

# Research on Development and Pricing of Fresh E-commerce Platform in China—A Case Study of Jingdong Fresh

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**Abstract:** In recent years, with the opening of the domestic consumer market and the improvement of Internet technology, the fresh electricity industry has developed rapidly, and the commercial potential has gradually emerged. Fresh electricity suppliers allow merchants to enter and provide raw material products, while providing users with sales information and distribution services. This article is based on the realistic background of the development of domestic raw electricity industry, with jingdong fresh platform as an example, analyzes the fresh profit model and pricing mechanism of the electric business platform, compared to online commodity price difference, studies have shown that although the platform operation mode is different, but reasonable pricing, scientific and reliable technology, high distribution ability is electric business platform has strong barriers to competition.

## 1. Review of relevant literature at home and abroad

In recent years, domestic scholars have made a relatively complete definition of fresh products, and according to the development of domestic fresh e-commerce platform classification, pricing, scholars from game theory, supply chain, product differences to establish different models to analyze the platform pricing problem. Finally, some scholars have studied all aspects of JingDong fresh platform development.

### 1.1 Development of domestic fresh e-commerce

Chen Guang (2020)<sup>[1]</sup>Fresh products are defined as primary agricultural products that are not processed or processed only after cleaning, sorting, dividing and so on, which are not easy to preserve for a long time at room temperature, generally including fruits, vegetables, flowers, meat, eggs, milk and aquatic products. Topic Xiaochen (2019)<sup>[2]</sup>Fresh agricultural products are defined as primary agricultural products sold on shelves without artificial processing, such as making and cooking. Compared with other commodities, fresh agricultural products have seasonal and regional characteristics. and is vulnerable and perishable.

Wang Dan (2016)<sup>[3]</sup>This paper mainly analyzes the development of domestic fresh e-commerce, divides the domestic e-commerce platform into three types: platform type, vertical type and direct supply of origin, and analyzes the advantages and disadvantages of each e-commerce model, and puts forward that domestic fresh e-commerce can be improved in terms of sales scope, distribution mode and profit model. Zeng Ming (2010)<sup>[4]</sup>Taking the agricultural products e-commerce in Hunan Province as an example, this paper analyzes the problems existing in the futures trading of agricultural products and the electronic trading of bulk agricultural products, and puts forward some suggestions on strengthening government support, vigorously developing e-commerce intermediaries, and cultivating e-commerce customer groups. Liu Xin (2020)<sup>[5]</sup>Describe the development of e-commerce of fresh agricultural products in China under the Internet era, think that the e-commerce of agricultural products has great development potential, and according to the business operation mode, the e-commerce of fresh agricultural products is divided into three types: comprehensive, vertical and community O2O of agricultural products. Li Nan, Li Jiajie (2016)<sup>[6]</sup>The current domestic fresh e-commerce development model is combed, and the profit model and characteristics of e-commerce

platform under different modes are analyzed. And from the refrigeration technology, distribution mode and laws and regulations, the improvement and supervision of fresh agricultural products online shopping are summarized and analyzed.

## 1.2 Domestic fresh pricing

Wu Yong, Ma Liang (2014)<sup>[7]</sup>This paper analyzes the main development mode of fresh e-commerce in China, and thinks that the main factors affecting the price of fresh e-commerce include production and circulation cost and market supply and demand, and the difference of product positioning and logistics distribution will indirectly affect the price. Wang Fangjie (2016)<sup>[8]</sup>According to the particularity of fresh products, a multi-stage discount pricing model is established in the sales cycle. The discount factors are different in the case of return and non-return, which affects the maximum profit of the manufacturer; Liu Xinmin, Yan Xiuxia (2020)<sup>[9]</sup>Considering the freshness characteristics of fresh agricultural products, the game theory is used to explore the pricing strategies of concentrated and decentralized decisions from the perspective of multi-dimensional synergy. The main factors affecting the sales price include the freshness of agricultural products and the time of loading. Bai Hao (2019)<sup>[10]</sup>Starting from the channel conflict, this paper studies the supply chain pricing of mixed two-channel fresh agricultural products, and establishes the producer-retailer mixed two-channel pricing model. It is considered that the supply chain members' fresh-keeping efforts and consumer channel preferences have an impact on the pricing of mixed two-channel fresh agricultural products; Wen Hui, Xu Minghui (2020)<sup>[11]</sup>Tao Jianping suggested that there is a difference in greenness between agricultural products, while the time-varying efficiency of consumers is affected by the greenness, retail price and freshness of agricultural products. The optimal retail price of ordinary agricultural products and green agricultural products is positively correlated with the cost coefficient and freshness sensitivity coefficient of green degree, negatively correlated with price sensitivity coefficient, and the profit of retailers is opposite. Zhao Hong, Wang Xinxin (2018)<sup>[12]</sup>From the point of view of group purchase fresh e-commerce model, the basic pricing model under the cooperation mode between fresh retailer and group purchase platform is established. It is considered that the optimal unit commission decision of fresh group purchase agent is mainly related to unit cost, logistics cost, price elasticity of market demand and unit operating cost of agent group purchase channel.

