

Research on Consumers' purchase intention and marketing strategy of fresh online shopping platform

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Abstract. Different from the high demand and utilization rate during the outbreak, as China enters the post-epidemic era, the growth of fresh e-commerce platforms slows down, and users begin to decline. Back-end marketing is an important aspect of influencing customers' purchase intention for platforms. Therefore, this study takes the influence of consumers' purchase intention in the post-epidemic era as the research object and adopts literature research and case study methods to analyze it. Factors related to consumers' purchase intention include the quality and price of fresh food, the system quality, and the service quality of e-commerce platforms. The reasons for consumers to stop using online platforms in the post-epidemic era include the opaque quality of fresh online shopping, relatively higher prices, concerns about the safety of online payment, and the difficulty of operating platforms. In this regard, the suggestions put forward in this study include improving the efficiency of commodity information transmission, optimizing commodity prices, and improving the service quality of the platform. It promotes the development of China's fresh e-commerce industry in the post-epidemic era and accelerates the transformation of traditional consumption mode to digital.

Keywords: Fresh food, Online shopping platform, Consumer behavior, Purchase intention, Marketing strategy.

1. Introduction

1.1 Research background

Since the outbreak of COVID-19 in early 2020, people's travel has been restricted, and even going out to buy daily necessities or vegetables and fruits may become difficult. With the increase of restrictive factors, however, fresh online shopping platform which provides convenience for consumers was facing development. O2O fresh product's e-commerce platform is an online store that provides fresh food and supplies. Customers can choose to order online, and the platform can deliver goods to their homes without going to offline stores [1].

According to DIGITAL 2020: APRIL GLOBAL STAT SHOT, as of April 15, 2020 (compared to the first six weeks of 2020), the value of transactions in the supermarket sector under e-commerce increased by about 76% due to the COVID-19 pandemic [2].

At the same time, according to Mastercard Economics Institute, the global share of fresh food retail e-commerce under the outbreak of Covid-19 is 10%, up 3% from before the outbreak [3].

Take China as an example. From January 24 to 31, 2020, the transaction volume of YongHui Life in Fuzhou increased by 600% year on year. The transaction volume of the MissFresh applet increased by 465% year-on-year during this period [4]. In the more serious period of the epidemic, consumer demand for fresh food surged, and new fresh retail in China experienced a short but rapid development.

However, as the epidemic was brought under control, offline procurement places are gradually returning to business, development of online fresh food platforms began to slow down. Today, the e-commerce share of fresh global retail has fallen from 10% to 9%. In post-epidemic China, consumers' demand for online grocery platforms has also decreased. Compared with before the epidemic, the consumer share of Taobao, Tmall, and some other platforms decreased by 3.3%, 1.2%, and 1.3%, respectively [5].

What is more? The overall penetration rate of China's fresh e-commerce is very low. According to fresh product consumption, China's fresh e-commerce was only about 5% in 2019, while the overall penetration rate of China's commodity retail reached 20.7% in the same period [4]. From this point of view, the fresh e-commerce market space is very large. In addition, thanks to the considerable user volume accumulated during the outbreak, the online fresh food platform in the post-epidemic era will have a good foundation for development.

During the post-epidemic era, fresh e-commerce enterprises develop reasonable marketing strategies, which can contribute to lasting benefits and improve the transformation efficiency of the industry. According to the 2021 Fresh E-commerce Data report released by ECRC, the transaction volume of fresh e-commerce has been increasing since 2013, even under the influence of the epidemic in 2020. However, the growth rate of the merchandise volume has been declining almost continuously. Except for a brief rebound during the outbreak of Covid-19 in 2020, the growth rate hit a new low as China entered the post-epidemic era [6]. Thus, it is time to analyze consumers' purchasing behavior and psychology in the post-epidemic era and adopt corresponding marketing measures to improve the transaction growth rate. Only when the growth rate rises steadily can enterprises' earnings be guaranteed.

In addition, most of these traditional businesses have been connected to e-commerce platforms and turned online [7]. In the post-epidemic era, the development of a fresh online shopping platform will provide greater development space for the transformation of traditional retail. New forms of digital consumption will flourish, and China's new retail industry will also benefit.

