Cost Control Strategies for Cold Chain Supply Chains in Community Group Buying: A Comparative Study of Meituan Select and Duoduo Buy Vegetables

Yuankang Liu
Qingdao Agricultural University, Qingdao, China

Abstract: This study focuses on cost control strategies for cold chain supply chains in the context of community group buying, taking Meituan Select and Duoduo Buy Vegetables as typical cases. By comprehensively employing case study analysis and literature review methods, and integrating corporate public data, industry reports, academic literature, and field research, it systematically compares the practical differences between the two platforms in dimensions such as warehouse layout, transportation optimization, inventory management, and technological applications. The analysis delves into the path dependencies and innovative breakthroughs in cost control, ultimately aiming to propose actionable optimization strategies and feasible recommendations.

Keywords: Community Group Buying; Cold Chain Supply Chain; Cost Control; Meituan Select; Duoduo Buy Vegetables; Case Study Analysis; Literature Review Method; Warehouse Optimization; Transportation Routing; Technological Application

1.Introduction

1.1 Source of Project

From an academic point of view, the traditional supply chain cost control theory has encountered a bottleneck in the new scene of community group buying cold chain, which has prompted scholars to think deeply and need to find a better way out for it. In fact, community group buying enterprises are caught in the dilemma of high cost of cold chain supply chain, and their profit margins are repeatedly compressed, and their market competitiveness is also suppressed, so the demand for cost control is increasing. In addition, China's policies encourage the development of cold chain logistics and the standardized operation of e-commerce, and the quality requirements of social consumers for fresh products and distribution services are constantly improving. These factors have jointly promoted the development of this research [1].

1.2 Research Background

Under the wave of the era of booming Internet technology and profound changes in consumers' shopping habits, the emerging e-commerce model of community group buying has sprung up rapidly. It takes the community as the basic unit, and efficiently organizes residents to carry out centralized purchasing activities with the help of online platforms. The fresh products sold have won the love and favor of the majority of consumers with convenient purchasing methods and affordable prices. However, most of the fresh products involved in community group purchases have strict requirements for storage and transportation conditions, and need to rely on cold chain logistics to ensure product quality. However, the high cost of the cold chain supply chain has become a key bottleneck that restricts the community group buying industry to a higher stage of development. Therefore, it is of great practical significance to carry out in-depth research on the cost control of community group purchase cold chain supply chain [2].

2.Materials and Methods

2.1 Data Source

Primary Research (45 participants were interviewed):
20 cold chain managers (10 from Meituan Select, 10 from Duoduo Buy Vegetables) 15 supply chain vendors (transportation, warehousing, packaging)10 consumers (frequent platform users) Semi-structured interviews focused on cost drivers, optimization tactics, and platform-specific challenges. Field observations were conducted at8 distribution centers (4 per platform) to assess operational workflows, as

shown in Figure 1.

Secondary Research:

Financial reports, industry white papers, and academic studies on China's e-commerce cold chain sector were analyzed.

Public data on pricing strategies, subsidies, and user reviews were sourced from official platforms and third-party analytics [3].

2.2 Research Method:

This study adopts mixed research method, combining qualitative analysis and quantitative analysis.

Case Study Analysis:

Meituan Select and Duoduo Buy Vegetables are the head platforms of community group buying, which represent two cost control modes: technology-driven mode and resource integration mode respectively. Multi-dimensional comparison based on four core links of cold chain supply chain (warehousing layout, transportation optimization, inventory management and technology application).

Literature Review Method:

Taking "cost control of cold chain supply chain", "business model of community group buying" and "case analysis method" as key words, the papers with high citation rate in recent five years were screened [4].

Analytic Hierarchy Process:

Target layer: the optimization of the US delegation and the optimization of the cold chain logistics cost of buying more food.

Standard layer: cost drivers (equipment technology, transportation, energy, labor, management, market demand)

Scheme layer: enterprise strategy (equipment selection optimization, path planning, energy management, manpower allocation, cooperation and policy response) [8].