## 1.3 JingDong Freshness Related Studies

Zhang Chen (2014)<sup>[13]</sup>Summary of JingDong fresh platform in cooperation, distribution mode and distribution speed of outstanding performance, through the establishment of the supply chain of the whole process traceability control system, through the integration of manufacturers' production logistics system and offline retail stores mature all-temperature layer logistics distribution system, Reduce intermediate circulation and deliver fresh products to customers at the fastest and lowest cost. Chen Mengjin (2020)<sup>[14]</sup>After analyzing the Jingdong fresh platform model, it is considered that the fresh supply mode, flow input and user viscosity and cold chain logistics affect the development of e-commerce, and put forward that the advantages of Jingdong fresh are logistics sorting and assembly under the support of high efficiency big data. Ren Fang (2017)<sup>[15]</sup>This paper briefly describes the development and business model of Liu Jingdong fresh, including cooperative warehouse mode and mobile warehouse mode. In view of the high cost of cold chain logistics, Jingdong puts forward some targeted schemes such as controlling the source of products, standardizing the process, building self-built network and strictly controlling inventory management. Topic Xiaochen (2019)<sup>[2]</sup>This paper analyzes the present situation of JingDong fresh logistics, and thinks that the non-standard of cold chain house distribution makes fresh products keep fresh in the last kilometer distribution process is not good. Through questionnaire survey, the factors that affect JingDong fresh customers to form satisfactory logistics service quality are studied. Industrial Dynamics (2017)<sup>[16]</sup>Show that JingDong and Japanese logistics giant Yama multi-party in fresh cold chain, cross-border logistics, global trade, logistics technology and other areas of comprehensive cooperation, and put forward that the current domestic cold chain infrastructure is still imperfect, chain long difficult to supervise, category miscellaneous difficult standardization, self-built cold chain warehouse allocation costs, quality

control difficulties and other key issues to be solved.

#### **1.4 Foreign fresh e-commerce related research**

Cevriye Aysoy (2020)<sup>[15]</sup>It is believed that informal intermediary leads to "supply chain obstacle" of fresh products, and reducing supply chain obstacle is expected to reduce price. Through the study of Turkey's fresh market, the hypothesis that reducing supply chain barrier leads to the decrease of fresh fruit and vegetable price level is tested. Walsh J (2019)<sup>[18]</sup>On the basis of examples of the development of fresh agricultural products and commerce in developed countries, some representative enterprises in the United States adopt the interactive model of "platform + farm + marketing ". The German e-commerce platform includes agricultural electronic information service website, large agricultural products electronic trading platform and electronic store. Tumpa Banerjee (2019)<sup>[19]</sup>By using dynamic pricing analysis method, the correlation of each mechanism in the field of agricultural product marketing is analyzed. It is suggested that e-commerce can improve the financial situation by significantly reducing the cost of middlemen in the supply chain. In the dynamic environment of e-commerce, the demand, supply and freshness of agricultural products are the factors that must be considered in the formulation of pricing mechanism, while there is still room for research on life cycle, residual life and so on.

Yangyan Shi (2018)<sup>[20]</sup>The awareness of suppliers to promote fresh food business under the influence of logistics obstacles and consumers was discussed, and the operation modes of specific suppliers in China and China were analyzed respectively. This paper also introduces the collection of raw data sample population by issuing questionnaires. According to the evaluation feedback, this paper summarizes the different consumption trends of fresh food market, and thinks that logistics service is still the biggest challenge to improve the fresh food market. Simon Somogyi (2020)<sup>[21]</sup>People associate consumers' food selection motivation and social demographic characteristics with their attitude and consumption towards food shopping. Four e-commerce models include B2C,O2O distribution, online O2O in-store and new retail. It also reveals consumer preference patterns for specific food categories in four e-commerce and suggests different business models for different groups. Piril-Tekin (2017)<sup>[22]</sup>It is considered that the price of the product is based on the shelf life and freshness of the product. This model is not suitable for the vegetable market, because the price of vegetables depends not only on the freshness of the product, but also on the supply and demand of the product. Takeshi (2010)<sup>[23]</sup>A pricing problem has been developed for everyday perishable products, focusing on discounted sales at a specific time of day. The model analyzes the reference effect and quantity inventory list, and considers that forecasting the number of unsold products significantly affects the optimal pricing strategy. Alexander (2010)<sup>[24]</sup>It was pointed out that prices must be adjusted in a complex way to obtain the benefits of dynamic pricing, and the demand for products should not be reduced by price changes. Therefore, any dynamic pricing model needs to establish the response of demand to price changes. He uses the Kuhn-Tucker condition to solve the nonlinear optimization problem and leads it to the maximum expected profit by time. Nitin (2016)<sup>[25]</sup>a neural network model for dynamically adjusting product prices is considered. Neural networks process information like the human brain. During the [16], it considers five attributes of product inventory, delivery time, discount, rating and competitor price to determine the selling price of the product to maximize the seller's income.

