Changes in Trade Structure and Social Relationship between China and Malaysia Under Cross-border E-commerce Culture

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Abstract

This study examined the evolving trade structure and social relations between both nations. First, a macro-environmental analysis is conducted, considering key factors such as political, economic, societal, and technological factors that influence the Sino-Malaysian trade structure.

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Second, variations in product sales strategies employed by Chinese and Malaysian companies are explored in the context of e-commerce sales culture. Third, the impact of the Belt and Road Initiative on changing Sino-Malaysian social relations is examined. The findings show that China and Malaysia maintain robust connections in traditional and primary product trade. However, without actively cultivating differentiated advantages and fostering cooperation agreements, China risks losing Malaysia's reliance on conventional and primary products because of cost-related considerations. Furthermore, this study highlights the significant impact of Malaysian crossborder e-commerce consumers on various factors. This study contributes to a deeper understanding of the evolving trade structure and social relations between China and Malaysia and offers valuable insights for future studies in this field.

Keywords: Cross-border E-commerce, Trade Structure, The Evolution of Social Relations, Trade Volume

1. Introduction

The evolving Chinese economy has induced significant reforms in the overall trade environment. The vigorous development of cross-border e-commerce has continuously narrowed the trade links between China and Malaysia. The introduction of the Belt and Road Initiative has further facilitated and streamlined trade activities between both countries. In former times, certain Malaysian products, such as durian (a tree fruit), faced limitations in terms of picking technology and international import-export policies, hindering their availability in the Chinese market. However, with the increasing popularity of the cold chain industry and the expansion of cross-border e-commerce, coupled with a relaxation of import and export policies under the Belt and Road Initiative, the trade structure between China and Malaysia has experienced noteworthy transformations.

Cross-border e-commerce is a modern trading method based on e-commerce platforms. It enables both consumers and sellers from different countries or regions to engage in online transactions, including payment and settlement, through Internet-enabled devices. Three primary modes of crossborder e-commerce are commonly adopted: Business to Customer (B2C), Customer to Customer (C2C), and Business to Business (B2B). Completing

transactions involves delivering goods through cross-border logistics (Baek and Choi, 2020). Cross-border e-commerce encompasses both imports and exports and serves as its fundamental component (Liu et al., 2021). Compared to traditional trade, cross-border e-commerce offers notable advantages such as convenience, efficiency, uniqueness, and formality. A survey conducted by iResearch in 2021, entitled 2021 China's Integrated Cross-border e-Commerce Export Industry Report, showed that in 2021, China's cross-border e-commerce transactions reached a staggering value of 4.2 trillion CNY. Furthermore, cross-border e-commerce accounted for 12.9 per cent of China's total import and export trade, reflecting a 33.1 per cent increase from 2020. iResearch has predicted that by 2025, cross-border e-commerce will comprise over 20 per cent of China's total import and export trade. Since the establishment of diplomatic relations between both countries in 1974, China and Malaysia have experienced consistent growth in bilateral trade volume and the steady strengthening of economic and trade exchanges. The trade structure between the two countries has witnessed ongoing optimization, with an increasing proportion of intra-industry trade. Furthermore, as both economies continue to open up, bilateral economic and trade relations have reached new heights, supported by increased cooperation in mutual investment, project contracting, and tourism. Notably, Malaysia has become a crucial trading partner of China within the Association of Southeast Asian Nations (ASEAN). Therefore, studying trade issues between China and Malaysia is vital to foster sustainable economic and trade relations and maintaining positive diplomatic ties.

The future development of cross-border e-commerce is expected to remain promising because of continuous improvements in the industry chain, active participation by industry players, and the implementation of supportive national policies (Qi and Soon-Beng, 2020). Progress of crossborder e-commerce can increase a country's foreign trade and its growth is driven by government policies. In China, the government has consistently adjusted and updated policies and measures to create a favourable environment for cross-border e-commerce and to encourage entrepreneurial involvement (Bo, 2019).