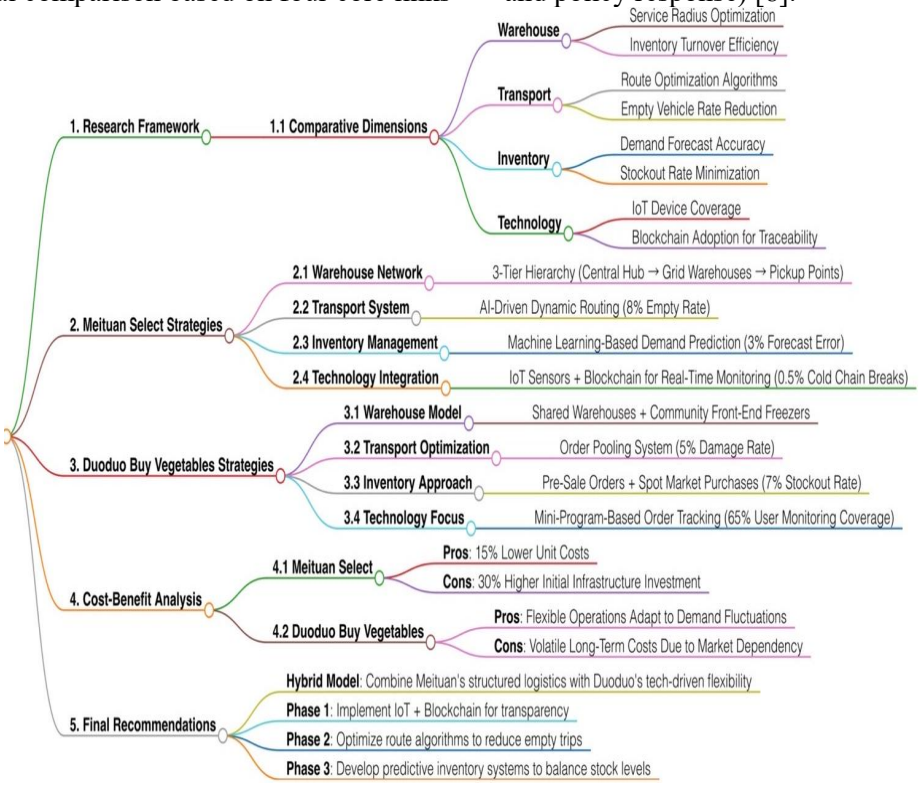

Figure 1. Technology Roadmap

3. Result and Discussion

3.1 Comparison of the differences between Meituan Select and Duoduo Buy Vegetables (Background)

Summary: Meituan prefers to rely on Meituan's local living ecology, strategically focus on high-quality markets, buy more vegetables and rely on Pinduoduo, continue the low-price model, take the regional discount route, and quickly penetrate the sinking market by relying on the advantages of main station traffic and supply chain. The background difference between them leads to different target users and strategies, as shown in Table 1.

3.2 Comparison of the Differences between Meituan Select and Duoduo Buy Vegetables (an Important Time Node for Development)

Common point: Both have shifted from a "price war" to a "value war", with both focusing on sinking markets as their core growth points, and enhancing competitiveness through supply chain optimization and logistics upgrades [5].

Differences: Meituan places more emphasis on ecological collaboration and user experience, while Duoduo relies more on traffic and subsidy strategies, but ultimately moves towards refined operations and long-term value competition, as shown in Table 2.