Foreign scholars mainly from the supply chain, e-commerce platform classification, consumer preference selection and other aspects of fresh e-commerce research, at the same time from a dynamic point of view to study the price of fresh e-commerce products a variety of factors, for domestic fresh e-commerce related research has played a reference role.

## **2. Analysis of Present Situation and Characteristics of Fresh E-commerce Industry**

### **2.1 Definition of fresh product**

Freshness refers to those who have not been cooked and deep processing operations, only do fresh and simple finishing directly on the shelf for sale of primary food, including bread, cooked food and

other on-site processing of goods. Its characteristics mainly include four points: the shelf life is short, easy to deteriorate and rot will lead to a certain loss; the preservation conditions are relatively strict, need to keep fresh, refrigerated, frozen; belong to bulk goods and need to be sold by weighing bar code; generally have a certain seasonal and regional. Fresh goods are mainly fruits, vegetables, meat, aquatic products, dry goods and daily match, cooked food and pastry.

Fresh preservation methods mainly include temperature and moderate management; cold water and ice salt water treatment; strong wind precooling equipment; cold storage refrigeration, freezer freezing and other means, in the daily distribution of cold bags or cold chain distribution, In order to ensure the quality of fresh products.

## **2.2 Current Situation of Fresh E-commerce Industry**

The development of fresh e-commerce can be divided into three periods

The first period is 2005-2011, in 2005, the first domestic fresh e-commerce platform was established, in just a few years, Yi Guo fresh, Li commune, vegetable housekeeper and other platforms have been established, mainly fruit business categories, although in the initial stage of exploration, but due to domestic consumer market and Internet technology constraints, fresh e-commerce platform development is relatively slow, in 2011, Cofco I bought the net and Taobao fresh platform has been established, at that time, a number of fresh platforms have adopted cold chain and self-built logistics, and more vertical e-commerce, although innovative to attract many users, But high cost and high investment is also a more Yan Jun problem.

The second period is 2012-2015, during which the development of fresh e-commerce platform ushered in a small peak, because of the huge market potential, in 2013" original life network "and" Chu orange network "sensation attracted a lot of capital, During this period, many fresh platforms developed and some e-commerce giants such as JingDong fresh, box horse fresh poured in, as many as 4000 domestic fresh e-commerce platforms in 2014. Fresh e-commerce market develops rapidly, but there are also some small and medium-sized platform enterprises can not withstand great pressure and close down mergers and acquisitions, at this time B2B,B2C,O2O and other business models have developed more mature.

The third period is 2016 to date, the giant code cold chain and fresh supply chain investment, create a new layout of retail innovation model, the establishment of online and offline common consumer market, front store and front warehouse and other new models developed rapidly, while the market entered the shuffle period, Wait radish, wonderful life and other platform enterprises crisis. Under the background of the outbreak of the epidemic in 2020, the demand of users has increased sharply, and the development of fresh e-commerce has ushered in a new development opportunity. In the past 15 years, the development of fresh e-commerce industry is not very stable. High distribution capacity can have strong competition barriers in many platforms.

## **2.3 Industry Characteristics of Fresh E-commerce Platform**

Market multi-mode coexistence, strong cold chain technology and supply chain capacity is the key to competitive breakthrough.

Fresh e-commerce industry has evolved from the traditional fresh mode to the state of multi-mode coexistence, storage mode has also appeared in front of the store and front warehouse, online and offline integration, store to home, freezer and other models, but the core is mainly "cold chain" technology, can be described as "cold chain ", in many competitive platforms, can innovate cold chain technology, reduce costs and losses in the market to obtain an active position. Developing profit model, improving supply chain management ability and innovating technology are the most important problems for all platform enterprises.

The scale of fresh e-commerce market is increasing rapidly, the demand of users is increasing, and the development prospect is good

China's fresh e-commerce industry market trading scale reached 279.6 billion yuan in 2019, an increase of about 37%, in 2019 fresh e-commerce platform CR5 accounted for 57.2%, has a strong head effect, it is expected that by 2022, the market trading scale reached 705.4 billion yuan. In recent years, the development of e-commerce in China has been relatively rapid, this year affected by the

epidemic situation, user demand has increased significantly, e-commerce platform development has seen new opportunities, with the development of economy and times, China's consumer groups have gradually changed, at this stage 80,90 has become the backbone of consumption, in the future, with the mobile user size, mobile online shopping penetration and online purchase fresh concept more common, consumers will continue to buy fresh online demand will continue to expand, the future fresh e-commerce platform development situation is good.

Business model continues to develop, new entrants into the industry competition is fierce

Fresh e-commerce platform industry rapid development, now and in the future will still be multi-business coexistence. Nowadays, various business models include B2B,B2C,O2O and so on. Enterprises continue to develop new profit models and expand market share according to their own needs, but due to the good prospects of fresh e-commerce market and many opportunities, Many new enterprises are also looking for the right time to join the market.