1.2 Literature review

Zhao et al. explored the preference of different genders for online shopping in the rapid development of the Internet. They proposed that factors such as high income, excellent product quality, and a safe payment environment can improve the purchase intention of online shoppers [8]. Cang and Wang also studied the factors that affect experienced and potential consumers' online shopping. They believed that product quality, logistics service quality, and website information quality significantly influence experienced consumers' purchase intention. Still, the website information quality has no significant influence on potential consumers [9]. Jin and his team show that the more educated consumers themselves are, the more receptive to online fresh food platforms.

Moreover, they have more trust in fresh products that can be traced back to the source, and the e-commerce environment can promote the increase of the market share of fresh food with certified attributes in China [10]. Gao et al. also proposed that in addition to ensuring the safety of food purchased online during the epidemic, the government and enterprises should help those unable to purchase fresh food online due to their technical capabilities to increase the utilization rate of fresh e-commerce platforms [11]. Lu compared consumers' fresh shopping behaviors under normal conditions and during the outbreak of the epidemic and concluded that consumers' dependence on fresh online shopping platforms is positively correlated with the degree of the epidemic. The more serious the epidemic is, the more dependent consumers will be on online platforms [12]. Liu analyzed the development strategy of Ding Dong Mai Cai, a local fresh online shopping platform in China, during the epidemic. The study believed that fresh e-commerce should strengthen the supply chain and product quality management to meet consumers' requirements for fresh food quality and accelerate the transformation to a digital business model [13].

1.3 Research gap

Most of the journals mainly studied the factors affecting consumers' use of online platforms to buy fresh food under normal conditions or during the outbreak of the epidemic. These factors are usually from the commodity itself or consumers' situation, and the improvement solutions mainly solve the problems of such attributes. However, the post-epidemic era is between the old normal and the outbreak period. It is defined as the "new normal", in which people gradually return to the pace of life before the outbreak, but they have to be constantly on guard against sudden local outbreaks.

How will the post-epidemic era affect people's willingness to consume? How should fresh e-commerce enterprises respond to consumers' new needs? How can enterprises use marketing strategies to improve users' dependence on online procurement and integrate it into the new normal? Very few researchers have studied the above issues.

1.4 Research objective

Based on the background of China in the post-epidemic era, this paper will firstly explore the factors influencing consumers' purchase intentions under the different purchase channels they choose. Secondly, suggestions are given from marketing to slow down the user loss of fresh online platforms from the epidemic period to the current situation. Furthermore, explore how enterprises develop marketing strategies to strengthen their appeal to potential consumers. Finally, the paper will be summarized.

2. Methods

2.1 Literature research method

The literature research method thoroughly reads, analyzes, and sorts out the material to find the essence. Significantly different from other methods, it does not directly deal with research objects but indirectly obtains relevant information from various literature [14]. This paper will use this method to summarize the factors that affect consumers' intentions under normal conditions and then combine relevant investigation reports of the post-epidemic era to more specifically focus on the relevant reasons that affect consumers' intentions under the "new normal". In addition, the previous literature will be used as a reference to help analyze the user loss phenomenon of fresh online shopping platforms under the current situation of the epidemic and give suggestions for improvement.

2.2 Case study

The case study method is a clearly defined aspect of the historical events that researchers choose to analyze, that is, to reflect the prevailing problems through the events rather than the events themselves [15]. This paper will present representative cases of fresh local e-commerce in China and conduct a critical discussion. Case studies will focus on the marketing tools they embody, capturing strategies that respond well to consumer needs in the post-pandemic era. Moreover, this study will identify outdated strategies that can be applied to current consumption patterns and increase their appeal to potential consumers by using this method.