Table 1. Background

Difference dimension	Meituan Select	Duoduo Buy Vegetables
Owned company	Meituan	Pinduoduo
Uptime	July 2020	August 2020
Market positioning	Covering the whole market, paying attention to cost performance and commodity quality, attracting young users in first-and second-tier cities.	Focus on sinking market and focus on low-price strategy to meet the needs of price-sensitive users.
Operation mode	Pre-sale + self-delivery, and some regional support heads pay for home delivery.	Pre-sale + self-raising, some cities pilot "home delivery"

Table 2. Development

Meituan Preferred Development Important Nodes	An important milestone in the development of Duoduo Buy Vegetables
July 2020: Business launch, entering community group buying	August 2020: Business launched, strong entry into community group buying
September 2020: "Thousand Cities Plan" released, accelerating national expansion	At the end of 2020: Crazy subsidies, rapid expansion to seize the market
August 2023: Upgrade delivery services to enhance user experience	2022: Optimize and adjust to improve service and supply chain quality
December 2023: Self promotion to villages, deepening cultivation of rural markets	2023: Sink into rural areas and accurately expand county-level markets

3.3 Comparison of Differences between Meituan Select and Duoduo Buy Vegetables (Supply Chain)

Summary: Meituan Select has advantages in supply chain integration, multi-category operation, logistics distribution efficiency and stability [6]. Relying on Meituan's strong organizational and resource integration capabilities, it can provide richer product choices and more efficient distribution services; Duoduo Buy Vegetables has shown outstanding performance in supply chain cost control, penetration into lower tier markets, and low price strategies. It reduces costs through direct sourcing from production areas and economies of scale, attracting price-sensitive users. However, there is still room for improvement in the stability of the fresh food supply chain, as shown in Table 3.

Table 3. Supply Chain

Difference dimension	Meituan Select	Duoduo Buy Vegetables
supply chain model	Integrating resources such as Meituan Waimai and KuaiLv, the fresh food category is more diverse, with a focus on multi-category combinations to increase customer value. The "central warehouse+grid warehouse+group leader self-pickup point" model is adopted, with separate warehousing and distribution, clear responsibilities of relevant departments, and each performing their own duties.	Relying on Pinduoduo's direct supply advantage of agricultural products, focusing on low-priced high-frequency commodities, adopting a three-level warehouse distribution system (shared warehouse central warehouse grid warehouse) to reduce inventory pressure, and relying on group leader distribution to reduce the cost of one kilometer distribution
Source of goods	Cooperating with suppliers, some products are directly sourced from the place of origin. Meituan Maicai, a subsidiary of Meituan Maicai, has hundreds of direct sourcing bases	It has established close cooperative relationships with fresh food suppliers, producers, farmers, and wholesalers in various regions. 50%~60% of the products

	covering various fields such as fruits, vegetables, fresh produce, seafood, etc	are directly sourced from the place of origin, and some products come from local cooperative farms, orchards, and fish ponds.
Storage mode	The warehousing model consists of "large warehouse+central warehouse+grid warehouse". The central warehouse and large warehouse can be shared with other Meituan businesses to reduce transportation costs and improve transportation efficiency through resource integration. The grid warehouse adopts zero threshold franchise and cooperation forms	Adopting a warehousing model supported by both self-owned and third-party warehouses, suppliers deliver goods to designated warehouses, and Duoduo Maicai integrates, packages, and distributes them for unified processing.
Distribution model	Relying on Meituan's strong logistics and delivery capabilities, we are focusing on the "morning delivery" service, with some regions supporting group leaders to pay for home delivery, while exploring instant retail (such as Meituan's grocery shopping business)	We have established our own logistics distribution system to directly transport products to the warehouse, eliminating intermediate links. We have piloted "home delivery" in some cities (in cooperation with SF Express), and the delivery speed can usually be completed within 1-2 hours after the order is generated.
Supply chain stability	Relying on Meituan's strong organizational capabilities and BD team, the supply chain stability is strong.	The stability of the fresh food supply chain is insufficient, and there is a need to balance expansion and quality control.
Supply chain cost control	Realize low-priced sales of goods through direct sales from the place of origin, one-time bulk shipments, and optimization of supply chain management, procurement, and distribution costs	Reduce costs and intermediate links through economies of scale, thereby lowering costs. At the same time, launch promotional activities through subsidies and other means.