### **3. Analysis on Profit Pattern of Domestic Fresh E-commerce**

#### **3.1 Fresh Supply Chain Introduction**

##### **3.1.1 Fresh Supply Chain Upstream: Standardization and Intensive Production**

In the past, the agriculture of our country was mainly produced by individual "small farmers ", the farmers at the source of production were scattered, the fresh varieties, quality and price were not uniform, and the quality of agricultural products lacked the standard. With the increasing scale of cultivated land circulation and the increasingly active economic development, agricultural management units in China are booming. With the increase of new management subjects such as agricultural production and management units and farmers' professional cooperatives, the agricultural production in our country is developing towards scale and specialization, and the standardization and intensification of agricultural products are also promoted, which provides the basis for the scale procurement of fresh e-commerce.

The traditional fresh purchasing mode from the origin to the end consumer industry chain generally passes through four price increase stages, the first level wholesaler undertakes the quotation, the upstream conformity and the purchase function; the price increase rate is about 10%; the second level wholesaler assumes the logistics role, the unit is more dispersed, generally is the warehousing + the logistics vehicle, the upstream docking first level wholesaler, the downstream docking small B( is generally the catering, the small supermarket and so on); the small B end docking consumer, undertakes the retail selection, the purchase, the category management and so on function, the price increase rate is generally about 20%. Fresh e-commerce platforms can be purchased directly from the origin and sold through the platform. At the same time, four levels of wholesalers can also open stores on fresh platforms, such as JingDong fresh platform, which will cooperate with suppliers of origin.

##### **3.1.2 Fresh supply chain midstream: cold chain logistics transportation**

As a link between fresh products and consumers, cold chain logistics fresh supply chain is a key link. Cold chain logistics includes precooling, refrigeration, transportation, sales and so on. Each link involves different cold chain equipment and corresponding cold chain technology, and seamless docking between different links is needed to control the quality of the whole flow. However, the high cost and high investment of cold chain technology is also a very distressed problem. Many merchants hope to get higher product quality guarantee through cold chain technology, but its income is very little, and even leads to the bankruptcy of enterprises.

With the rise of fresh e-commerce market and the rapid development of logistics technology, cold chain technology in China is also developing and upgrading. Future with the Internet of things, block chain, RFIF, intelligent temperature control and other cutting-edge technologies in the cold chain logistics promotion and application further, cold chain traceability and the whole process of monitoring and other technologies gradually formed, will be more effective to ensure the quality and safety of fresh products in the cold chain transportation process.

### 3.1.3 Fresh Supply Chain Downstream: C End Consumer Distribution

Big data and rapidly expanding community layout, helping end distribution closer to consumers

Fresh products are non-standard products with immediate demand, which has the characteristics of easy loss and low quality. In order to better meet the immediate consumer demand and reduce the loss of fresh products, many fresh e-commerce businesses in the community layout of pre-warehouses and offline stores, covering its surrounding 1-3 km of consumers, Shorten the distribution distance, but also for the improvement of the prescription laid the foundation. Fresh e-commerce uses "last kilometer ", " freezer self-take" and other ways to increase the user experience, and JingDong fresh, box horse fresh and other off-line physical supermarket distribution.

### 3.2 Business model breakdown

Fresh as a category with high repurchase rate and large market space, the huge market scale and good business prospects have attracted many business platforms to join them. So far, in addition to the traditional fresh e-commerce, innovative models such as front warehouse , " supermarket + catering ", community group and so on have emerged. All major platform enterprises have developed new models or carried out enterprise development according to existing models.

On the whole, the business model of fresh e-commerce shows a variety of development. Now the domestic business model of fresh e-commerce can be divided into three modes: B2C, Business-to-Business, O2O (Online To Offline), in addition to C2B,C2F and other business models, which are mainly consumers customizing personalized products through Internet platforms or suppliers. This model is not very mainstream in China, Most of the fresh e-commerce we use in daily life is that customers choose and order through the platform and then pack and distribute the platform, which is also in line with the overall operation mode of e-commerce in China.

The first is B2C business operation mode, B2C mainly platform e-commerce mode, mainly includes two kinds, the first is comprehensive fresh e-commerce, its platform opens fresh channel, is the traditional online shopping point-to-point mode, and usually uses the third party merchant to enter the + platform self-support form, represents the enterprise to have the Tmall fresh, the JingDong fresh and so on, this kind of platform has the rich flow, the good brand effect, the stable logistics distribution, but its supply chain is not very stable, the resident platform merchant is mixed, can not guarantee the product quality completely, in this case, Platform e-commerce also created a self-owned plate, so that the platform can also become a supplier, and earn profits, in the platform self-owned store procurement users will be more assured.The other is the specialization mode, where some retailers sell their products on their own trading platforms, from product purchasing, production, distribution and platform maintenance, all of which are controlled by the retailers themselves, which makes the product supply chain more perfect and regulated. The representative website includes the easy fruit net, the original life net and so on, but exists the platform traffic is small, the maintenance cost is high, the user number is small and so on.