3. Result

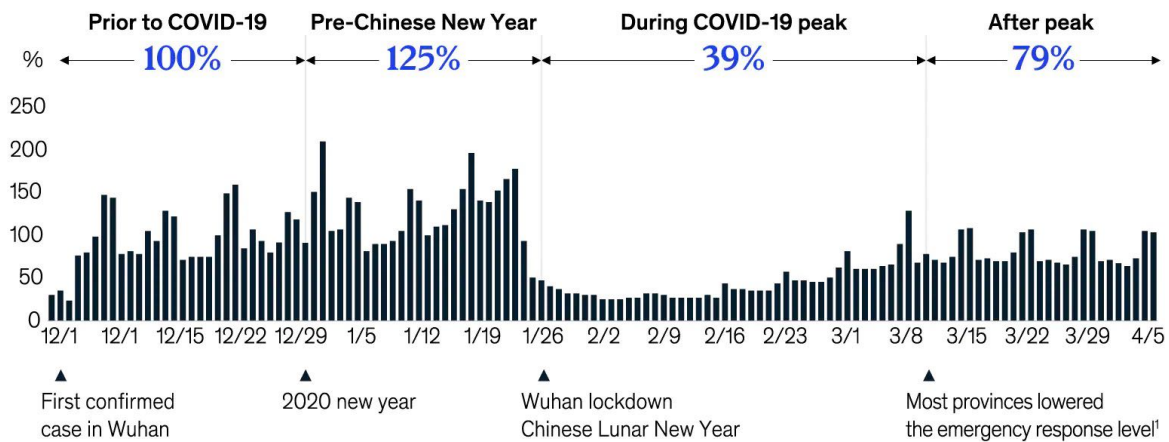
3.1 Development and trend analysis of fresh online platforms in the post-epidemic era

3.1.1 Current development status of fresh platforms

As the epidemic was brought under control, offline consumption is slowly recovering. Taking the time when China's first confirmed case was discovered as a reference point, the share of offline consumption after the epidemic gradually returned from 39% during the epidemic to 79%, and the trend continues to increase [16]. The post-epidemic era has provided consumers with a relatively safe consumption environment. Traditional offline consumers (such as the elderly) return to the "real" and fast offline procurement scene of supermarkets and convenience stores from fresh online shopping platforms.

China offline consumption is still impacted after the outbreak

China offline avg. daily consumption by day, 100%= avg. daily consumption in Dec 2019



¹On March 8, 21 provinces in China announced the lowering of the epidemic response level, covering over 70 percent of the country's population
Source: MIYA payment data engine

McKinsey
& Company

Figure 1. China offline avg. daily consumption by day

Fresh food has non-standard characteristics and high-frequency rigid demand. Compared with clothing, shoes, and other categories, the online penetration rate of China's fresh e-commerce is low. Although, in the post-epidemic era, many consumers using online fresh food platforms have declined. However, it is undeniable that the novel coronavirus epidemic has accelerated the online penetration of fresh food, and the epidemic has cultivated the consumption habit of users using fresh e-commerce platforms.

Now China's fresh e-commerce industry presents a multi-point distribution of giants, and start-ups rush into the fresh e-commerce track. According to the research report of iMedia, due to the huge development space of fresh online shopping and the health needs of "contactless" shopping in the post-epidemic era, capital giants are investing in fresh e-commerce. As can be seen from Table 1, Alibaba has established O2O platforms such as Taoxianda and Ele.me, and "To home + To store" services such as Hema Fresh. In addition to JD fresh, JD also used the O2O platform model to build JD Home, 7Fresh under the "To home + To store" model, and invested in the leading community group buying platform Xingsheng Preferred. Pinduoduo and Didi have also flooded into the community group purchasing circuit. The start-up companies such as MissFresh, Dmall, and Dingdong have been favored by capital, and there are many players in the fresh e-commerce industry [18]. At present, the fresh electricity business has entered the economic model optimization and scale growth stage.

Table 1. The entry of giants and start-ups into fresh e-commerce [18]

	Alibaba	JD	Meituan	Start-ups
Traditional fresh e-commerce	Tmall Fresh	JD Fresh	—	—
O2O platform model	Taoxianda, Ele.me New Retail	JD Home	Meituan flash sales	Dmall
Pre-warehouse model	—	—	Meituan purchase	MissFresh, Dingdong
"To home + To store" model	Hema Fresh	7Fresh	—	—
Community retail model	—	Xingsheng Preferred (investment)	Meituan Youxuan	—