3.4 Comparison of Cost Control between Meituan Select and Duoduo Buy Vegetables

Summary: Meituan Waimai focuses more on long-term benefits and refined operations in cost control, achieving cost reduction through technological investment, process optimization, and other means; Duoduo Maicai fully leverages its scale advantage by controlling costs through centralized procurement, scale effects, and other methods in procurement, logistics, and warehousing [7]. At the same time, technology investment is relatively more cautious to avoid cost increases. Both have their own emphasis on cost control, and are strategically and resource wise deployed, as shown in Table 4.

Table 4. Cost Control

Difference dimension	Meituan Select	Duoduo Buy Vegetables
Procurement cost control	By establishing long-term and stable cooperative relationships with suppliers through direct sales from the place of origin and large-scale procurement, we can obtain more competitive procurement prices and reduce procurement costs.	Adopting a centralized procurement model, leveraging the advantage of platform scale, negotiating with suppliers to obtain low prices, while reducing intermediate links and lowering costs through direct procurement of some products from their place of origin
logistics cost control	Relying on Meituan's strong logistics and distribution capabilities, optimizing delivery routes, increasing vehicle loading rates, and reducing unit delivery costs; Partial regions support group leaders to pay for home delivery and share some of the delivery costs.	Establish a self-owned logistics distribution system to reduce unit distribution costs through economies of scale; Pilot "home delivery" in some cities (in cooperation with SF Express), which may control costs through cooperation
Storage cost control	The warehousing model consists of	Adopting a warehousing model

	"large warehouse+central warehouse+grid warehouse". The central warehouse and large warehouse can be shared with other Meituan businesses to achieve resource sharing and reduce warehousing costs; simultaneously optimize warehouse layout and improve warehousing efficiency.	supported by both self-owned and third-party warehousing, reducing warehousing costs through reasonable planning of warehousing space and inventory management
Operating cost control	Emphasize refined operations, optimize operational processes through data analysis and intelligent algorithms, and reduce labor and management costs; Simultaneously utilizing Meituan's ecological resources to reduce some marketing and promotion costs.	Reduce operating costs by simplifying operational processes, minimizing unnecessary intermediate links, and other means; Simultaneously utilizing Pinduoduo's main station traffic diversion to reduce customer acquisition costs.
Technical investment and cost control	There is a certain investment in technology to improve supply chain efficiency, optimize distribution routes, etc. Although it may increase costs in the short term, it will help reduce overall costs in the long run.	Technology investment is relatively more focused on cost control, improving operational efficiency through simple and easy-to-use technological means, and avoiding excessive technology investment leading to cost increases.

3.5 Optimization of Cost Control Plan (Based on Case Analysis Method)

The cost control scheme is optimized from 6 dimensions, as shown in Table 5.

Table 5. Strategies

Optimize dimensions	Specific measures	Describe
Procurement optimization	1.Establish a direct procurement alliance with multiple community group buying platforms or enterprises, and establish long-term cooperative alliances with agricultural product production areas, food processing plants, and other suppliers to reduce unit procurement costs through bulk procurement. 2. Optimize procurement categories and seasons, develop dynamic procurement plans based on the supply of agricultural products in different regions and seasons, prioritize the purchase of fresh products that are seasonal, local, and reasonably priced, and reduce costs caused by long-distance transportation and storage.	Taking fruits as an example, local watermelons, peaches, etc. are purchased in summer, while southern citrus fruits are purchased in winter to ensure freshness and reduce costs.
Warehouse optimization	1. Through enterprise cooperation to share cold chain warehousing facilities, flexibly allocate warehousing space according to order requirements, improve warehousing utilization, and reduce warehousing costs. 2. Intelligent warehouse management introduces an intelligent warehouse management system to monitor and accurately manage the temperature, humidity, inventory, etc. of cold chain warehouses in real time, reducing the loss of fresh products caused by poor management.	For example, multiple community group buying platforms jointly use a large cold chain warehouse in a certain city, sharing costs based on usage area and duration, while improving warehousing efficiency through intelligent systems.
Logistics delivery optimization	1. Joint delivery mode: Community group buying enterprises unite to jointly plan delivery routes, integrate order resources, achieve "one vehicle, multiple orders" joint delivery, and reduce transportation costs. 2. Optimize	If orders from multiple community group buying platforms are concentrated in a certain area and