Secondly, B2B business operation mode, also known as vertical e-commerce mode, which deepens operation in a certain industry or market segment. Compared with platform e-commerce, vertical e-commerce platform has different emphasis. It mainly includes purchasing goods for sale or providing online platform. The vertical platform of domestic representative mainly includes daily excellent fresh, daily orchard, I buy net, work club, fresh easy net and so on.

The third is the community O2O business operation mode, which refers to the combination of offline business opportunities and the Internet, so that the Internet becomes the platform for offline transactions. The main work of the platform is online drainage and offline distribution. When the consumer completes the order, the courier picks up the goods and distributes them to the nearby merchant or distribution station, and the platform takes part of the commission to make a profit. Although the gross profit rate is low, the platform entry threshold is light, and the integration ability of supply chain resources is high. Its cost is mainly distribution cost, and the number of merchants entering, retention ratio, distribution rate and so on will affect the development of platform enterprises. O2O representative enterprises have Taobao fresh, love fresh bees and so on.

### 3.3 Price level and pricing mechanism of fresh e-commerce

Nowadays, there are two main ways for consumers to buy fresh products: online and offline. With the advantages of diversification, efficient distribution and service availability, e-commerce has attracted many users to purchase orders on the platform, but there are great differences between the pricing of fresh products and the pricing of offline products. The main reason is that retailers not only pay for the deduction, but also pay for the manual picking and packaging of stores. The online price increase is mainly to cover these additional costs. Fresh e-commerce and ordinary e-commerce are different. Besides supply chain management, we need to consider the loss of product consumption, And in order to ensure that the product quality distribution mode also uses the cold chain distribution more, the e-commerce platform wants to profit, needs to share the cost to the price, only then is profitable, also has some e-commerce platform to be unable to balance the cost and the income, the profit condition is poor, then may face the closure or the exit market and so on situation.

The reason why e-commerce is developing rapidly in China and the profit space is huge, Because online stores can save offline rental stores and other costs, And the price of some necessities is far below the price of offline stores, So many users will choose "online shopping ". Platform sellers can save costs and earn more profits. But this doesn't fit the situation of fresh e-commerce: cold storage before shipment, Cold chain transport after delivery, The logistics cost of fresh goods is much higher than that of other consumer goods. Despite the high prices of fresh products, But it's still the best choice for many white - collar users, Ai Rui Consulting released the "2018 China fresh e-commerce industry consumption insight report "shows, Young users with high education are the main people who buy fresh online. Fresh online shoppers are concentrated in the 25-35 age group, The proportion of undergraduate degrees is 66.4%, Personal monthly income of more than 8000 yuan users accounted for 43.6% of Dada. Because China's C end cold chain logistics started late, At present, the coverage area is mainly the first and second tier cities, Therefore, fresh online shopping users are also mainly to the first and second-tier urban users. The higher price of fresh e-commerce can not conceal its convenience, efficiency and other characteristics, For users with higher education and higher pay, Online distribution is still their choice, From this we can think that the future prospects of the development of fresh e-commerce platform is still very good.

On the JingDong home, Beijing Fuxingmen Tianke long supermarket online red jade watermelon for 3 jin 12 yuan, And the offline price is 1.99 yuan, That's less than \$6, The price gap is about double; Xizhou honey 6 jin 28.33 yuan, About 4.7 yuan per catty, And the line is 3.99 yuan per catty, About 10% more expensive; Elizabeth melon online buy each three jins 12 yuan, About \$4 per catty, And the price of the offline supermarket is 2.99 yuan per catty, It's about 30% expensive.

### 3.4 JingDong Freshness Related Studies

JingDong fresh is JingDong's fresh brand, as of 2017, its business scope covers seafood aquatic products, fruits, vegetables, meat, poultry and eggs, frozen and other categories, SKU up to more than 100000 species. The products are mainly distributed by fresh cold chain of JingDong logistics, which has covered more than 300 cities in the country, and also has full temperature cold storage in the core cities of the country. Adhere to the "self-owned + buyer system" model, in-depth planting base, production line for field inspection, through the origin, production line and other multi-dimensional comparison and screening, for consumers to select healthy ingredients; for sellers to enter the JingDong fresh requirements are also more strict, merchants must be officially registered enterprises. The supplier of such platform mainly includes two, one is the JingDong brand of self-procurement, the other is the retailer or wholesaler of channel specification.

JingDong fresh platform operation is a typical traditional B2C mode fresh e-commerce, consumers order goods from the general warehouse, through trunk transport to select delivery location, and finally sent to the consumer's home, in order to ensure the quality of products, JingDong fresh storage warehouse, when the seller can not guarantee the freshness of the product, the product can be stored under the JingDong line, once the user orders, JingDong will take delivery from the storage warehouse, its main profit point includes two aspects, one is JingDong profit, On the other hand, the commission is charged to the seller, if you choose to store the warehouse, you have to pay a certain

fee according to the situation of the goods. This model not only ensures the quality of self-owned products, but also plays a role of supervision and assistance to other sellers in the platform to achieve win-win situation.