In addition, by observing the business deployment of online fresh food services, it can be found that the various fresh food e-commerce models are coexisting and developing, including a traditional model and four new models. Traditional fresh e-commerce is similar to buying clothes online, and just the category is changed from clothing to fresh. It is a process in which suppliers sell through e-commerce websites and then deliver to consumers by logistics companies. The O2O platform model takes advantage of the existing platform sales to increase the distribution service of fresh sales and achieve the purpose of fresh sales [19]. In other words, platforms do not produce fresh stock goods but provide delivery services for offline supermarkets and fresh vegetable stores, just like JD Home did. The third is the pre-warehouse model adopted by Dingdong. Pre-warehouse is not a physical store but a small warehouse integrating warehousing, sorting, and delivery. It does not require too many business personnel, and due to its small footprint, it can be widely distributed around the community to provide efficient supply. Hema Fresh is the typical representative of the "To home + To store" model. This model is based on offline experience stores, which are used as warehousing, sorting, and delivery centers of the online platform, and meet the demand for fresh procurement through online and offline integration. Consumers can purchase goods in stores or place orders on the platform [20]. The fifth model is the community group, and the main participants include community group buying and fresh community shops. This model takes the community as the center to integrate resources and then provide services better to serve shoppers in nearby communities [21].

3.1.2 Trend analysis of fresh e-commerce platform

First of all, fresh e-commerce may develop rapidly in the future, and the coexistence of multiple models will continue [22]. Although the recovery of the offline economy has reduced the retention of sensitive users, the outbreak of the epidemic has significantly contributed to the economic development of the fresh e-commerce industry. In the post-epidemic era, with the resumption of work and production, sticky users will gradually increase their demand for fresh online shopping platforms, and potential users may also form new demands. Therefore, in the post-epidemic era, fresh e-commerce faces risks and opportunities. In addition, due to different consumers having different demands for the multiple models, the models will still coexist in the future for a while.

Secondly, public traffic gradually disappears, and private traffic will become a new driving force for the growth of fresh e-commerce platforms [23]. The Internet's traffic dividend is waning as the space becomes saturated. Retail platforms are shifting to private domain traffic pools. Private domain traffic is to collect communication with users into a private pool on the platform, such as the brand's official account, which is completely controlled by the brand itself [24]. E-commerce platforms can promote their brand culture and value more efficiently through private traffic. Compared with public traffic, user stickiness is higher, and the cost of acquiring customers is relatively low. Therefore, in the trend of higher traffic costs, private domain traffic will become a new growth point for fresh online shopping platforms.

3.2 Analysis of consumers' purchase intention of fresh food in the post-epidemic era

3.2.1 Quality of fresh products

Sheth investigated the influence of the functional value, social value, and emotional value of a product on consumers' purchase intention, by investigating the reasons why smokers and non-smokers choose to smoke or not. The conclusion is that the functional value of products is generally considered to be the main driving force [25]. On fresh e-commerce platforms, the quality of fresh food is its main functional value. That is to say, and the more optimistic the quality information consumers receive, the more they will show strong purchase intention.

In addition to the apparent "freshness" of fresh food, according to Qi's team, when people were asked to describe the words that first came to their mind about green food, "safe" was one of the most frequently used words [26]. Consumers are still concerned about whether fresh food is contaminated with viruses in the post-epidemic era. As for the opaque online purchase method, consumers are more

willing to go to brick-and-mortar supermarkets to make a personal selection. Therefore, conveying accurate safety information to consumers is also a key factor in promoting purchase intention.

Table 2. Frequency of mention of individual words in four categories [26]

Categories	Individual Words	Number of Mentions
Intrinsic attributes of green food	Tasty	6
	Pesticide-free or less pesticide	4
	Nutritious	4
	Natural	2
	Additive-free or less additive	2
	Non-genetically modified organism (Non-GMO)	2
Extrinsic attributes of green food	High price	10
	Safe	8
	High quality	5
	Good packaging	3
	Environmentally friendly	3
	Clean	2
	Certified	2
	Sustainability	2
	Ecological	2
	Less pollution	2
	Untrustworthy	2
Less variety	2	
Physical health	Healthy	16
Psychological and personal aspects	Better life	3
	Enjoyment	2

3.2.2 Prices of fresh products

Unlike luxury items such as jewelry and necessities such as salt, fresh food, while considered its rigid need and immediacy, still significantly impacts demand from price changes. Price factors significantly affect consumers' purchase intention and final purchase decision [27]. Once consumers have determined the quality standard of the target, they will compare the pricing of different channels and buy fresh food at or below their reserve price.

3.2.3 System quality

The quality of a system is an important factor affecting consumer satisfaction and retention and is usually measured from three dimensions: security, convenience, and technical stability [28].