In this study, the trade gravity model is employed to empirically examine the bilateral trade volume between China and Malaysia. Additionally, the bilateral trade potential is calculated and existing challenges in bilateral trade between both countries are identified and targeted solutions are proposed. The significance of this study lies in the detailed interpretation of marketing strategies for Malaysian imported fruits in the Chinese market, considering both market conditions and consumer demand. Furthermore, this paper integrates the e-commerce model with modern sales methods to examine changes in trade structure and the evolution of social relations, particularly the business-oriented relationship between China and Malaysia. The main innovation lies in circumventing policy and technological limitations by exploring alternative forms and packaging for fresh products from Malaysian, thereby expanding their promotion and sales in the Chinese market. This study fills a gap in previous marketing research reports by specifically addressing frozen fruit products.

2. Literature Review

Considerable research has been conducted on the changes in trade structure and the evolution of social relations. Yew and Xavier (Yew and Xavier, 2022) employed both analytical and empirical methods to describe the motivations underlying the development of family-owned small and medium-sized enterprises in Malaysia. Their research showed that enterprise development during intergenerational transitions is influenced by the objective setting. Over time, the succeeding generation of family enterprises tends to minimize risks and prioritize harmony. Gold and Rasiah (Gold and Rasiah, 2022) examined the institutional structure and other predictors of Africa-China bilateral trade from 1995 to 2017. Using the trade gravity model, they employed the maximum likelihood value and the dynamic deviation modified least-squares dummy econometric method to examine the institutional, geographic, and socio-economic determinants of bilateral trade between China and 18 African oil/mineral exporting countries. The findings indicated that China imported more oil/mineral products from Africa than manufactured goods and agricultural products. Furthermore, Gold and Rasiah highlighted the need for Africa to enhance its institutional structures to stimulate trade with other regions. Fang and Guo (Fang and Guo, 2013) emphasised the complex nature of enterprise growth in industrial clusters. Industrial clusters can both promote and restrict enterprise growth depending on various factors. Fang and Guo examined these effects and their impacts on the growth of enterprises in China's electronic information industry clusters. Using panel data from China's manufacturing industry,

they tested Gibraltar's law and empirically analysed enterprise growth within China's electronic information industry clusters. The results demonstrated that industrial clusters significantly influenced the growth, profitability, and longevity of enterprises. However, data from Chinese enterprises for 2006 and 2007 showed that while the electronic information industry cluster negatively affected the growth of small and medium-sized enterprises, it had no impact on large enterprises. Moreover, the innovation capacity of enterprises within the cluster lagged behind those outside of the cluster. In the context of China's electronic information industry cluster, research and development had a limited impact on enterprise growth. Conversely, the economic soundness of the region where the electronic information industry cluster is located had a more positive effect on enterprise growth within the cluster. Zhao et al. (Zhao et al., 2021) identified the entrepreneurial ecosystem as a frontier issue in the field of enterprise strategy and entrepreneurial research. They addressed research gaps by developing a multi-layered framework based on a case study of the Taobao ecosystem. Davison and Ou (Davison and Xiaojuan Ou, 2008) highlighted the increasing influence of online intermediaries in China, particularly in the B2B sector. However, few studies have considered the impact of these intermediaries on tacit knowledge or relationships, which are both critical to business processes in China. Using Alibaba, China's largest online commerce intermediary, as an example, this impact and the corresponding changes occurring on B2B platforms were examined.

In summary, researchers have extensively examined the structure of foreign trade, considering factors such as industrial structure, exchange rate fluctuations, and the influence of foreign direct investment. Related research has become increasingly comprehensive and has enabled the gradual maturation of the research system. They have contributed to enhancing the understanding of the current international landscape and have provided a basis for discussing pathways toward economic upgrading. Particularly in the context of the new circumstances, these studies provide significant value for coordinating the development of various sectors and facilitating stable and rapid economic growth.

3. Research Methods and Possible Innovation Aspects

3.1 Document Analysis Method

Extensive research was conducted, drawing on a range of scholarly books and papers. A substantial amount of relevant data was collected to support the findings of this study. The literature primarily originated from reputable digital information resources available on campus, such as Google Scholar and CNKI. Additionally, supplementary information was obtained from credible online sources.

3.2 Quantitative Analysis

The collected data on the foreign trade structure were carefully classified, sorted, and analyzed. Various calculations were performed to organise the data into tables and generate corresponding visual representations. Additionally, a mathematical model was constructed to understand the patterns and relationships within the foreign trade structure data in more detail.

