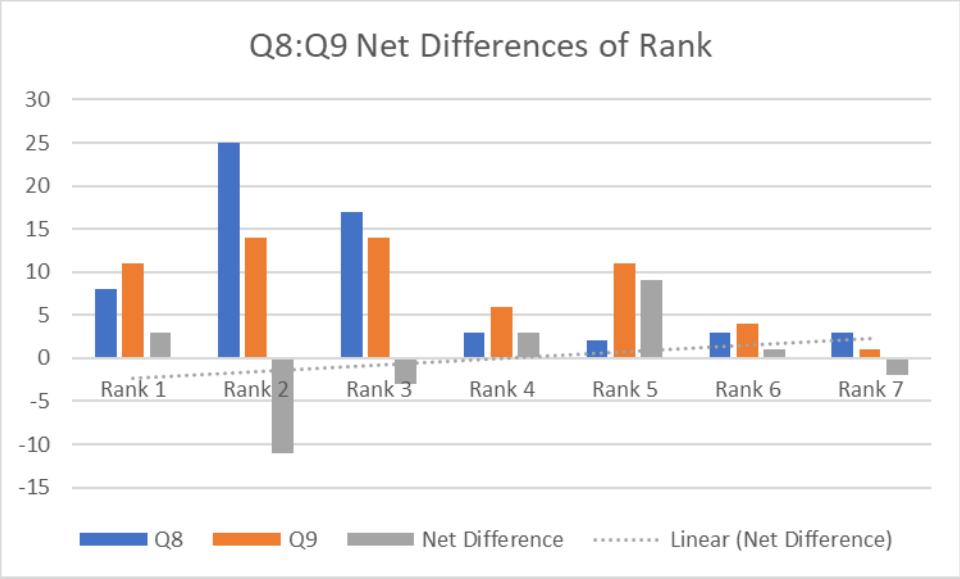

Figure 32. Q8:Q9 Net Differences of Rank

Difference of Markets for Groceries before the Effects of the Pandemic (Q11:Q12)

In the comparison of purchase frequency for groceries between BAM and online retail before the effects of the pandemic, the difference of medians and modes is -6 (Tables 8 and 11). The net differences of rank are 45 for low ranks, -1 for Rank 4, and -44 for high ranks, indicating an astounding net of 45 individual reports that decrease from high ranks to Rank 4 and low ranks (Tables 8 and 11; Figure 33). The distribution patterns for Q11 and Q12 are nearly the identical inverse of each other, in which the distribution of Q11 features a median and mode of Rank 7 (Always) and a severe skew toward lower ranks, whereas the distribution of Q12 features a median and mode of Rank 1 (Never) and a severe skew toward higher ranks. The differences in median and mode, the net difference of ranks, and the differences in distribution patterns indicate a statistically and practically significant difference between the reported purchase frequencies for groceries through BAM and online retail before the effects of the pandemic, in which the sample demonstrates dramatically lower purchase frequency (i.e.,

practically none) for groceries through online retail than BAM before the effects of the pandemic.

Q11:Q12 Net Differences of Rank			
	Q11	Q12	Net Difference
Rank 1	3	42	39
Rank 2	4	11	7
Rank 3	3	2	-1
Rank 4	4	3	-1
Rank 5	8	2	-6
Rank 6	8	0	-8
Rank 7	31	1	-30

Table 11. Q11:Q12 Net Differences of Rank

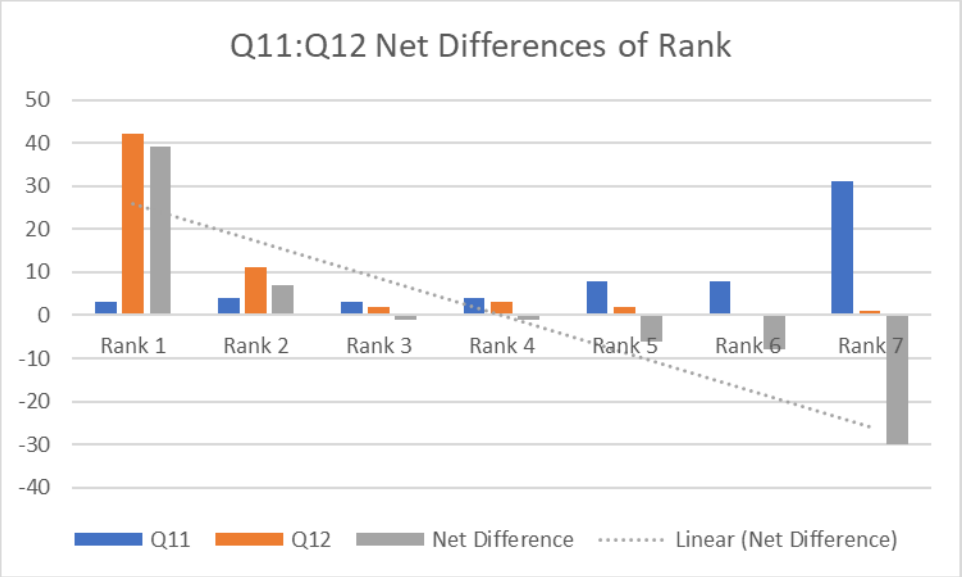

Figure 33. Q11:Q12 Net Differences of Rank

Difference of Markets in General before the Effects of the Pandemic (Q14:Q15)

In the comparison of purchase frequency for general purchases between BAM and online retail before the effects of the pandemic, the difference of medians is -2, and the difference of modes is -1 (Tables 8 and 12). The net differences of rank are 20 for low ranks, -1 for Rank 4, and -19 for high ranks, indicating a remarkable net of 20 individual

reports that decrease from high ranks and Rank 4 to low ranks (Tables 8 and 12; Figure 34). The differences in median and mode, the net difference of ranks, and the differences in distribution patterns indicate a statistically and practically significant difference between the reported purchase frequencies for general purchases through BAM and online retail before the effects of the pandemic, in which the sample demonstrates remarkably lower purchase frequency for general purchases through online retail than BAM before the effects of the pandemic.

Q14:Q15 Net Differences of Rank			
	Q14	Q15	Net Difference
Rank 1	0	5	5
Rank 2	5	12	7
Rank 3	11	19	8
Rank 4	13	12	-1
Rank 5	12	11	-1
Rank 6	12	2	-10
Rank 7	8	0	-8

Table 12. Q14:Q15 Net Differences of Rank

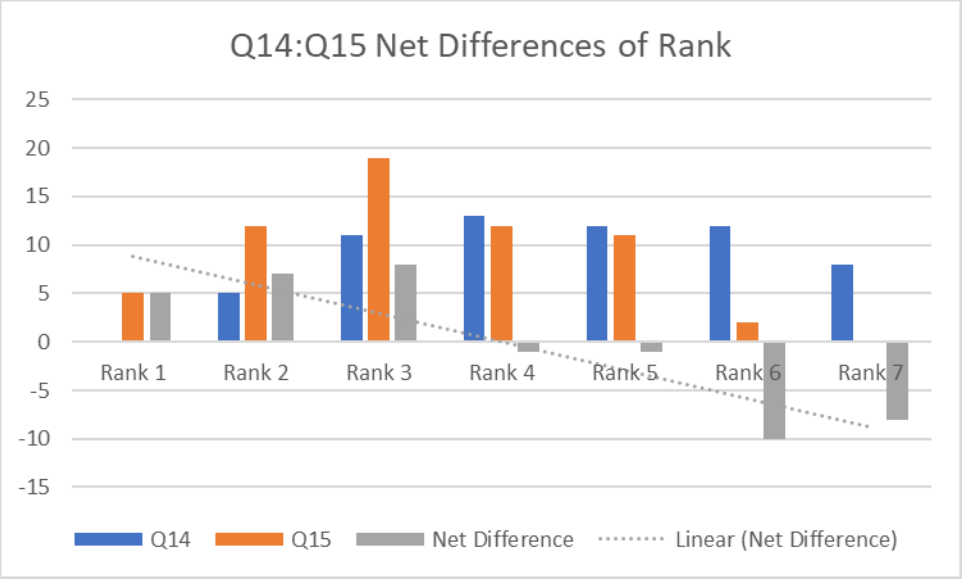

Figure 34. Q14:Q15 Net Differences of Rank

Difference of Markets for Apparel after the Effects of the Pandemic (Q17:Q18)

In the comparison of purchase frequency for apparel between BAM and online retail after the effects of the pandemic, the difference of medians is one, and the difference of modes is zero (Tables 8 and 13). The net differences of rank are -3 for low ranks, zero for Rank 4, and three for high ranks, indicating a net of three individual reports that increase from low ranks to high ranks (Tables 8 and 13; Figure 35). The differences in median and mode, the net difference of ranks, and the differences in distribution patterns indicate no statistically significant difference between the reported purchase frequencies for apparel through BAM and online retail after the effects of the pandemic, albeit with a difference of one between medians, in which the sample demonstrates statistically and practically no difference in the purchase frequencies for apparel through online retail and BAM after the effects of the pandemic. With no statistical difference between markets, the majority of the sample for both Q17 and Q18 report very low to low purchase frequency.