Security is used here to describe the payment systems of the platforms. The correlation coefficient obtained by Zhao showed a positive correlation between security and purchase intention. Consumers who think online payment is safe are more willing to use fresh online shopping platforms [8].

The ease of use and stability of the platform system plays a major role in boosting consumers' use of online shopping platform [29]. The proportion of the population aged 60 and above in China is 18.7%, indicating a large elderly population [30]. As the main growth group of fresh food e-commerce platforms during the epidemic outbreak, as offline stores began to resume operation, these older people gradually lost the platform and returned to the traditional consumption model. One of the main reasons is that the perception of complexity harms the online purchase intention of conservative online consumers [31].

3.2.4 Service quality

The platform alleviates customers' perceived risks by providing services such as goods description, users' recommendations, and risk prediction, defined as service quality [28]. Only after consumers analyze the information provided by the platform can they form a sound judgment and decision-making ability. Jung also expressed that the services will outline the experience and basic attributes of the product for consumers and ultimately affect the purchase decision [32].

3.3 Problem analysis

3.3.1 Information asymmetry of fresh food

As shown in Figure 3, according to the survey, among the reasons consumers in Hong Kong stopped using online shopping platforms after the epidemic, 75% of respondents said they were more willing to check the quality of products themselves before buying [33]. In the post-epidemic era, Chinese consumers are very concerned about the freshness of fresh food, whether there is virus attachment and traceability. Fresh food e-commerce platforms pay more attention to advertising the quality of fresh food but often ignore consumers' responses to the current epidemic situation.