In terms of cost, the cost expenditure of JingDong fresh platform mainly includes the purchase cost of platform origin, the operating cost of platform, the establishment cost of offline storage warehouse and freezer, and the cost of cold chain distribution logistics. JingDong's own logistics "Jingzhunda" can choose the accurate receiving time period, most fresh platforms will use third party logistics distribution, because the cold chain logistics cost is too high. The initial stage of JingDong fresh has been a loss-making stage, and the initial use of the third-party distribution model ,2018 JingDong fresh and Tsing Tao Beer cooperation, found the advantages of cold-chain distribution, JingDong with retailers, wholesalers or brand manufacturers, using the "trunk transport" approach, whenever users order, JingDong logistics will send products to the provincial capital for refrigeration, and then with convenience stores to complete warehousing and distribution, all processes are completed within 24 hours. This not only meets the needs of customers, creates a good brand effect, cold chain technology also makes JingDong fresh in many platform competition.

On February 6,2020, Jingdong fresh launched the "Food and Beverage Retail Development Alliance" to promote the catering brand to open up the production of semi-finished products, and to use JingDong all channels to expand its new market. More than 100 catering enterprises, including submarine salvage, Xibei, Donglai Shun, Haagen-Dazs and Guangzhou Restaurant, have joined. The JingDong fresh platform not only sells traditional fresh products, but also works with major brands to increase commodity diversity and attract more users. With its own cold chain logistics, JingDong fresh future development prospects are very considerable.

#### **4. Pricing of Fresh E-commerce Products -- Taking Jingdong Fresh as an Example**

##### **4.1 Overview of Major Fresh Products in China**

At present, the classification of fresh products in China is mainly divided into five categories<sup>[26]</sup>, including fruits and vegetables, meat, seafood, aquatic products, dairy products and eggs. Different storage conditions, harvest cycle, production characteristics and processing conditions of fresh products are different. The storage period of fresh products of vegetables and fruits is not long, the harvest season of different products is different, and the processing rate of fresh products in China is low.

The frozen meat in the meat has strict requirements for temperature and environment, more processing factories, and the variety, packaging and selling methods of meat in the market are abundant. Aquatic seafood requires high temperature and environment, but the storage time is relatively long and the processing steps are more complicated. Dairy products and eggs storage time is short, processing steps are more, should pay attention to sterilization and preservation.

Different fresh products have different purchasing methods, storage conditions and sales methods, fresh e-commerce according to the characteristics of the product proposed different solutions for product procurement, sales and distribution. In the purchasing link, JingDong fresh has its own raw material purchase place, JingDong self-owned shop according to the user demand to the original mining place to purchase, and distributes to different regions. For JingDong outside the business, are their own distribution, through the platform to sell, and then through JingDong logistics distribution. In terms of storage conditions, JingDong uses a high cost cold chain to ensure the freshness of fresh products. Other merchants can put the products in front of JingDong fresh warehouse, which also ensures the quality of the products.



Table.1. Overview of Main Fresh Products in China

|                            | Spinach and fruit  | Meat   | Seafood and Fish  | Dairy products  | Eggs   |
|----------------------------|--|--|---|---|--|
| Main products              | Apple, watermelon, cabbage   | Beef, mutton, pork, etc  | Fish, shellfish, shrimp and crab  | Milk, yogurt, ice cream   | Eggs, duck eggs, goose eggs, etc   |
| Storage conditions         | 0-4°C, storage period 20-30 days   | Optimal storage temperature of fresh meat 0-3°C, frozen meat-18°C, storage period 6-9 months | Frozen aquatic product storage temperature -25~-18 degrees Celsius, storage time 6-19 months  | High protein food, prone to spoilage, short shelf life, high temperature requirements | The shelf life of eggs is 15 days at 2-5 degrees Celsius and 10 days at normal temperature in summer |
| Harvest cycle              | Overlay year-round, different product gap is bigger  | Pork production cycle is 6 months, poultry about 3 months                                    | Summer is usually a fishing ban, autumn and winter for seafood fishing season   | Milk production decreased in winter and more in summer                                | No obvious periodicity   |
| Production characteristics | Higher degree of mechanical automation   | High degree of mechanical automation, large-scale meat processing plants more                | The automation degree of aquatic product processing is low; it is in semi-automatic semi-manual stage                                     | The liquid milk industry has formed a duopoly pattern represented by Yili Mengniu     | Higher degree of mechanical automation   |
| Processing                 | Some agricultural and sideline products need to be processed, and the overall processing rate of fruits and vegetables in China is low | The processing of fresh meat requires slaughter, salting, smoking and drying                 | Fresh aquatic products need not be processed, aquatic products processing process including slicing, plastic, storage refrigeration steps | Pay attention to sterilization and preservation                                       | Eggs need to be cleaned, germicidal and a series of processing steps                                 |

#### 4.2 Product Characteristics and Price Comparison of Fresh E-commerce Platform

At present, Ali, JingDong, Meituan and other industry giants layout "buy food business ", in our country vegetables and fruits are high-frequency demand of fresh products, fresh e-commerce with vegetables and fruits as a breakthrough, opened the fresh electronic market. Especially during the period of epidemic prevention and control in 2020-2021," online shopping "has become the main choice for many users with the characteristics of convenience and safety.