Q17:Q18 Net Differences of Rank			
	Q17	Q18	Net Difference
Rank 1	9	7	-2
Rank 2	23	23	0
Rank 3	16	15	-1
Rank 4	3	3	0
Rank 5	3	7	4
Rank 6	5	3	-2
Rank 7	2	3	1

Table 13. Q17:Q18 Net Differences of Rank

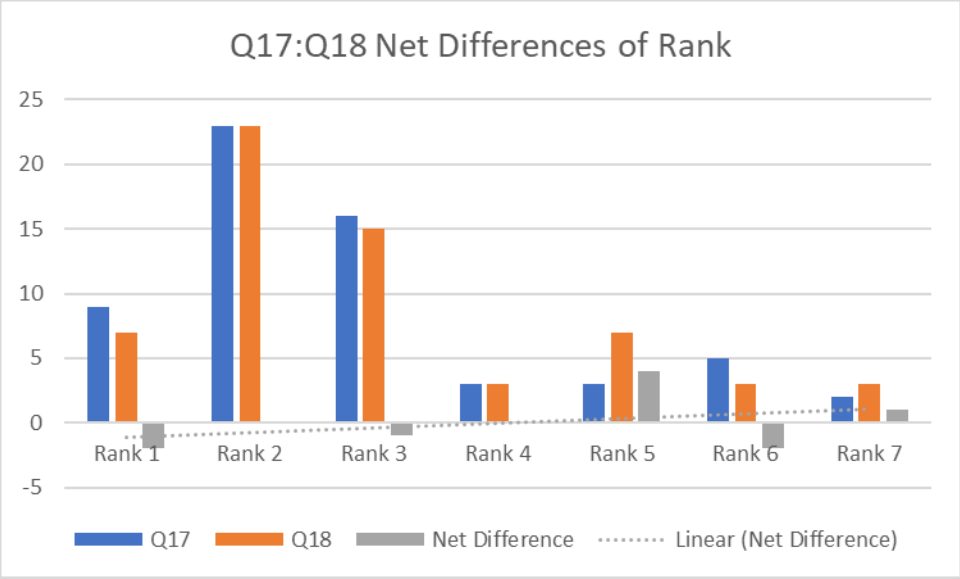

Figure 35. Q17:Q18 Net Differences of Rank

Difference of Markets for Electronics after the Effects of the Pandemic (Q20:Q21)

In the comparison of purchase frequency for electronics between BAM and online retail after the effects of the pandemic, the difference of medians and modes is one (Tables 8 and 14). The net differences of rank are -17 for low ranks, 3 for Rank 4, and 14 for high ranks, indicating a remarkable net of 17 individual reports that increase from low ranks to Rank 4 and high ranks (Tables 8 and 14; Figure 36). The differences in median and mode, the net difference of ranks, and the differences in distribution patterns indicate a statistically and practically significant difference between the reported purchase frequencies for electronics through BAM and online retail after the effects of the pandemic, in which the sample demonstrates remarkably higher purchase frequency for electronics through online retail than BAM after the effects of the pandemic.

Q20:Q21 Net Differences of Rank			
	Q20	Q21	Net Difference
Rank 1	13	10	-3
Rank 2	29	13	-16
Rank 3	12	14	2
Rank 4	3	6	3
Rank 5	1	8	7
Rank 6	1	6	5
Rank 7	2	4	2

Table 14. Q20:Q21 Net Differences of Rank

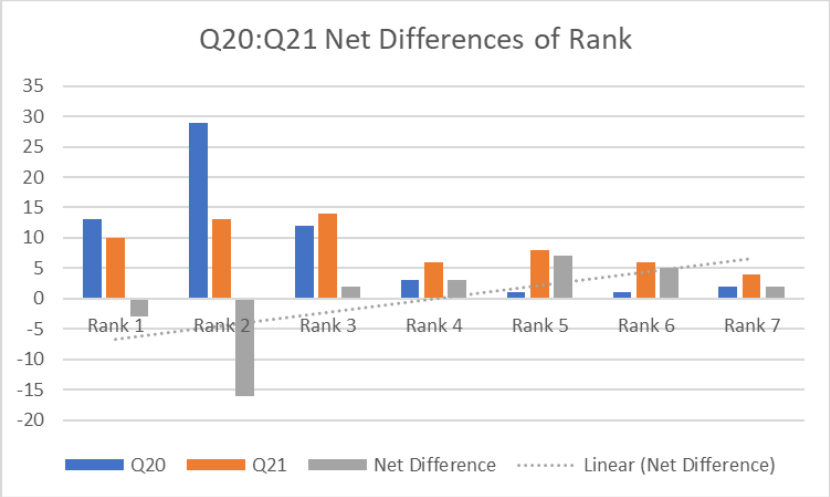

Figure 36. Q20:Q21 Net Differences of Rank

Difference of Markets for Groceries after the Effects of the Pandemic (Q23:Q24)

In the comparison of purchase frequency for groceries between BAM and online retail after the effects of the pandemic, the difference of medians is -4, and the difference of modes is -6 (Tables 8 and 15). The net differences of rank are 37 for low ranks, -2 for Rank 4, and -35 for high ranks, indicating an astounding net of 37 individual reports that decrease from high ranks and Rank 4 to low ranks (Tables 8 and 15; Figure 37). The distribution patterns for Q23 and Q24 are nearly the identical inverse of each other, in which the distribution of Q23 features a median of Rank 6 (Most of the time), a mode of Rank 7 (Always), and a severe skew toward lower ranks, whereas the distribution of Q24 features a median of Rank 2 (Rarely), a mode of Rank 1 (Never), and a severe skew

toward higher ranks. The differences in median and mode, the net difference of ranks, and the differences in distribution patterns indicate a statistically and practically significant difference between the reported purchase frequencies for groceries through BAM and online retail after the effects of the pandemic, in which the sample demonstrates dramatically lower (i.e., practically none) purchase frequency for groceries through online retail than BAM after the effects of the pandemic.

Q23:Q24 Net Differences of Rank			
	Q23	**Q24**	**Net Difference**
Rank 1	3	30	27
Rank 2	5	14	9
Rank 3	5	6	1
Rank 4	4	2	-2
Rank 5	5	4	-1
Rank 6	13	2	-11
Rank 7	26	3	-23

Table 15. Q23:Q24 Net Differences of Rank

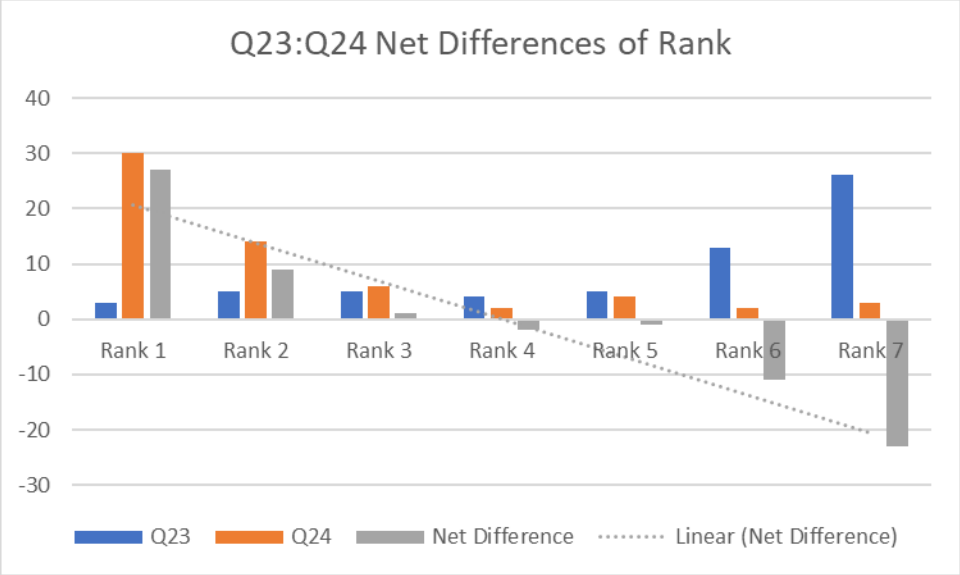

Figure 37. Q23:Q24 Net Differences of Rank

Difference of Markets in General after the Effects of the Pandemic (Q26:Q27)

In the comparison of purchase frequency for general purchases between BAM and online retail after the effects of the pandemic, the difference of medians and modes is zero (Tables 8 and 16). The net differences of rank are two for low ranks, -3 for Rank 4, and one for high ranks, indicating a net of 3 individual reports that decrease from Rank 4 by two to low ranks and increase from Rank 4 by one to higher ranks (Tables 8 and 16; Figure 38). The differences in median and mode, the net difference of ranks, and the differences in distribution patterns indicate no statistically significant difference between the reported purchase frequencies for general purchases through BAM and online retail after the effects of the pandemic, in which the sample demonstrates statistically and practically no difference in the purchase frequencies for general purchases through online retail and BAM after the effects of the pandemic. With no statistical difference between markets, the majority of the sample for both Q26 and Q27 report very low to moderate purchase frequency.