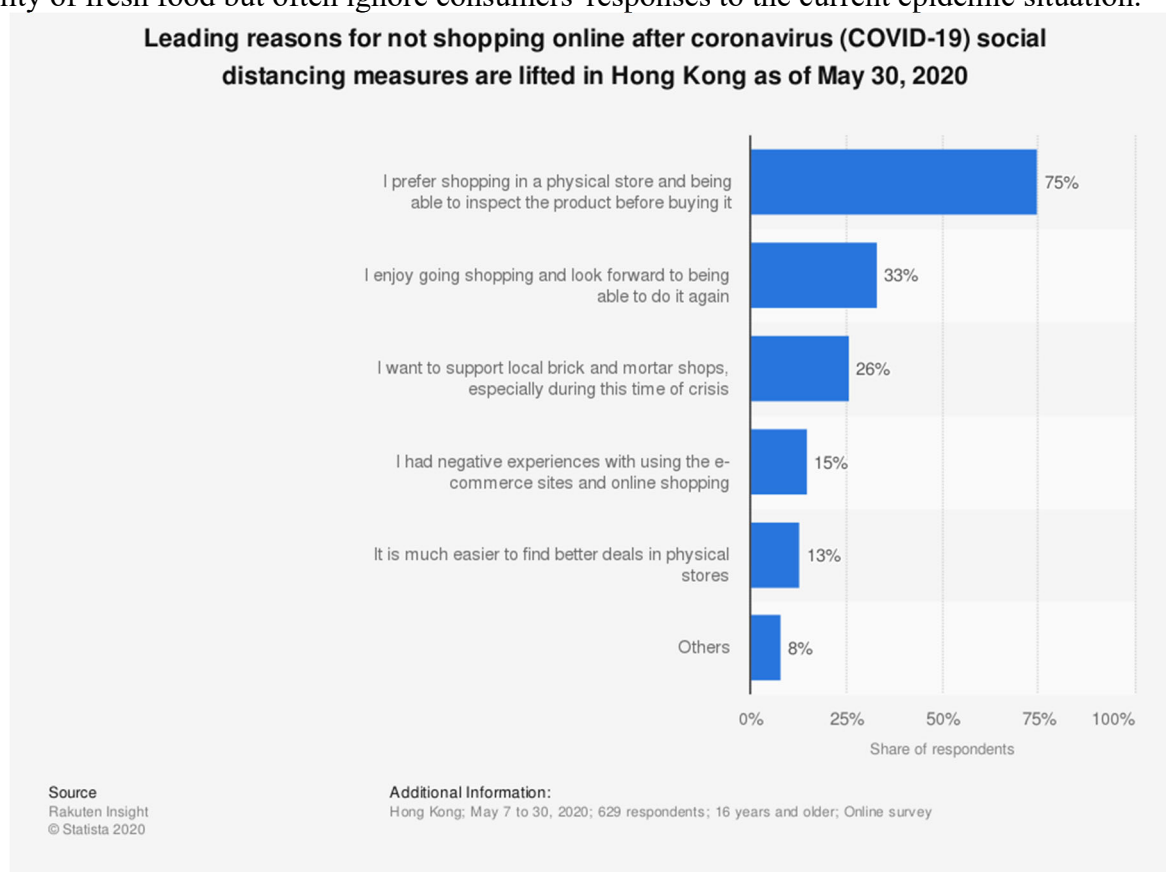


Figure 2. Leading reasons for not shopping online after COVID-19 social distancing measures

3.3.2 The price of fresh products online is relatively higher

Fresh prices on e-commerce platforms are usually higher than those on offline procurement channels. Take Hema Fresh as an example. The goods are purchased from the front-end source, transported and stored through the cold chain, and finally shipped to offline stores for sale. In addition to the delivery and storage costs of fresh products, the daily operation of the online platform will also incur costs. Thus, in addition to reducing costs through economies of scale induced by high volume, the remaining high costs are spread over food prices and service charges. When facing the relatively low prices of physical stores under the “new normal”, those consumers who started using online platforms because of the epidemic are more likely to return to their previous consumption patterns.

3.3.3 Platform service and quality issues

Network payment security issues are also a concern. This issue is influenced by the safety and quality of the payment system used by the platform and the education level of consumers themselves. As shown in Figure 4, salaried workers aged 26 to 35 are the main force using fresh food e-commerce platforms, while with the increase of age, the proportion of consumers using online platforms is decreasing [22]. Online payment is considered "dangerous" for consumers unfamiliar with online applications.