In terms of price, we can compare the wholesale price of different kinds of market with the price of fresh e-commerce platform (taking JingDong as an example). In vegetable category, the wholesale price of spinach and tomato is not more than 4 yuan, but in JingDong fresh platform, the lowest price is 4-6 yuan / jin because of category, origin, packaging and so on. Fruit products are also relatively expensive, 3-7 times higher than wholesale prices in the market. Meat and poultry, such as eggs, pork fresh platform prices doubled in 2-3 times, aquatic shrimp prices are also higher than the normal market wholesale prices 2-6 times. It can be found that the price of fresh e-commerce platform products is generally higher than the wholesale price of offline market, the price of vegetables and fruits, seafood and aquatic products is higher, and the price of meat and poultry is slightly higher than the wholesale price of the market. We analyze this is due to the JingDong fresh from product

procurement to distribution process, which takes a long time. In order to ensure the quality of products, the cost of product quality, packaging, cold chain transportation, cold storage is high, these costs need to be included in the product price to ensure the platform profit. The product transportation and storage of offline stores are relatively simple, the cost is low, and the price of fresh products is controlled by the state. Compared with fresh e-commerce platform, low price is also one of its main competitive advantages.

Table.2. Typical Products and Features of China Fresh E-commerce Market in 2019<sup>[27]</sup>

|   | Vegetables            |                | Fruit                 |                    | Meat and poultry eggs |              | Cooked food baking | Aquatic Products |
|---|-----------------------|----------------|-----------------------|--------------------|-----------------------|--------------|--------------------|------------------|
| Level of demand                         | High frequency demand |                | High frequency demand |                    | IF Demand             |              | IF Demand          | IF Demand        |
| Average weekly purchase frequency       | 2.08                  |                | 1.77                  |                    | 1.58                  |              | 1.39               | 1.38             |
| Gross margin                            | 15%                   |                | 20%                   |                    | 5%-15%                |              | 25%                | 20%              |
| Loss rate                               | 3-4%                  |                | 4-5%                  |                    | 1.5-4%                |              | 4-5%               | 3%               |
| Representative category                 | Spinning              | Tomatoes       | Orange                | Watermelon         | Soil eggs             | Pork pork    | Ham, bread         | Fresh shrimp     |
| Wholesale prices                        | \$0.5-2/kg            | \$0.93-3.86/kg | \$2.12-2.79/jin       | \$1-2.1/kg         | \$11.23 - 23.52/kg    | \$21.3-29/kg | —                  | \$18-30/kg       |
| Retail Price of Jingdong Fresh Platform | \$4-20/kg             | 6-25 yuan/kg   | \$4-20/kg             | \$3.9-25 per catty | 10-25 yuan/kg         | \$35-50/jin  | —                  | \$23-30/kg       |
| Increase in price                       | 800%-1000%            | 647%-860%      | 188%-716%             | 361%-1190%         | 0-106%                | 164%-172%    | —                  | 278%-667%        |

### 4.3 Price comparison of fresh e-commerce platform

Table.3. Comparison of Food Prices APP Seven Fresh Products

| Platform          | Comparison of prices of seven fresh APP purchased foods (jin, bag/yuan) |                 |                   |                   |                 |                              |
|-------------------|---|-----------------|-------------------|-------------------|-----------------|------------------------------|
|                   | Chinese cabbage   | radish          | Spare ribs        | Beef              | Lamb lamb       | Three fresh frozen dumplings |
| Tmall supermarket | 2.4   | 3.2             | 49.9              | 39.9              | 34.9            | 33.9                         |
| JingDong Fresh    | Different business prices are not uniform                               |                 |                   |                   |                 |                              |
| SUNING            | 2.96  | 4.8             | 36                | 35                | 60              | 30                           |
| Boxes fresh       | 23.6(Organic)   | 3.2             | 49.9              | 39.9              | 63.5            | 33.9                         |
| Daily Fresh       | 9.3   | 3.4             | 39.8              | 32.9(rush price)  | 49.8            | 33.8                         |
| Ding Dong         | 8.6   | 6.5             | 42.5              | 46                | 68.5            | 33.9                         |
| American          | 2.25(ten catties)   | 2.5(10 catties) | 53.8(two catties) | 42.8(two catties) | 45(two catties) | ---                          |

Compared with the seven popular fresh purchasing platforms in China, the price of Tmall supermarket is generally lower in vegetable price, the price of box horse fresh is close to that of Tmall supermarket, but the price of organic vegetables is higher. SUNING pricing is relatively low, daily fresh platform will launch daily purchase price, but not many; frozen products APP the average price is close. There are some other platforms such as American Cuisine net, the price is close to the offline wholesale market price, but they are all group purchase prices, suitable for some users who require high quality and buy in large quantities.