Q26:Q27 Net Differences of Rank			
	Q26	Q27	Net Difference
Rank 1	3	5	2
Rank 2	12	14	2
Rank 3	17	15	-2
Rank 4	10	7	-3
Rank 5	10	12	2
Rank 6	7	7	0
Rank 7	2	1	-1

Table 16. Q26:Q27 Net Differences of Rank

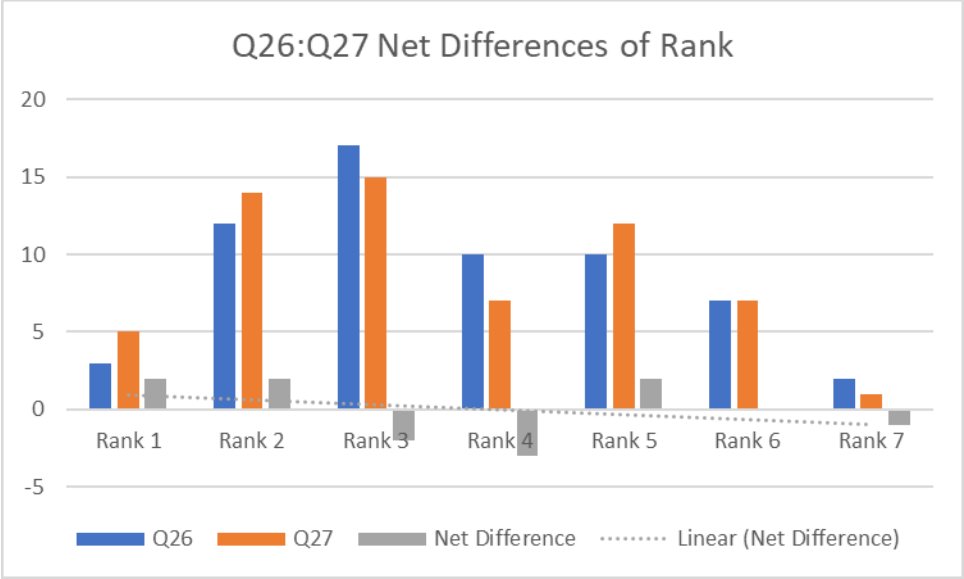

Figure 38. Q26:Q27 Net Differences of Rank

Rank Differences between Markets between Temporal Periods

Net Changes of Rank Differences for Apparel (Q5Q6:Q17Q18)

In the comparison of the rank differences of purchase frequencies between markets across temporal periods (i.e., the analysis of net rank change in purchase frequency between markets after the effects of the pandemic) for apparel, the difference of median differences (i.e., change of median differences between markets after the effects of the pandemic) is two, and the difference of mode differences (i.e., change of mode differences between markets after the effects of the pandemic) is one (Tables 17 and 18). The net differences of rank difference (i.e., net changes of rank differences between markets after the effects of the pandemic) are -5 for low ranks, -4 for Rank 4, and nine for high ranks, indicating a net change of nine individual reports that increase from low ranks and Rank 4 to high ranks after the effects of the pandemic (Tables 17 and 18; Figure 39). The changes in median difference and mode difference and the net change of rank differences of purchase frequencies indicate a statistically significant difference in the rank differences between markets across temporal periods for apparel, in which the

sample demonstrates higher purchase frequency for apparel through online retail than BAM after the effects of the pandemic than before the effects of the pandemic.

Net Changes of Rank, Median, and Mode Differences between Markets				
	Q5Q6:Q17Q18	Q8Q9:Q20Q21	Q11Q12:Q23Q24	Q14Q15:Q26Q27
Net Low	-5	-6	-8	-18
Net Mid	-4	0	-1	-2
Net High	9	6	9	20
Median	2	0	2	2
Mode	1	1, 0	0	1

Table 17. Net Changes of Rank, Median, and Mode Differences between Markets

Q5Q6:Q17Q18 Net Changes of Rank Differences			
	Q5Q6	Q17Q18	Net Change
Rank 1	7	-2	-9
Rank 2	1	0	-1
Rank 3	-6	-1	5
Rank 4	4	0	-4
Rank 5	1	4	3
Rank 6	-5	-2	3
Rank 7	-2	1	3

Table 18. Q5Q6:Q17Q18 Net Changes of Rank Differences

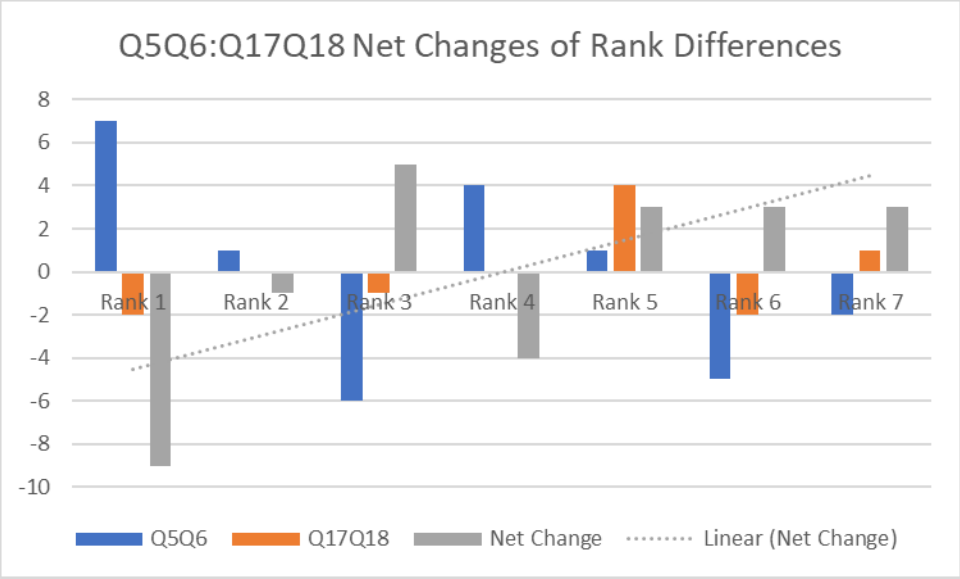

Figure 39. Q5Q6:Q17Q18 Net Changes of Rank Differences

Net Changes of Rank Differences for Electronics (Q8Q9:Q20Q21)

In the analysis of net rank change in purchase frequency between markets across temporal periods for electronics, the change of median difference between markets after the effects of the pandemic is zero, and the changes of mode differences between markets after the effects of the pandemic are one and zero (recall that the distribution of Q9 is bimodal) (Tables 17 and 19). The net changes of rank difference between markets after the effects of the pandemic are -6 for low ranks, zero for Rank 4, and six for high ranks, indicating a net change of six individual reports that increase from low ranks to high ranks after the effects of the pandemic (Tables 17 and 19; Figure 40). The change in mode difference and the net change of rank differences of purchase frequencies indicate a statistically significant difference in the rank differences between markets across temporal periods for electronics, albeit without change in median difference, in which the sample demonstrates slightly higher purchase frequency for electronics through online retail than BAM after the effects of the pandemic than before the effects of the pandemic.

Q8Q9:Q20Q21 Net Changes of Rank Differences			
	Q8Q9	Q20Q21	Net Change
Rank 1	3	-3	-6
Rank 2	-11	-16	-5
Rank 3	-3	2	5
Rank 4	3	3	0
Rank 5	9	7	-2
Rank 6	1	5	4
Rank 7	-2	2	4

Table 19. Q8Q9:Q20Q21 Net Changes of Rank Differences

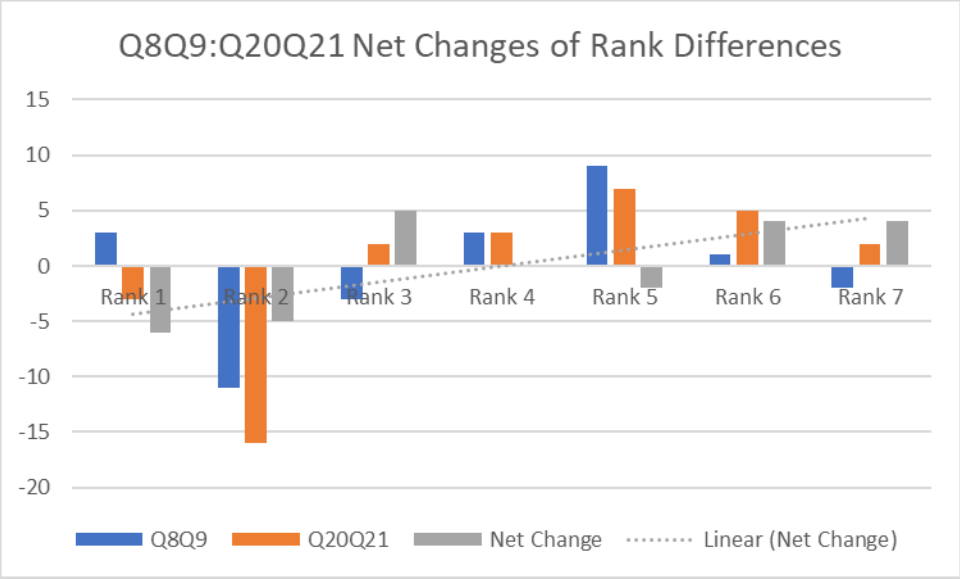

Figure 40. Q8Q9:Q20Q21 Net Changes of Rank Differences

Net Changes of Rank Differences for Groceries (Q11Q12:Q23Q24)

In the analysis of net rank change in purchase frequency between markets across temporal periods for groceries, the change of median difference between markets after the effects of the pandemic is two, and the change of mode difference between markets after the effects of the pandemic is zero (Tables 17 and 20). The net changes of rank difference between markets after the effects of the pandemic are -8 for low ranks, -1 for Rank 4, and nine for high ranks, indicating a net change of nine individual reports that increase from low ranks and Rank 4 to high ranks after the effects of the pandemic (Tables 17 and 20; Figure 41). The change in median difference and the net change of rank differences of purchase frequencies indicate a statistically significant difference in the rank differences between markets across temporal periods for groceries, in which the sample demonstrates slightly higher purchase frequency for groceries through online retail than BAM after the effects of the pandemic than before the effects of the pandemic.