	delivery routes and time utilization using big data and algorithm technology, analyze order distribution and traffic conditions, plan the optimal delivery route, and arrange delivery time reasonably to avoid peak congestion, improve delivery efficiency, and reduce fuel and labor costs.	delivered by a single delivery vehicle, it can reduce the empty driving rate of vehicles.
Packaging and preservation optimization	1.Develop standardized packaging, select appropriate packaging materials and methods based on product characteristics and transportation distance, and reduce packaging costs while ensuring product freshness. 2. Collaborate with research institutions to develop new preservation technologies suitable for community group buying cold chain supply chains, such as biological preservatives, modified atmosphere packaging, etc., to extend the shelf life of fresh products and reduce losses.	For example, using biodegradable and environmentally friendly packaging materials for vegetables not only meets environmental requirements but also reduces costs; Develop a new type of cling film to improve the preservation effect of fruits.
Informationization and Digital Management	1. Build a supply chain collaboration platform and establish a community group buying cold chain supply chain collaboration platform to achieve information sharing and real-time collaboration in procurement, warehousing, logistics, sales and other links, improve the overall efficiency of the supply chain, and reduce communication and management costs. 2. Data analysis and prediction utilize big data analysis techniques to conduct in-depth analysis of historical order data, market demand, etc., predict future order demand and sales trends, guide procurement, production, and distribution plans, and reduce inventory backlog and stockouts.	Through the collaborative platform, suppliers can have real-time access to inventory and order status, and replenish goods in a timely manner; enterprises should arrange production and distribution reasonably based on data analysis results to avoid resource waste.
Policy and Cooperation Support	1. Strive for policy support, actively communicate with government departments, and strive for policy support for the construction of community group buying cold chain supply chains, such as tax incentives, subsidies, etc., to reduce enterprise operating costs. 2. Strengthen cooperation with upstream and downstream enterprises, establish close cooperative relationships with agricultural product growers, food processing plants, logistics enterprises and other upstream and downstream enterprises, jointly explore cooperation models to reduce costs and improve efficiency, and achieve mutual benefit and win-win results.	For example, applying for government subsidies for the construction of cold chain logistics facilities, or signing long-term cooperation agreements with logistics companies to strive for more favorable transportation prices.

4. Conclusion

4.1 Policy Shifts

Stricter food safety regulations raise compliance costs but enhance long-term credibility.

Subsidy reductions (e.g., for Duoduo) destabilize cost structures, whereas Meituan's diversified revenue streams offer stability.

4.2 Market Volatility

Seasonal demand spikes strain cold chain capacity, forcing trade-offs between pricing and service quality.

Shifting consumer preferences (e.g.demand for sustainable packaging) require costly upgrades to greener technologies.

4.3 Competitive Pressures

New entrants' aggressive pricing may erode margins, compelling platforms to sacrifice cold chain efficiency for short-term gains.

4.4 Strategic Implications

Platforms must develop adaptive cost frameworks using real-time analytics to respond to external shocks.

Policymakers should standardize cold chain regulations to reduce systemic risks.

3.5 Research Significance and Value

This study provides a systematic comparative

analysis of cost control strategies in cold chain supply chains within China's community group buying sector, focusing on two leading platforms: Meituan Select and Duoduo Buy Vegetables. By examining their operational models across warehousing, transportation, inventory management, and technological integration, the research uncovers critical insights into how structural efficiency (Meituan) and demand-driven flexibility (Duoduo) can coexist to optimize costs.

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