JingDong fresh as a traditional fresh e-commerce, its platform has a large number of businesses,

and including JingDong self-owned stores, which makes the platform product prices vary and the gap is large, according to the platform data, JingDong store fresh products prices are generally high, But users can enjoy JingDong cold chain transportation, door-to-door and other quality services. Another store's product price and other fresh platform price gap is not big, overall does not have the very strong competitive advantage, the user may prefer to choose other good and cheap fresh app product.

#### 4.4 Comparison of Package Price for Fresh E-commerce Platform

Table.4. Comparison of package prices for some fresh e-commerce platforms

| Platform           | Package mail     | Optimal prescription for fresh distribution | Conditions of limitation          | SKU( rough)     |
|--------------------|------------------|---|-----------------------------------|-----------------|
| Tmall supermarket  | \$29             | 1 hour                                      | Three kilometres around the store | About 100       |
| Daily Fresh        | \$39             | 2 hours                                     | No                                | About 600       |
| Box Ma Xiansheng   | No threshold     | 30 minutes                                  | 3 kilometres around the store     | 6000~8000       |
| Su Ning fresh      | \$86             | Next day                                    | No                                | More than 4,000 |
| JingDong Fresh     | Basic freight 12 | 1 hour                                      | ---                               | More than 3,000 |
| Cofco buys net     | \$88             | Date of arrival                             | Self-employed                     | Over 30,000     |
| Everyday orchard   | \$69             | 29 minutes                                  | No                                | About 1000      |
| Shunfeng excellent | \$49             | One hour                                    | Only around stores                | Unknown         |

Fresh platform not only in product quality, product price gap, logistics distribution of different platforms are also different, first of all, package price, because fresh product quality requirements, strict storage conditions, its profits are not as large as other commodities, many small enterprises can not bear high costs and close down, large-scale purchase app in the market set up package price, that is, when the purchase amount of goods to meet certain conditions can avoid distribution costs, so as to guide consumers to buy large quantities; As far as distribution limitation is concerned, fresh e-commerce competition is fierce, which can ensure that fresh products are delivered before the next day, and users can choose according to different prescription requirements. For example, setting up lightning bin and store below line, setting up distribution range.

Among them, JingDong fresh in logistics distribution outstanding, first of all, distribution prices, JingDong fresh did not set up a free price, fresh products basic freight price of 12 yuan, according to the weight of the product set up a continuation fee, Users do not need to buy enough to enjoy package mail, but may not be an advantage for customers who want to buy in large quantities. On the whole, JingDong fresh set up original land, adopt cold chain logistics distribution form, set up offline storage warehouse all over the country, although the cost is high, but guaranteed the quality of fresh products, to provide users with a good purchase experience, Competitors in many fresh e-commerce platforms have greater advantages.

#### 5. Conclusions and recommendations

Firstly, this paper expounds the development status of fresh e-commerce industry, analyzes the profit model and pricing mechanism of domestic fresh platform, and analyzes the difference between JingDong fresh product pricing and offline and other APP platforms. To sum up, JingDong fresh as a traditional fresh e-commerce, from the source of products for all aspects of supervision, because the fresh market is a "non-standardized" market, need to build their own standards and systems to restrain themselves, JingDong self-built plant factory, Set up "fresh farm" certification to ensure the quality of fresh products, and cooperate with local merchants to support the distribution of products

in financial and technical aspects to achieve win-win cooperation. In business, JingDong fresh with scientific and technological agricultural technology, the introduction of strength, entrepreneurial brand cooperation, provide technical support to achieve strong cooperation.

Platform operation, the establishment of JingDong, platform influence, high visibility, to provide quality services favored by users. At the same time, as a marketing platform, JingDong fresh attracts more merchants to enter, carries on the category expansion and the derivative, has enriched the user's choice in the horizontal and vertical direction. In the aspect of distribution, cold chain logistics and cold warehouse preservation technology are adopted to ensure product quality and improve distribution efficiency, and the overall satisfaction of users is high. The offline store 7 FRESH received praise from c end users, although the number of stores is not large, but will be covered in more places in the future. The good combination of online and offline has become one of the reasons why JingDong fresh stands tall in many e-commerce platforms. If we can study consumer behavior, demand habits more deeply and locate the user population more accurately, then we can provide more personality and targeted user experience, which can not be compared with traditional channels. In terms of price, JingDong fresh should be more scientific and reasonable pricing, accurately locate fresh products, increase product classification, give users more choices, at the same time, appropriately increase the discount part, reduce the cost savings of product surplus. One of the reasons for the high price is also because of the high cost of cold chain logistics transportation. JingDong fresh platform should increase technological investment and innovation, reduce costs, and expand the market to obtain greater profits.

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