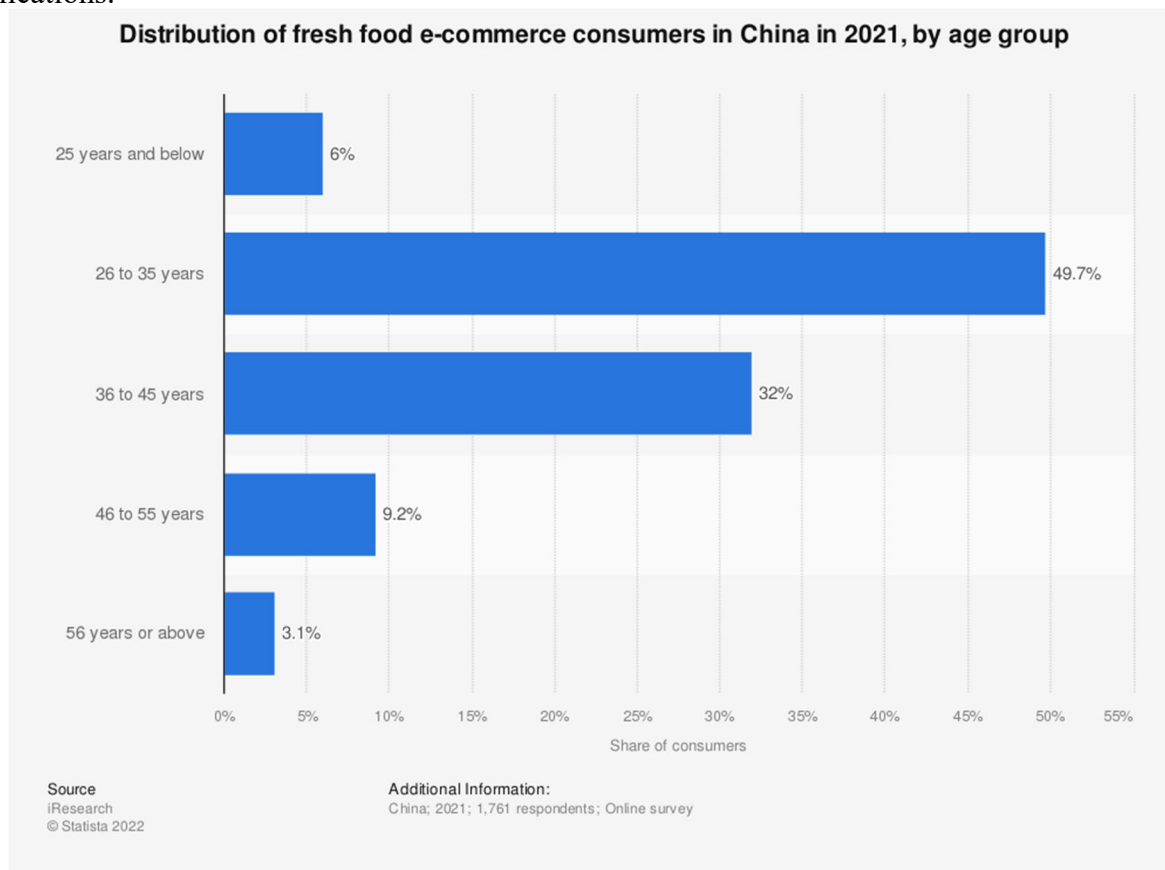


Figure 3. Distribution of fresh food e-commerce consumers in China in 2021 by age group

In addition, with the expansion of fresh categories and platform business, the operation of online shopping platforms is becoming more and more complex. From the beginning of the purchase to the payment of the order, the intermediate process, such as coupon selection, lower price exchange and so on, is increasingly diversified. The complexity of the process makes it difficult for consumers to reach the final step, and the perception of complexity is likely to be higher and higher. Consumers may feel it will be easier to bargain verbally offline than do the math for discounts online.

4. Discussion

4.1 Improvement of information transmission efficiency

4.1.1 Accurate user segmentation in the post-epidemic era

In 2018, Hema positioned its target users as middle-aged Internet users with certain economic strengths and families [34]. With the growth of age and the explosion of Internet users, the original market segment has gradually become saturated. iiMedia research said that in the first four months of 2021, the consumption frequency of new users of fresh food e-commerce platforms in China decreased by 11.4% compared with 2020 [35]. And the key variable that causes this kind of change is the conservative consumers of the network with fresh products purchase demand. This group of

people in China is mainly distributed among those over 65. Due to the epidemic outbreak, they are forced to buy online. However, after stepping into the “new normal”, the relatively stable sanitation environment urges them to return to the traditional consumption pattern. Therefore, if fresh electricity suppliers want to grow in the post-epidemic period, they need to reposition and subdivide users first and then develop specific and feasible marketing plans for those new users.

4.1.2 Privatize traffic and convey brand culture

China is now in a fast-paced and fragmented time management environment, where users get more news from short videos or official platforms than from public ones. Moving traffic to the private domain is not only because of the higher cost of public traffic but also because of the more effective communication of brand value, keeping users’ retention and loyalty. Fresh e-commerce platforms develop independent user docking channels. They communicate with them through private accounts, such as TikTok, to shorten the distance with consumers and more directly feel the needs of consumers. It is worth noting that the target group should be refined, and advertisements should not be spread all over the network [36]. Focus on the channels that lead to your target audience, and listen to your target audience’s needs, not everyone else.

4.1.3 Application of authority

Due to online shopping, consumers cannot truly observe food quality, hygiene, and safety information. In the publicity process, the platform can encourage consumers to make purchase decisions by relying on the endorsement of experts or professional institutions from the perspective of Authority, which is one of the six principles of persuasion [37]. For example, in the post-epidemic situation, consumers are worried that fresh food may carry viruses, and it can be learned from CNPHARM. The possibility of carrying viruses in fresh food purchased online may be lower than in offline stores; it goes through multiple processes [38]. If the platform can accurately convey scientific information and remove consumers' doubts in time, the usage will also increase considerably.

4.1.4 Improve the service quality of the platform

For the key target users, China's current senior citizens, increasing their access to the online fresh food platform is a priority. Reduce the perception of complexity and unnecessary steps from entering into purchasing interface, settlement to the payment interface. Hence, consumers can see the food they need more intuitively, spend less time to complete the transaction, and reduce the churn rate due to the loss of user patience. A caring shopping model can be adopted for the elderly who cannot use the online platform alone. Like the family account on Taobao, friends or relatives can buy for them according to their own needs. They can wait for fresh food to be delivered to their home without operating it. In this way, obstacles caused by personal technical problems in accessing online platforms can be alleviated.