Q11Q12:Q23Q24 Net Changes of Rank Differences			
	Q11Q12	Q23Q24	Net Change
Rank 1	39	27	-12
Rank 2	7	9	2
Rank 3	-1	1	2
Rank 4	-1	-2	-1
Rank 5	-6	-1	5
Rank 6	-8	-11	-3
Rank 7	-30	-23	7

Table 20. Q11Q12:Q23Q24 Net Changes of Rank Differences

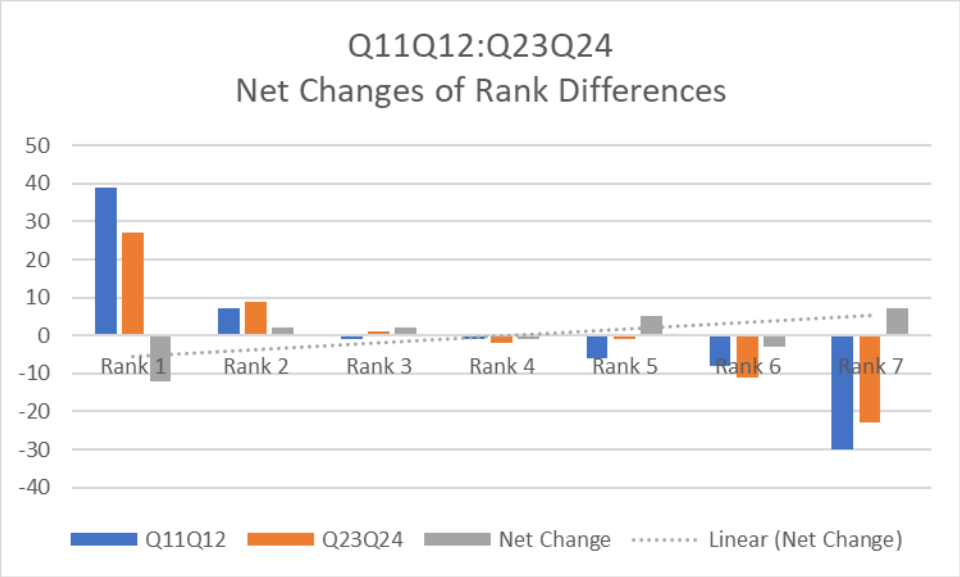

Figure 41. Q11Q12:Q23Q24 Net Changes of Rank Differences

Net Changes of Rank Differences in General (Q14Q15:Q26Q27)

In the analysis of net rank change in purchase frequency between markets across temporal periods for general purchases, the change of median difference between markets after the effects of the pandemic is two, and the change of mode difference between markets after the effects of the pandemic is one (Tables 17 and 21). The net changes of rank difference between markets after the effects of the pandemic are -18 for low ranks, -2 for Rank 4, and 20 for high ranks, indicating a remarkable net of 20 individual reports that increase from low ranks and Rank 4 to high ranks after the effects of the pandemic

(Tables 17 and 21; Figure 42). The changes in median difference and mode difference and the net change of rank differences of purchase frequencies indicate a statistically and practically significant difference in the rank differences between markets across temporal periods for general purchases, in which the sample demonstrates remarkably higher purchase frequency for general purchases through online retail than BAM after the effects of the pandemic than before the effects of the pandemic.

Q14Q15:Q26Q27 Net Changes of Rank Differences			
	Q14Q15	Q26Q27	Net Change
Rank 1	5	2	-3
Rank 2	7	2	-5
Rank 3	8	-2	-10
Rank 4	-1	-3	-2
Rank 5	-1	2	3
Rank 6	-10	0	10
Rank 7	-8	-1	7

Table 21. Q14Q15:Q26Q27 Net Changes of Rank Differences

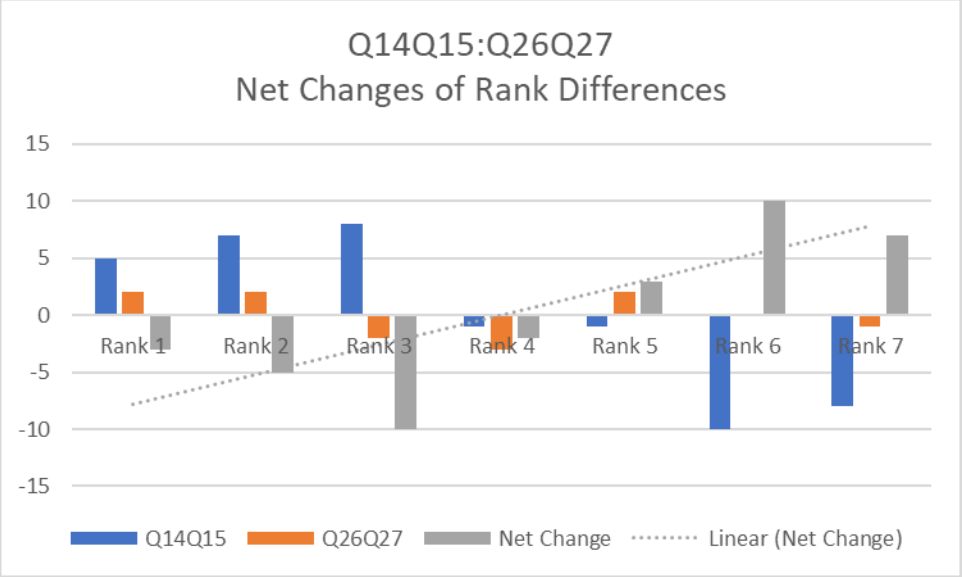

Figure 42. Q14Q15:Q26Q27 Net Changes of Rank Differences

Net Rank Changes within Markets between Temporal Periods

Change in Apparel through BAM (Q5:Q17)

In the comparison of purchase frequency for apparel through BAM across temporal periods (i.e., before and after the effects of the pandemic; the analysis of purchase frequency change after the effects of the pandemic), the difference of medians and of modes is -1 (Tables 22 and 23). The net differences of rank (i.e., the net changes of rank after the effects of the pandemic) are one for low ranks, one for Rank 4, and -2 for high ranks, indicating a net change of two individual reports that decrease from high ranks to Rank 4 and low ranks (Tables 22 and 23; Figure 43). While the differences in median and mode would typically suggest a statistically significant difference between the reported purchases frequencies for apparel through BAM across temporal periods, the net change of rank and nearly identical distribution patterns indicate no statistically significant difference between the reported purchase frequencies for apparel through BAM across temporal periods, in which the sample demonstrates no statistically or practically significant difference in purchase frequency after the effects of the pandemic from that before the effects of the pandemic. With no statistical difference between temporal periods, the majority of the sample for both Q5 and Q17 report very low to low purchase frequency.

Net Changes of Rank, Median, and Mode after Effects of the Pandemic								
	Q5:Q17	**Q6:Q18**	**Q8:Q20**	**Q9:Q21**	**Q11:Q23**	**Q12:Q24**	**Q14:Q26**	**Q15:Q27**
Net Low	1	-4	4	-2	3	-5	16	-2
Net Mid	1	-3	0	0	0	-1	-3	-5
Net High	-2	7	-4	2	-3	6	-13	7
Median	-1	1	0	0	-1	1	-2	0
Mode	-1	0	0	1, 0	0	0	-1	0

Table 22. Net Changes of Rank, Median, and Mode after Effects of the Pandemic

Q5:Q17 Net Changes of Rank			
	Q5	Q17	Net Change
Rank 1	4	9	5
Rank 2	20	23	3
Rank 3	23	16	-7
Rank 4	2	3	1
Rank 5	3	3	0
Rank 6	7	5	-2
Rank 7	2	2	0

Table 23. Q5:Q17 Net Changes of Rank

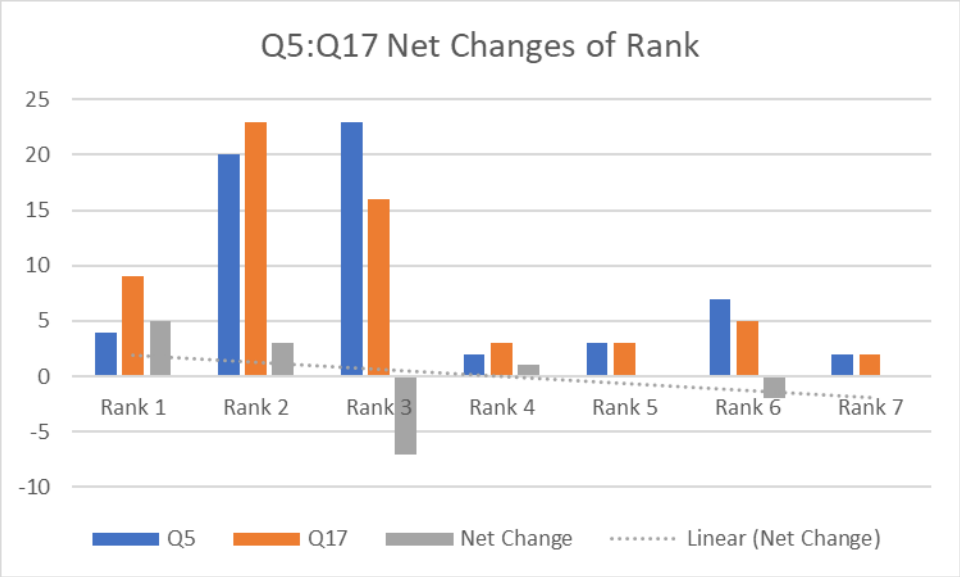

Figure 43. Q5:Q17 Net Changes of Rank

Change in Apparel through Online Retail (Q6:Q18)

In the analysis of purchase frequency change for apparel through online retail after the effects of the pandemic, the difference of medians is one, and the difference of modes is -1 (Tables 22 and 24). The net changes of rank after the effects of the pandemic are -4 for low ranks, -3 for Rank 4, and seven for high ranks, indicating a net change of seven individual reports that increase from low ranks and Rank 4 to high ranks (Tables 22 and 24; Figure 44). The changes of median and mode, the net change of rank, and the changes of distribution patterns indicate a statistically significant difference between the

reported purchase frequencies for apparel through online retail across temporal periods, in which the sample demonstrates a slight increase in purchase frequency after the effects of the pandemic.