3.3 Hubness Measurement

The Hubness Measurement (HM) index, developed by Baldwin (Baldwin, 2008), is a metric with which trade interdependence can be quantified. The calculation of this index is presented in Eq. (1).

$$HM_j = \frac{x_{ij}}{x_i} \times \left(1 - \frac{m_{ij}}{m_i}\right) \tag{1}$$

In Eq. (1), x_{ij} represents the total export volume from country *i* to country *j*; m_{ij} refers to the total imports of country *i* from country *j*; x_i and m_{ij} represent the total export and import volume of countries *i* and *j*, respectively. HM_j is principally used to measure the dependence of exports of country *i* on the market of country *j*, and its value range is 0-1. The HM_j index reflects the level of dependence of the exports of country *j*. A value closer to 1 indicates a higher degree of dependence, while a value closer to 0 indicates a lower degree of dependence.

3.4 Trade Gravity Model

The fundamental concept of the trade gravity model draws inspiration from Newton's law of universal gravitation. Newton's law posits that the attraction between two objects is directly proportional to their mass and inversely proportional to the distance separating them. Building on this analogy, Tinbergen and Poyhonen introduced the trade gravity model in the early 1960s.

The current study presents innovations in two key aspects: Firstly, it presents a novel research perspective. Previous academic studies on the structure of foreign trade primarily focused on differentiating industries and products. However, given the increased complexity of the global production network and the finer division of labour within products, analysing the foreign trade structure from the perspective of an intra-product division of labour is more aligned with the current reality. Secondly, this study introduces innovative research content. While previous studies have touched on various aspects of foreign trade, they often merely provided an overview of the overall development status without delving into detailed analyses of the foreign trade structure.

3.5 Influencing Factors and Optimisation Objectives of Foreign Trade Structure Change

With the continuous development of international trade, the foreign trade structure of each country and region changes constantly, gradually evolving from a single low-level structure to a multiple high-level structure. In different periods, the conditions and factors that affect the change of foreign trade structure are constantly changing. The earliest foreign trade goods principally concentrated on natural products (such as food) or handmade products (such as clothing), and the types and quantities of these products traded were extremely limited. Because of the lack of transportation, the foreign trade areas of each country were very limited. Most of the countries were only trading with neighbouring countries or regions, and therefore, the number of trading countries and regions was naturally small. Today, the direction of foreign trade has shifted from the import and export of complete manufactured goods to the import and export of intermediate manufactured goods. The share of invisible foreign trade is constantly growing. Because of the promotion of the process of global integration, various countries or regions tend to diversify their foreign trade regions. In the early stage of the emergence of international trade, the main focus of trade among countries or regions was natural products. This was because, at that time, natural conditions were the main factor affecting the structure of international trade. With the progress of productivity levels and the improvement of technology levels, the influence of natural factors on the international trade structure has declined, and both technological and social factors have become the most important factors that determine the change of the national trade structure.

Optimising the foreign trade structure aims to pursue the advanced dislocation of trade commodities. The structure of foreign trade is based on the national industrial structure, and the change of industrial structure needs the drive of foreign trade structure. The level of leading export commodities generally determines the level of the export commodity structure. If the export level is higher than that of mainstay industries, it is referred to as advanced dislocation. In this case, industrial structure adjustment should be based on the export commodities of foreign trade. The production of leading export commodities is taken as key industrial development, thus promoting the upgrading of the industrial structure through the foreign trade structure. When the level of export commodities is equal to or lower than the level of the industrial structure, the structure of foreign trade commodities should be adjusted. In this process, first, the market for products from the mainstay industry should be stabilised and then, the focus should be shifted to developing new high-level product markets and optimising the structure of foreign trade commodities. The advanced dislocation of this structure is conducive to promoting the upgrading of the industrial structure, forming a virtuous cycle of interaction. Second, the proportion of foreign trade in capital and technology-intensive products should be increased. Generally, the law underlying the development of a country's foreign trade structure is that in the initial stage, the export of resource-intensive, labour-intensive, technology-intensive, and capital-intensive products is the main content. At a certain stage, the export of technology-intensive and capital-intensive products increases, and eventually, these two categories account for the main export proportion. The increase in the proportion of technologyintensive and capital-intensive products is a sign that the country's foreign trade commodity structure improves. Third, the regional structure of foreign trade is developing in the direction of increased diversification, indicating that both foreign trade and import trade should not be limited to individual

countries and regions. Instead, the limitations of a simple market structure should be overcome and the negative impact of single-market emergencies should be avoided.