Second, connect secure payment systems and create customized and transparent delivery services. The popularity and security endorsement of the payment system, such as Alipay or WeChat Pay, can be used to improve the trust and loyalty of customers. In addition, transparent delivery services should be provided according to the epidemic situation under the “new normal”. Hema Fresh, for example, displays the health information of the delivery personnel and delivery routes on the detail page. At the same time, increasing the labeling of epidemic risk areas is suggested, effectively reducing consumers' perception of the possibility of risk and making them feel more secure in experiencing it. For consumers in risk areas, customized distribution can be adopted, such as contact-free distribution, which puts the fresh food delivered in the designated place and then transfers it to the buyer after being properly handled by relevant personnel. Improve the hygiene and safety of fresh food in the post-epidemic era.

4.2 Price Optimization

4.2.1 Online transformation of traditional fresh channels

Franchising traditional stores, simultaneously online and offline operation. Due to the high cost of cold chain transportation and offline storage, fresh food e-commerce platforms that rely only on pre-warehouse or “To home + To store” models will significantly decrease usage as the epidemic improves. The preliminary market survey shows that franchising high-quality physical stores reduces the platform's operating cost. These stores have great daily demand, higher immediacy, and more trust by local consumers. Combined with the sudden epidemic outbreak under the “new normal”, the store can also ensure income stability through online mode.

4.2.2 Mutual benefit

Exploit reciprocity in the 6 principles of persuasion. If you are friendly to others, they will be more likely to reciprocate with you [39]. The platform can indirectly reduce the payment of consumers using cash rebates. For example, electronic tokens or coupons are issued after the transaction to offset the amount payable in the next purchase, which gives consumers discounts in a practical sense and helps cultivate loyalty and form continuous shopping.

4.2.3 Pricing based on psychological factors

The platform can avoid real discounts and solve consumers' hesitation by adopting psychological pricing factors. First, the price can end at 9. According to Schindler's theory, customers would think that a price ending in 9 was lower than their reserve price, so it was significantly lower than a competing product whose price was only one penny higher [40]. In other words, consumers are more sensitive to the leftmost number of the price. So, a platform can get higher sales by giving up a penny of profit. Second, rational use of reference prices. The most common is the underlined price on the price page. Comparing the two prices can make customers produce the psychology of value for money. Although the current price may still be higher than the current perceived value of customers, they may still pay for it with the psychology of impulse consumption.

5. Conclusion

Since 2019, China's fresh e-commerce has entered the winter period. However, due to the outbreak of the epidemic in early 2020, residents' activities were limited, and China's fresh online shopping platform encountered opportunities in unexpected challenges. But this period of growth is short-lived. As the epidemic is brought under control and China enters the post-epidemic era, brick-and-mortar enterprises are resuming production. Those consumers who were forced to switch to fresh online shopping during the epidemic gradually returned to traditional consumption patterns. The main factors involved are as follows. First, consumers worry about online food quality because they cannot observe it on the spot. Second, due to the characteristics of the fresh food e-commerce operation mode, the price of fresh food purchased online is slightly higher than that purchased through traditional channels. Third, in the post-epidemic era, consumers have doubts about the hygiene and safety of online fresh food. Finally, the complex online operation process and customer services are not friendly to the elderly population, the main target users in the post-epidemic era. This study proposes accurately targeting new target users and efficiently conveying brand value through private domain marketing output channels to solve the above problems. Then, use professional endorsement and authoritative analysis to eliminate consumers' concerns about fresh online shopping quality and health safety. Offer discounts to customers in the form of coupons and attract them to continue to use the platform. Or set a reference price to affect the user's perception of the price and the value for money psychology.

By analyzing consumers' purchase intention of fresh food in the post-epidemic era, this study provides suggestions to ease the decline of fresh e-commerce platform users. It plays a role in promoting the utilization rate and growth rate of China's fresh food e-commerce industry in the post-

epidemic era. The suggestion in the paper that encourages traditional offline stores to develop online models also plays an accelerated role in the transformation and digitalization of China's traditional sales model.

The study mainly adopts the methods of literature research and case study and uses the survey data of other researchers to supplement the viewpoints, which is the limitation. In future studies, interviews, surveys, and other methods will be used to draw more consistent conclusions with the current research background.

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