Q6:Q18 Net Changes of Rank			
	Q6	Q18	Net Change
Rank 1	11	7	-4
Rank 2	21	23	2
Rank 3	17	15	-2
Rank 4	6	3	-3
Rank 5	4	7	3
Rank 6	2	3	1
Rank 7	0	3	3

Table 24. Q6:Q18 Net Changes of Rank

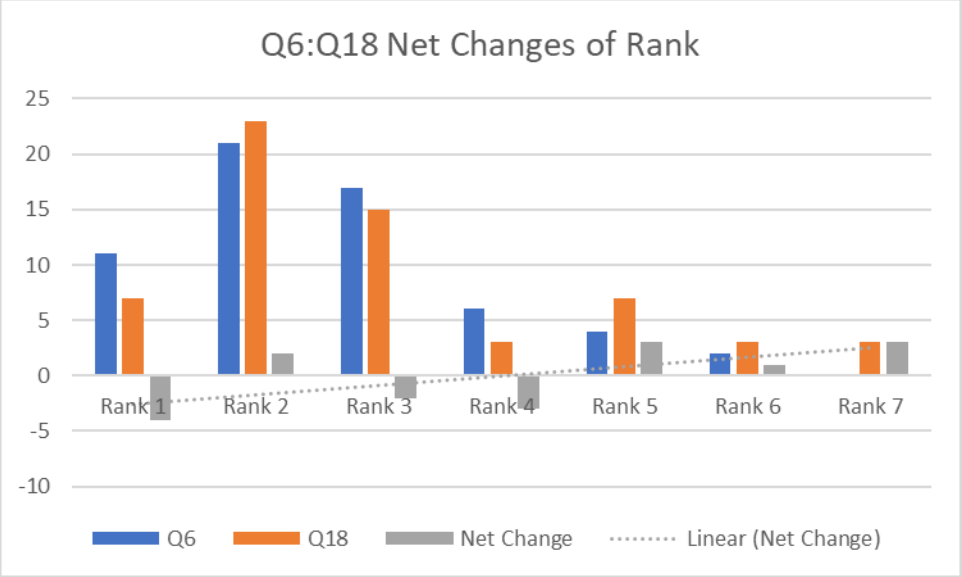

Figure 44. Q6:Q18 Net Changes of Rank

Change in Electronics through BAM (Q8:Q20)

In the analysis of purchase frequency change for electronics through BAM after the effects of the pandemic, the difference of medians and of modes is zero (Tables 22 and 25). The net changes of rank after the effects of the pandemic are four for low ranks, zero for Rank 4, and -4 for high ranks, indicating a net change of four individual reports

that decrease from high ranks to low ranks (Tables 22 and 25; Figure 45). No changes of median and mode, the minimum requirement for significance in net change of rank, and the similar distribution patterns indicate no statistically significant difference between the reported purchase frequencies for electronics through BAM across temporal periods, in which the sample demonstrates no statistically or practically significant difference in purchase frequency after the effects of the pandemic from that before the effects of the pandemic. With no statistical difference between temporal periods, the majority of the sample for both Q8 and Q20 report very low to low purchase frequency.

Q8:Q20 Net Changes of Rank			
	Q8	Q20	Net Change
Rank 1	8	13	5
Rank 2	25	29	4
Rank 3	17	12	-5
Rank 4	3	3	0
Rank 5	2	1	-1
Rank 6	3	1	-2
Rank 7	3	2	-1

Table 25. Q8:Q20 Net Changes of Rank

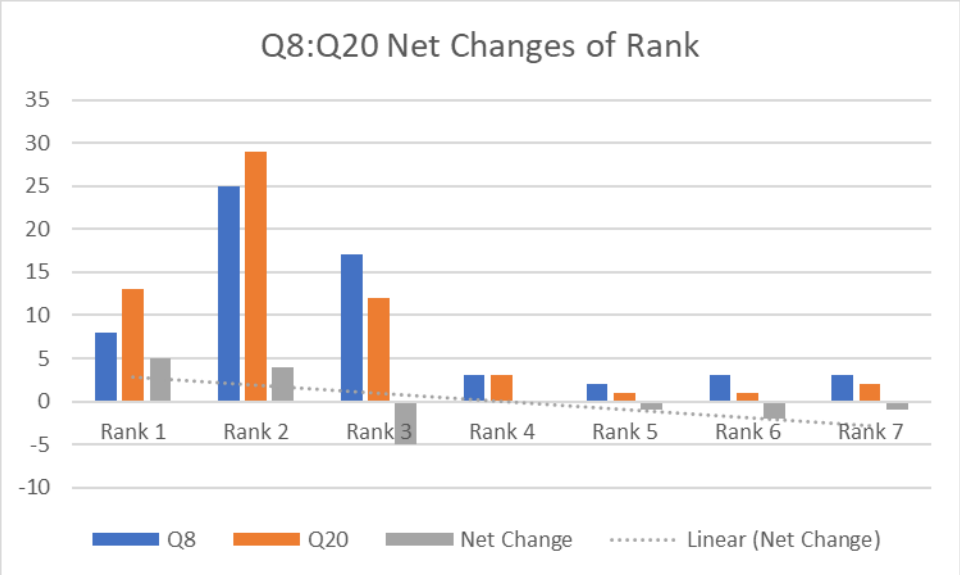

Figure 43. Q8:Q20 Net Changes of Rank

Change in Electronics through Online Retail (Q9:Q21)

In the analysis of purchase frequency change for electronics through online retail after the effects of the pandemic, the difference of medians is zero, and the differences of modes are one and zero (recall the distribution of Q9 is bimodal) (Tables 22 and 26). The net changes of rank after the effects of the pandemic are -2 for low ranks, zero for Rank 4, and two for high ranks, indicating a net change of two individual reports that increase from low ranks to high ranks (Tables 22 and 26; Figure 46). No changes of median and mode (there is technically a change of mode by one, but the change merely eliminates the bimodality of Q9's distribution without increasing mode past Rank 3), no significant net change of rank, and the similar distribution patterns indicate no statistically significant difference between the reported purchase frequencies for electronics through online retail across temporal periods, in which the sample demonstrates no statistically or practically significant difference in purchase frequency after the effects of the pandemic from that before the effects of the pandemic. With no statistical difference between temporal periods, the majority of the sample for both Q9 and Q21 report very low (as low as "never" for nearly a third of reported low ranks) to moderate purchase frequency.

Q9:Q21 Net Changes of Rank			
	Q9	Q21	Net Change
Rank 1	11	10	-1
Rank 2	14	13	-1
Rank 3	14	14	0
Rank 4	6	6	0
Rank 5	11	8	-3
Rank 6	4	6	2
Rank 7	1	4	3

Table 26. Q9:Q21 Net Changes of Rank

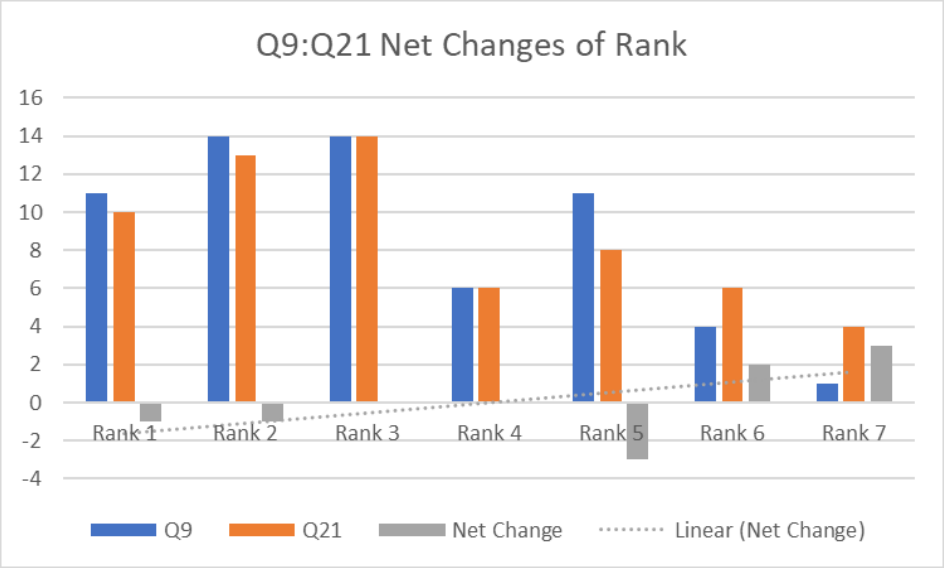

Figure 46. Q9:Q21 Net Changes of Rank

Change in Groceries through BAM (Q11:Q23)

In the analysis of purchase frequency change for groceries through BAM after the effects of the pandemic, the difference of medians is -1, and the difference of modes is zero (Tables 22 and 27). The net changes of rank after the effects of the pandemic are three for low ranks, zero for Rank 4, and -3 for high ranks, indicating a net change of three individual reports that decrease from high ranks to low ranks (Tables 22 and 27; Figure 47). No significant net change of rank and the nearly identical distribution patterns indicate no statistically significant difference between the reported purchase frequencies for groceries through BAM across temporal periods, in which the sample demonstrates no statistically or practically significant difference in purchase frequency after the effects of the pandemic from that before the effects of the pandemic. With no statistical difference between temporal periods, the majority of the sample for both Q11 and Q23 report very high purchase frequency.