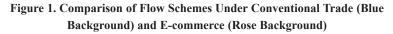
4. Political-Economic-Social-Technological Analysis of Sino-Malaysia Trade

4.1 Opportunities and Challenges of E-commerce on Fresh Agricultural Products

Agriculture plays a pivotal role in China's economy as it is a vital industry and the backbone of people's livelihood. The government has consistently allocated capital and implemented policies to support the agricultural sector. As early as January 1, 2006, the long-standing agricultural tax was abolished, which provided a significant boost to the development of e-commerce in the fresh food sector. Fresh e-commerce refers to using e-commerce platforms to market and sells agricultural products such as fruits, vegetables, and seafood.

According to *The 38th Statistical Report on Internet Development in China*, published by the China Internet Network Information Center at the end of 2016, the number of Internet users in China exceeded 700 million, with a remarkable penetration rate of 51 per cent. With the continuous promotion of electronic payment methods and the growing prevalence of Internet-based lifestyles, e-commerce increasingly permeates various aspects of people's daily needs (Wang and Dai, 2020). This phenomenon provides the necessary technical support and opportunities for transforming the sales model of fresh products. Moreover, compared to other forms of e-commerce, fresh food e-commerce has witnessed delayed inception and subsequent growth. Therefore, studying the e-commerce sales models of other goods can provide valuable insights for the development of fresh food e-commerce (Li-Li and Polytechnic, 2019).

Online sales expedite the journey from production to distribution, thus enhancing the efficiency of fruit farmers in both production and sales. Simultaneously, online sales elevate consumers' experience by enabling them to access fresh products promptly. This approach safeguards the interests of fruit farmers while providing buyers with cost-effective and high-quality agricultural products. Fresh food e-commerce streamlines the production and sales processes of agricultural goods. This is illustrated in Figure 1, where a comparison between traditional circulation methods and e-commerce methods is depicted. Figure 2 displays the sales process of fresh products, highlighting the stages involved.



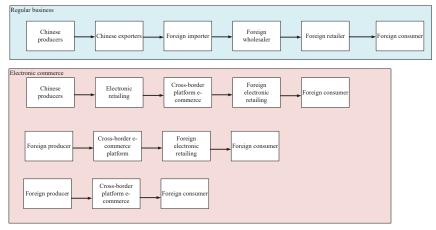


Figure 1 illustrates the contrasting modes of fresh product circulation, highlighting the impact of e-commerce on traditional business channels. In the traditional mode, fresh products primarily flow through conventional physical channels. Farmers or breeders transport their agricultural goods to wholesale markets or to traditional farmers' markets, where wholesalers or retailers purchase them and ultimately offer them to consumers. This process involves multiple intermediaries and distributors, necessitating physical transportation and delivery.

However, the emergence of e-commerce has induced significant transformations in the circulation of fresh products. Online platforms and digital solutions provided by e-commerce platforms have revolutionized traditional physical channels. As a result, the circulation of fresh products has become more convenient and efficient by using e-commerce. Today, consumers have access to a broader range of choices and value-added services. Moreover, e-commerce has enhanced the visibility and efficiency of the supply chain through the utilisation of digital solutions. The entire process, from the initial purchase to the final delivery, can be tracked and monitored digitally, thus reducing both uncertainties and delays.

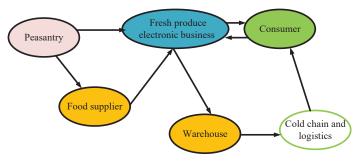


Figure 2. Sales Process of Fresh Products

Figure 2 presents the sequential sales process of fresh products, comprising the following six steps:

- 1. Production: In this step, producers engage in cultivating, breeding, or catching fresh products, ensuring their quality and freshness.
- 2. Harvesting and processing: Once the products have reached maturity, they are harvested or subjected to appropriate processing methods to maintain their optimal quality.
- 3. Packaging and labelling: The products undergo packaging and labelling procedures to ensure their safety, preservation, and compliance with regulatory requirements during both transportation and sale.
- 4. Distribution and wholesale: Wholesalers or distributors procure the products from producers and facilitate their distribution to retailers or other intermediaries in the supply chain.
- 5. Retail sales: Retailers play a crucial role in selling products to end consumers through physical stores or online platforms, thus providing a convenient and accessible shopping experience.
- 6. Delivery and consumption: The final step involves the delivery of the purchased products to consumers, either through self-pickup options or reliable delivery services. Subsequently, consumers consume or otherwise utilise the products for their intended purposes.

4.2 Macro-Environmental Analysis

The Political-Economic-Social-Technological (PEST) analysis method is a primary method in Western management theory, which is commonly employed to assess macro-environmental factors that affect industries or enterprises (Liu Wei et al., 2018). PEST comprehensively examines four key categories of influencing factors in a specific industry or enterprise: political, economic, social, and technological. Scholars have extensively utilised the PEST method to analyse diverse subjects, such as the pension insurance system, the healthcare industry, and cultural trade (Zeng et al., 2018). Furthermore, in recent years, this method has gained significant traction in the agricultural sector.

Within the PEST analysis method, the political environment encompasses state guidelines, policies, laws, regulations, and international relations. The economic environment comprises macroeconomic policies, economic infrastructure, income levels, consumption patterns, savings, and credit availability (Huang et al., 2018). The social and cultural environment primarily encompasses education levels, values (Huang et al., 2018), aesthetic preferences, and religious beliefs. Lastly, the technological environment focuses on the advancements in science and technology that are relevant to the industry or enterprise.

4.3 PEST Analysis of Changes in the Trade Structure between China and Malaysia

(1) Political Environment

Throughout the two-thousand-year history of China-Malaysia exchanges, peaceful coexistence, and mutual support have been the prevailing norm. The people of both nations have cultivated a profound traditional friendship and share similar cultural characteristics nourished by their long-standing interactions. China-Malaysia relations have exhibited different characteristics in various historical periods.

During the first period, the countries on the Malay Peninsula were incorporated into China's tributary system. Politically, they sought refuge and the protection of the Central Plains dynasties in China and engaged in frequent diplomatic visits. Culturally, they actively embraced advanced Chinese culture and technology, thereby contributing to the development of Malaysian civilisation.

In the second period, both Malaysia and China became colonies and semi-colonies of Western powers. During the early stage of its anti-colonial struggle, China provided political and economic support to Malaysia. However, political exchanges gradually diminished over time (Qi and Wang, 2021).

In the third period, influenced by international and domestic factors, the official relationship between China and Malaysia was interrupted for a time, leading to distrust and mutual confrontation. Malaysia joined the anti-Communist and anti-China block formed by Western countries. While there were certain trade exchanges, overall, the relationship between both countries deteriorated and entered a stage of stagnation and regression (Wang and Selina, 2018).

The fourth period marked the resumption of diplomatic relations between China and Malaysia. Initially, Malaysia still held certain reservations about China. However, political ties gradually strengthened, and eventually, both economic and trade exchanges began to thrive. Since the 1990s, Malaysia has deepened its understanding of China and has consequently reduced its scepticism. Consequently, China-Malaysia relations have entered a stage of rapid development, characterized by an increase in high-level exchanges, enhanced political trust, significant growth in economic and trade exchanges, and a surge in bilateral trade volume.

(2) Economic Environment

Economic and trade exchanges between China and Malaysia have a longstanding history of over 2,000 years. However, it was not until the 1970s that the trade volume between both nations began to witness significant growth. In the 21st century, bilateral trade, mutual investment, labour services, and tourism cooperation between China and Malaysia have experienced rapid development. Trade parks have also been established, contributing to the notable achievements of China-Malaysia cooperation. Nonetheless, challenges persist in terms of trade deficit, market competition, and labour policies (Charaia et al., 2018).