Q11:Q23 Net Changes of Rank			
	Q11	Q23	Net Change
Rank 1	3	3	0
Rank 2	4	5	1
Rank 3	3	5	2
Rank 4	4	4	0
Rank 5	8	5	-3
Rank 6	8	13	5
Rank 7	31	26	-5

Table 27. Q11:Q23 Net Changes of Rank

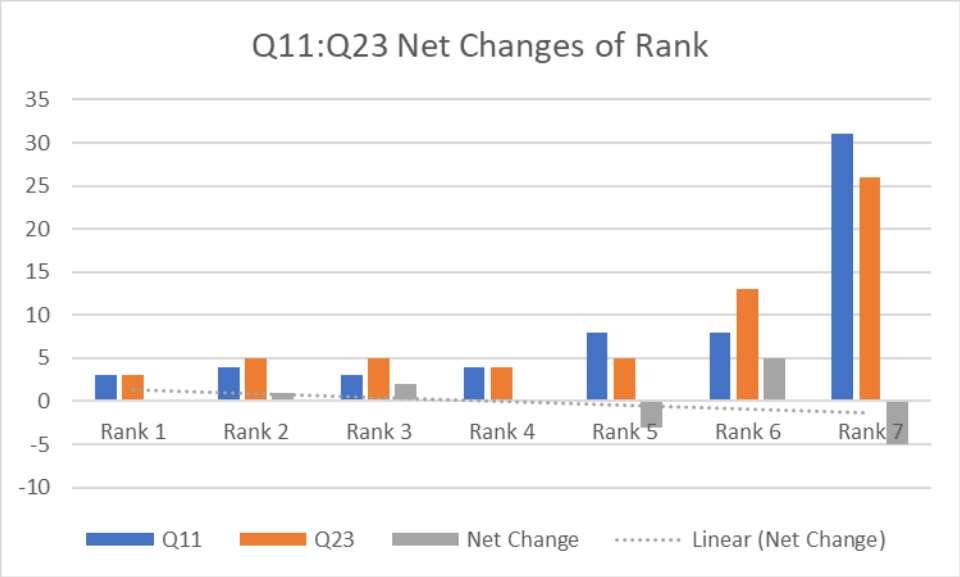

Figure 47. Q11:Q23 Net Changes of Rank

Change in Groceries through Online Retail (Q12:Q24)

In the analysis of purchase frequency change for groceries through online retail after the effects of the pandemic, the difference of medians is one, and the difference of modes is zero (Tables 22 and 28). The net changes of rank after the effects of the pandemic are -5 for low ranks, -1 for Rank 4, and six for high ranks, indicating a net change of six individual reports that increase from low ranks and Rank 4 to high ranks (Tables 22 and 28; Figure 48). The change of median, net change of rank, and changes in distribution patterns indicate a statistically significant difference between the reported

purchase frequencies for groceries through online retail across temporal periods, in which the sample demonstrates a spread of increased ranks from low ranks, especially Rank 1 (Never), suggesting a minority of participants have increased purchase frequency for groceries through online retail by varying rates (the mode of individual rank change is one; the spread of increased rank change is at least one per rank increase of one through six) while retaining a vast majority (72.13%) that report very low (22.95%) to no (49.18%) purchase frequency.

Q12:Q24 Net Changes of Rank			
	Q12	Q24	Net Change
Rank 1	42	30	-12
Rank 2	11	14	3
Rank 3	2	6	4
Rank 4	3	2	-1
Rank 5	2	4	2
Rank 6	0	2	2
Rank 7	1	3	2

Table 28. Q12:Q24 Net Changes of Rank

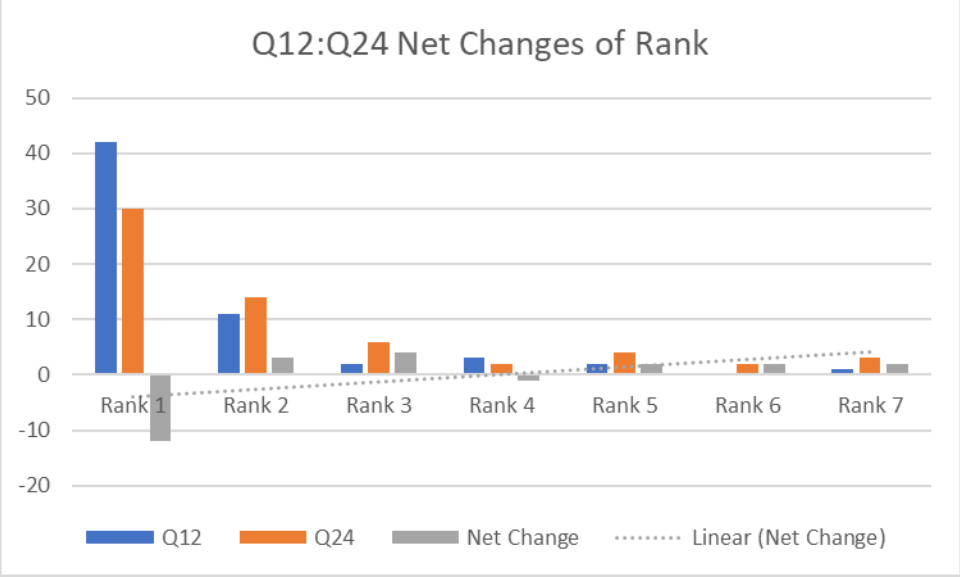

Figure 48. Q12:Q24 Net Changes of Rank

Change in General Purchases through BAM (Q14:Q26)

In the analysis of purchase frequency change for general purchases through BAM after the effects of the pandemic, the difference of medians is -2, and the difference of modes is -1 (Tables 22 and 29). The net changes of rank after the effects of the pandemic are 16 for low ranks, -3 for Rank 4, and -13 for high ranks, indicating a net change of 13 individual reports that decrease from high ranks and Rank 4 to low ranks (Tables 22 and 29; Figure 49). The changes of median and mode, net change of rank, and changes in distribution patterns indicate a statistically significant difference between the reported purchase frequencies for general purchases through BAM across temporal periods, in which the sample demonstrates a remarkable decrease in ranks at varying rates that shifts the median to low ranks, thereby skewing the distribution toward higher ranks, suggesting the sample has decreased purchase frequency in general through BAM after the effects of the pandemic.

Q14:Q26 Net Changes of Rank			
	Q14	Q26	Net Change
Rank 1	0	3	3
Rank 2	5	12	7
Rank 3	11	17	6
Rank 4	13	10	-3
Rank 5	12	10	-2
Rank 6	12	7	-5
Rank 7	8	2	-6

Table 29. Q14:Q26 Net Changes of Rank

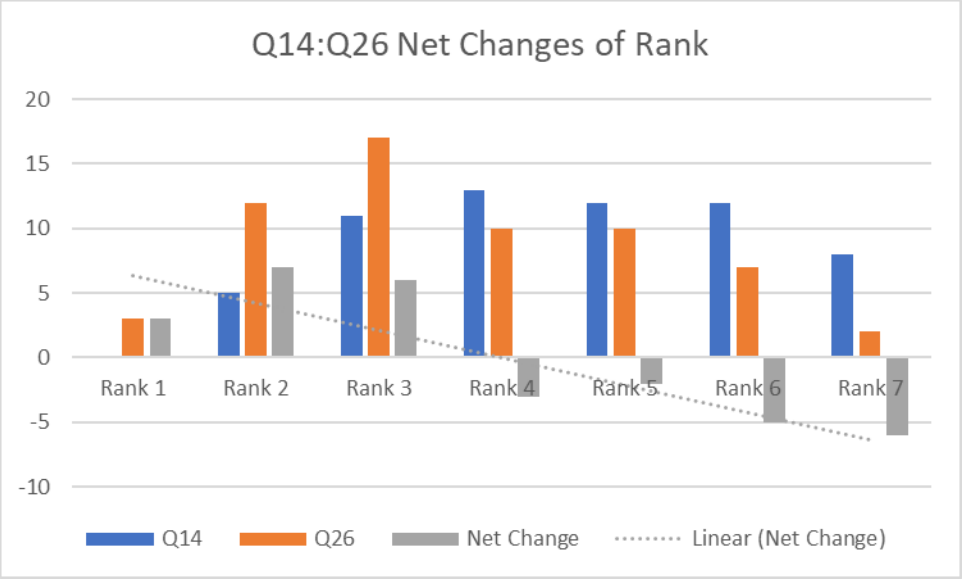

Figure 49. Q14:Q26 Net Changes of Rank

Change in General Purchases through Online Retail (Q15:Q27)

In the analysis of purchase frequency change for general purchases through online retail after the effects of the pandemic, the difference of medians and of modes is zero (Tables 22 and 30). The net changes of rank after the effects of the pandemic are -2 for low ranks, -5 for Rank 4, and seven for high ranks, indicating a net change of seven individual reports that increase from low ranks and Rank 4 to high ranks (Tables 22 and 30; Figure 50). The net change of rank and changes in distribution patterns indicate a statistically significant difference between the reported purchase frequencies for general purchases through online across temporal periods, in which the sample demonstrates a net increase in ranks that creates two peaks (not bimodal) from the unchanged ranks that retain the median and mode and the net increase of ranks, suggesting a minority of the sample has increased purchase frequency in general through online retail from low to moderate purchase frequency to high purchase frequency after the effects of the pandemic.

Q15:Q27 Net Changes of Rank			
	Q15	Q27	Net Change
Rank 1	5	5	0
Rank 2	12	14	2
Rank 3	19	15	-4
Rank 4	12	7	-5
Rank 5	11	12	1
Rank 6	2	7	5
Rank 7	0	1	1

Table 30. Q15:Q27 Net Changes of Rank

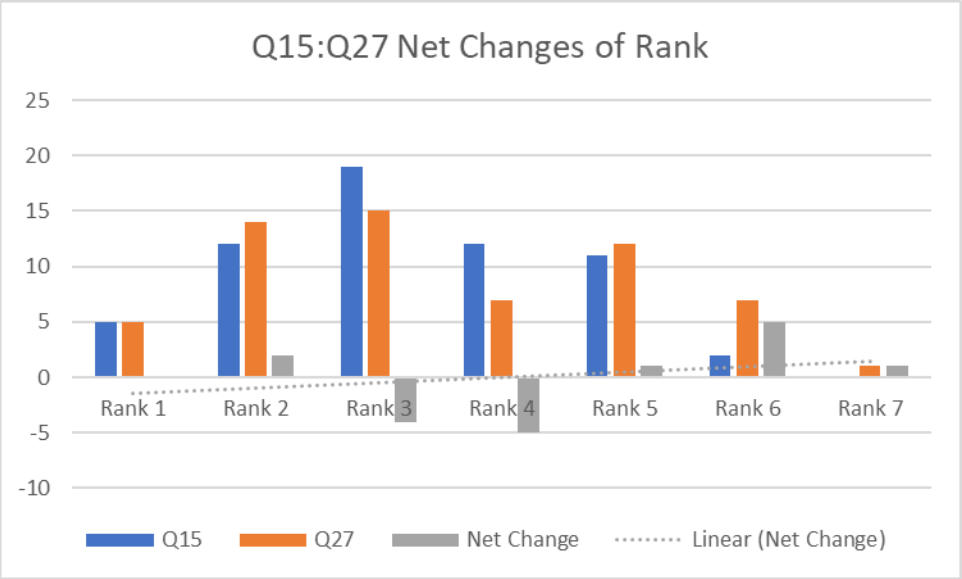

Figure 50. Q15:Q27 Net Changes of Rank

Market Preference Changes between Temporal Periods

Market Preference Change for Apparel (Q7:Q19)

In the analysis of market preference change for apparel after the effects of the pandemic, the majority preference, BAM, does not change. There is a statistically significant difference in the proportion of market use after the effects of the pandemic, in which there is a net change of five individual reports that previously preferred BAM or failed to report a preference but now prefer online retail, of which four individual reports are known to change from BAM to online retail, yet there is no practical change as the majority preference for BAM to purchase apparel remains the same (Table 31).

Q7:Q19 Net Changes of Preference			
	Q7	Q19	Net Change
BAM	46	42	-4
Online	13	18	5
N/A	2	1	-1

Table 31. Q7:Q19 Net Changes of Market Preference

Market Preference Change for Electronics (Q10:Q22)

In the analysis of market preference change for electronics after the effects of the pandemic, the majority preference, online retail, does not change. There is no statistically significant difference in the proportion of market use after the effects of the pandemic, in which the majority preference for online retail to purchase electronics remains the same (Table 32).

Q10:Q22 Net Changes of Preference			
	Q10	Q22	Net Change
BAM	22	21	-1
Online	38	39	1
N/A	1	1	0

Table 32. Q10:Q22 Net Changes of Market Preference

Market Preference Change for Groceries (Q13:Q25)

In the analysis of market preference change for groceries after the effects of the pandemic, the majority preference, BAM, does not change. There is no statistically significant difference in the proportion of market use after the effects of the pandemic, in which the majority preference for BAM to purchase groceries remains the same (Table 33).

Q13:Q25 Net Changes of Preference			
	Q13	Q25	Net Change
BAM	52	51	-1
Online	7	9	2
N/A	2	1	-1

Table 33. Q13:Q25 Net Changes of Preference

Market Preference Change for General Purchases (Q16:Q28)

In the analysis of market preference change for general purchases after the effects of the pandemic, the majority preference, BAM, does not change. There is no statistically or practically significant difference in the proportion of market use after the effects of the pandemic, as only two individual reports are known to change preferences and two individual reports change to no preference reported (Table 34). With no statistically significant difference between temporal periods, the majority preference for BAM to purchase products in general remains the same.

Q16:Q28 Net Changes of Preference			
	Q16	Q28	Net Change
BAM	38	34	-4
Online	23	25	2
N/A	0	2	2

Table 34. Q16:Q28 Net Changes of Preference

Discussion

Research Questions

Research Question 1

In regard to a consensus market preference *before* the effects of the pandemic, each product category demonstrates a consensus for a specific market. For apparel, a vast majority of 46 (75.41%) respondents preferred BAM (H_1). For electronics, a majority of 38 (62.30%) respondents preferred online retail (H_2). For groceries, a vast majority of 52 (85.25%) respondents preferred BAM (H_1). For general purchases, a majority of 38 (62.30%) respondents preferred BAM (H_1).

Research Question 2

In regard to a consensus market preference *after* the effects of the pandemic, each product category demonstrates a majority consensus for a specific market. For apparel, a majority of 42 (68.85%) respondents prefer BAM (H_1). For electronics, a majority of 39 (63.93%) respondents prefer online retail (H_2). For groceries, a vast majority of 51 (83.61%) respondents prefer BAM (H_1). For general purchases, a slim majority of 34 (55.74%) respondents prefer BAM (H_1).

Research Question 3

In the analysis of a statistically significant difference in market preference distribution between temporal periods (i.e., the analysis of market preference change after the effects of the pandemic), only the market preference distribution for apparel demonstrates a statistically significant difference between temporal periods, in which there is a significant change in preference to reduce the disparity between BAM and online retail; however, there is no practical change in consensus preference for any

product category, in which the majority consensus remains the same for apparel, electronics, groceries, and general purchases despite the effects of the pandemic upon business operations and resource availability (for all product categories and general purchases: H_0).

Research Question 4

In the analysis of a statistically significant difference between markets within the temporal period *before* the effects of the pandemic, each product category demonstrates a statistically significant difference. For apparel, there is a net difference (six) and distribution of slightly lower purchase frequency through online retail than BAM (H_1). For electronics, there is a net difference (11) and distribution of moderately higher purchase frequency through online retail than BAM (H_2). For groceries, there is a net difference (45) and distribution of dramatically lower purchase frequency through online retail than BAM (H_1). For general purchases, there is a net difference (20) and distribution of remarkably lower purchase frequency through online retail than BAM (H_1).

Research Question 5

In the analysis of a statistically significant difference between markets within the temporal period *after* the effects of the pandemic, only electronics and groceries demonstrate a significantly significant difference. For apparel, both BAM and online retail demonstrate very low to low purchase frequency with no statistically significant difference (H_0). For electronics, there is a net difference (17) and distribution of remarkably higher purchase frequency through online retail than BAM (H_2). For groceries, there is a net difference (37) and distribution of dramatically lower purchase

frequency (i.e., practically none) through online retail than BAM (H_1). For general purchases, both BAM and online retail demonstrate very low to moderate purchase frequency with no statistically significant difference (H_0).

Research Question 6

In the analysis of a statistically significant difference within markets between temporal periods, there are four instances (of eight) that demonstrate a statistically significant difference in purchase frequency distributions between temporal periods. For apparel purchased through BAM, both distributions demonstrate very low to low purchase frequency with no statistically significant difference (H_0). For apparel purchased through online retail, there is a net difference (seven) and distribution of slightly higher purchase frequency after the effects of the pandemic (H_1). For electronics purchased through BAM, both distributions demonstrate very low to low purchase frequency with no statistically significant difference (H_0). For electronics purchased through online retail, both distributions demonstrate very low (i.e., practically no) to moderate purchase frequency with no statistically significant difference (H_0). For groceries purchased through BAM, both distributions demonstrate very high purchase frequency with no statistically significant difference (H_0). For groceries purchased through online retail, there is a net difference (six) and spread of distribution into higher ranks while retaining a majority reporting very low to no purchase frequency after the effects of the pandemic (H_2) (note: there is a statistically significant difference, but the practical change is minimal). For general purchases transacted through BAM, there is a remarkable net difference (16) and spread of distribution into lower ranks, forcing a skew of ranks toward higher purchase frequencies (H_2). For general purchases transacted

through online retail, there is a net difference (seven) and bidirectional spread of distribution with an overall net increase of a minority from lower purchase frequencies that creates a second, smaller peak in higher purchase frequencies (H_1).

In the analysis of change in rank differences of purchase frequency between markets and temporal periods, there are statistically significant differences for all product categories. For apparel, there is a net difference (nine) and distribution of higher purchase frequency through online retail than BAM after the effects of the pandemic than before (H_1). For electronics, there is a net difference (six) and distribution of slightly higher purchase frequency through online retail than BAM after the effects of the pandemic than before (H_1). For groceries, there is a net difference (nine) and distribution of higher purchase frequency through online retail than BAM after the effects of the pandemic than before (H_1). For general purchases, there is a net difference (20) and distribution of remarkably higher purchase frequency through online retail than BAM after the effects of the pandemic than before (H_1).

Implications

The results of the survey suggest that the only broad product category of those examined by this study that respondents prefer to purchase through online retail *before* and *after* the effects of the global COVID-19 pandemic is electronics, and there are no practical changes in respondents' market preferences after the effects of the pandemic. Despite the government mandates for health and safety protocols to restrict contagion that have impacted business operations and resource availability, the sample's consensus market preferences have not changed, suggesting that most respondents have not been influenced significantly by the effects of the pandemic to change preferences in

correspondence to adaptations to changes in customer requirements for a market; furthermore, this implication suggests that any discrepancy in consensus market preference and reported purchase frequency for a product category is not attributed to change in customer requirements and market preference, rather it is attributed to necessary adaptation to the effects of the pandemic to acquire products at a desired rate (i.e., respondents were forced by necessity to alter the proportions of market use due to the effects of the pandemic upon business operations and resource availability rather than due to increased appeal of customer requirements and service of the less preferred market).

With consideration that estimations of market use are predicted to be different for each respondent, the proportions of market use before the effects of the pandemic are different as expected. The only product category to demonstrate moderately higher purchase frequency for online retail than BAM before the effects of the pandemic is electronics, which is consistent with the sample's consensus preference for electronics (i.e., preference for online retail), suggesting that the majority of the sample desired and/or prioritized the customer requirements and services offered by online retail for electronics. There are a plethora of potential customer requirements and services through online retail before the effects of the pandemic, especially if respondents consider digital media a constituent of electronics, so those are likely consistent with literature, in which online retail offers convenience for remote access to inventory, browsing products with customer and professional reviews, remote orders of products/services for delivery of tangible goods, instant gratification of digital-download purchases, automated customer service options (e.g., telephone, e-mail, virtual assistants, etc.), simplified return policies,

e-coupons and sales, site subscriptions and entailed benefits (e.g., discounts, free shipping, early access, etc.), and relative anonymity through the dissociation of personal information and physical appearance. In regard to the purchase of electronics through online retail before the effects of the pandemic specifically, respondents likely prioritized the aforementioned customer requirements and considered them more convenient, effective, and/or efficient than those entailed in purchases conducted through BAM; if respondents consider digital media as electronics, then there is the factor of instant gratification in digital purchases. If the collective customer requirements and services of online retail are the causation of the consensus preference for online retail to purchase electronics, than those in the minority (i.e., preference for BAM) likely prioritize the local access to inventory relative to domicile, instant gratification of purchases, consultation with employees, intuitive comparison of product features, tactile handling of tangible objects, product demonstrations, instant gratification of returns (compared to returns by shipping), local discounts and coupons (i.e., discounts on products localized to specific BAM locations and coupons disseminated by postage or awarded through purchases), and socialization offered by BAM for electronics purchases. Since the consensus preference and estimated purchase frequency for electronics did not change statistically or practically after the effects of the pandemic, the effects of the pandemic appear to have had minimal to no influence on respondents' consumer behaviors for electronics in rate of purchases or prioritization as a necessity (i.e., respondents have neither changed the rate at which they purchase electronics nor changed the importance of electronics as a necessity; the effects of the pandemic have not significantly influenced consumer behaviors for electronics in this sample). However, respondents have increased

their purchase frequency for electronics through online over BAM after the effects of the pandemic (Q5Q6:Q17Q18), suggesting a statistically significant minority of the sample has increased purchase frequency for electronics through online retail after the effects of the pandemic, further implying that a minority of the sample has adapted to the effects of the pandemic to rely more upon online retail to acquire electronics at the desired rate without a majority of the sample changing purchase frequency.

With the consideration that two of the three product categories demonstrate a consensus preference for BAM, the consensus preference for BAM to conduct general purchases with a slim margin across both temporal periods is consistent with a generalization of the other product categories; the implications of general purchases are too broad to speculate customer requirements that are specific to products, so the lack of statistically or practically significant difference in market preference between temporal periods suggests that a majority of the sample still prioritizes traditional customer requirements and services for purchases in general and that the effects of the pandemic have had minimal to no influence on the customer requirements for general (i.e., all/total) purchases in this sample. While customer requirements for general purchases appear not to have changed or adapted on a significant scale due to a lack of change in consensus preference for general purchases, there is a remarkable change in purchase frequency (20) through online retail than BAM after the effects of the pandemic than before (Q14Q15:Q26Q27), suggesting that a substantial proportion of the sample has adapted to the effects of the pandemic to acquire products in general at the desired rate through online retail rather than BAM while a majority has retained low to moderate purchase frequency for general purchases through online retail and BAM.

While speculation of customer requirements and services specific to products is minimal with general purchases, those that are likely causation for consensus market preferences for apparel and groceries are more feasible to detect. The consensus market preference for apparel was BAM before the pandemic, and, while the change was not practically significant, a statistically significant minority of the sample has changed preference to online retail after the effects of the pandemic. Furthermore, a statistically significant minority of the sample has increased purchase frequency for apparel through online retail over BAM after the effects of the pandemic than before (Q11Q12:Q23Q24), suggesting a minority of the sample has relied more upon online retail to acquire apparel at the desired rate. The consensus preference for BAM to purchase apparel and lower purchase frequency for apparel through online retail before the effects of the pandemic suggest that a majority of the sample preferred the customer requirements and services of the capability to try on apparel for fit and aesthetic approval and instant gratification of purchases and returns offered by BAM that are not possible through online retail, but a minority of the sample has increased reliance upon online retail for apparel purchases due to government mandates that prohibited the capability to try on apparel and reduced local access to inventory due to mandates that have restricted customer occupancy sizes and enforced social-distancing and mask requirements. Despite a minority that has adapted to the effects of the pandemic, a majority of the sample still prefers BAM to purchase apparel, and the purchase frequency for apparel across both markets and temporal periods is very low to low.

As predicted due to customer requirements and consistency with literature, the consensus market preference for groceries before the pandemic was BAM, but there is no

statistically or practically significant difference between temporal periods. Despite the government mandates that have affected supermarkets and grocery stores comparably to retail stores described in the preceding paragraph, the majority of the sample retains a consensus preference for BAM to purchase groceries, suggesting the effects of the pandemic have had minimal to no influence upon consumer habits for grocery purchases. A minority of the sample has increased purchase frequency for groceries through online retail after the effects of the pandemic than before, suggesting a minority of the sample has adapted to the effects of the pandemic in order to acquire products at the desired rate while retaining a majority that has very high purchase frequency for groceries through BAM. Although supermarkets and grocery stores have begun to offer supplementary services to deliver orders or prepare orders for pick-up by a customer or third party gig services have arisen in recent years to facilitate pairing consumers with personal shoppers who purchase and deliver groceries, the majority of the sample has and still prefers BAM to purchase groceries, and the majority has higher purchase frequency for BAM than online across both temporal periods, suggesting that a majority of the sample prioritizes personal agency, intuitive comparison of foods and products, tactile handling of foods and products, and instant gratification in purchases and returns when purchasing groceries. Some respondents may have experimented with services utilizing online platforms but were frustrated with the personal correspondence between customer and personal shopper/store employee and/or disappointed with permitted substitutions or unavailability of foods and products, thereby reinforcing customer requirements and consumer habits prioritized for grocery purchases through BAM. Furthermore, consumers within general populations that defy the representation within this sample may

have reacted to media reports about availability of foods and products and changes to business operations at supermarkets and grocery stores by immediately adapting consumer behaviors to increase reliance upon online retail to purchase groceries, creating a dearth of food/product availability through online retail platforms that reinforces reliance upon BAM as a more reliable, consistent market for food/product availability. Despite the inconveniences of government mandates for business operations, the majority of the sample still prefers and utilizes BAM more to purchase groceries because most respondents prioritize customer requirements for BAM over online retail and product availability for groceries has been more reliable and consistent than online platforms as a moral, humanitarian imperative to guarantee local access to food and related products for lower socioeconomic classes that may have restricted access to online retail and/or the incapability to pay exorbitantly inflated prices or premiums for groceries online (especially non-food products, e.g., toilet paper, isopropyl alcohol sanitizer, etc.). The sample consists of college-educated adults who required access to the Internet to participate in the survey, so the sample appears not to have experienced restricted access to the Internet, but that assumption cannot suggest how participants had access to the Internet, whether privately or publicly; considering the majority of the sample is 18-25 years old and has high school or an equivalent as the highest level of education completed, there is a possibility that some individuals do not have private access to the Internet due to cost, thereby requiring use of public access to Internet (e.g., WKU's campus). Nevertheless, there is still a minority of the sample that has increased reliance on online retail (Q8Q9:Q20Q21), suggesting a minority of the sample has adapted to the effects of pandemic by increasing purchase frequency of groceries through online retail to

acquire foods and related products at the desired rate, perhaps due to personal perception of low food/product availability at local BAM or due to necessity from the reality of low food/product availability at local BAM and/or the new inconvenience of local access through BAM.

Conclusion

The results of the survey suggest that consensus market preferences have not changed after the systemic effects of the pandemic upon societal operation (particularly business operations and resource availability), the only product category to feature a consensus market preference for online retail before and after the effects of the pandemic is electronics, the consensus market preference for general purchases before and after the effects is BAM, and purchase frequency through online retail for all product categories and general purchases has increased for a minority of the sample after the effects of the pandemic, suggesting only a minority of the sample for any given product category or general purchases has been influenced significantly by the effects of the pandemic to adapt consumer behaviors for proportion of market use, purchase frequency, and prioritized customer requirements through increased reliance upon online retail to ensure acquisition of products at a desired rate.

This study investigates subjective estimations of purchase frequency and, by comparison of the reported purchase frequency estimations for each market type, proportions of market use relative to market preference, thereby requiring nonparametric descriptive statistics and net differences of rank and preference to assess statistically significant differences between markets and/or changes between temporal periods. Thus, future studies exploring similar changes in consumer behaviors due to the global

pandemic should utilize quantitative measurements and metrics and, when applicable, parametric tests to acquire more objective and specific estimations for purchase frequency and proportions of market use. The intent of this study is to investigate a relative scale of difference between markets and change between temporal periods to assess the potential evolution of consumer behaviors in an increasing trend toward a greater preference, utilization, and reliance upon online retail after research literature throughout 2020 indicated that the global COVID-19 pandemic has stressed societal operations to near failure due to the lack of extant contingencies to adapt operations in the event of global catastrophe, such as the social-distancing and ancillary/collateral adaptations of the global pandemic. The study does not investigate the potential influence of the systemic effects of the pandemic on purchase volume and, therefore, does not indicate differences in the volume of products purchased through a market type, changes in the volume of products purchased between temporal periods, or the proportion of market utilization by purchase volume, rather the study can merely suggest a difference/change in purchase volume for a given time frame if there is a difference/change in purchase frequency for the same time frame; thus, future studies are recommended to investigate differences between markets and changes between temporal periods for purchase volume, especially those with more empirical research designs, quantitative data, and parametric statistical analyses when applicable. Any future study is recommended to acquire a significantly larger sample size to increase power and validity of statistical analyses for the entire sample and to allow meaningful statistical analyses for demographics variables with adequate power and validity.

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