The fundamental status of economic and trade relations between China and Malaysia over the past decade can be summarized as follows: There has been substantial growth in bilateral trade volume. In the 21st century, Sino-Malaysia trade has experienced remarkable leaps and bounds. In 2002, the bilateral trade volume exceeded 10 billion USD for the first time. After Japan and South Korea, Malaysia has become the third Asian country to reach a trade quantum of over 100 billion USD with China. Furthermore, China has emerged as Malaysia's largest import market and second-largest export market within the ASEAN region. This trend has solidified the position of China as Malaysia's most significant trading partner within ASEAN (Foggin, 2018). Notably, the trade volume between China and Malaysia currently accounts for nearly 25 per cent of the overall trade volume between China and ASEAN. Figure 3 illustrates the e-commerce system.

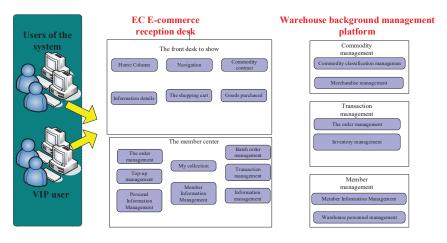


Figure 3. Electronic Trade System

Figure 3 presents an overview of the fundamental components of an e-commerce system, which include:

- 1. Front-end user interface: The front-end user interface serves as the platform through which users can interact with the e-commerce system. It encompasses the design and functionality of the website or application and enables users to browse products, search for items, and access various features.
- 2. Database management system: An e-commerce system relies on a robust database management system for the efficient storage and management of diverse types of data. These data types include product information, user profiles, transaction records, and other relevant data necessary for the operation of the system.
- 3. Shopping cart and payment system: The shopping cart system allows users to select and manage their desired products, as well as their addition to a virtual cart for future purchases. The payment system facilitates secure and seamless payment processing, providing

multiple payment options and conducting necessary payment verifications.

- 4. Order management and inventory control: The order management system tracks and manages information on user orders, ensuring a smooth order fulfilment process. This system includes order confirmation, shipment tracking, and timely delivery. The inventory control system monitors product availability, ensures accurate inventory management, and facilitates efficient replenishment to avoid stock shortages.
- 5. User management and identity authentication: The user management system handles user registration, login, and personal information management. This system enables users to create accounts, access personalised features, and manage their preferences. The identity authentication system ensures the security and integrity of the e-commerce system, verifies the identity of users, and grants access privileges as appropriate.
- 6. Data analysis and reporting: The data analysis and reporting module collects, analyses, and presents relevant data concerning e-commerce activities. This module enables the system to gain insights into user behaviour, sales trends, inventory performance, and other key metrics. This information can be utilised for business intelligence and decision-making and enhances the overall performance of the e-commerce system.

The components outlined in Figure 3 provide a comprehensive understanding of the underlying infrastructure and functionalities necessary for the successful operation of an e-commerce system.

During the 1970s and 1980s, early trade between China and Malaysia primarily consisted of primary products. Malaysia predominantly exported primary raw materials such as rubber, palm oil, wood, and minerals to China, while China's exports to Malaysia mainly comprised direct manufactured products such as grain, oil, food, agricultural and sideline products, as well as light textile industrial products. At that time, bilateral trade focused on the exchange of essential goods. However, since the early 1990s, significant changes occurred in the trade structure between the two countries, which gradually transitioned from primary products to high-value-added manufactured goods (Rauf et al., 2018).

Malaysia's investment in China began in 1984, which was several years later compared to other ASEAN countries like Singapore, Thailand, and the Philippines. This delay was primarily caused by domestic policy restrictions. However, the situation improved after the signing of the Agreement Between the Government of the People's Republic of China and the Government of Malaysia Concerning the Reciprocal Encouragement and Protection of Investments in 1988. Following China's further reform and opening up as well as changes in Malaysia's domestic policies, after 1992, Malaysia's direct investment in China experienced significant growth. Notably, leading investors included Chinese businesses, such as The Kuok Group, The Hong Leong Group, and The Lion Group. At its peak, actual investment reached 460 million USD in a single year. Malaysia's investments in China encompassed various fields, including manufacturing, processing, energy, communication, real estate, entertainment, department stores, services, and finance. The Asian financial crisis in 1997 temporarily impacted the investment of Malaysian enterprises in China, which gradually recovered after 2000. Building upon existing investments, numerous ethnic Chinese groups living in Malaysia continued to expand their investment in China, with an average annual investment of approximately 350 million USD. By the end of June 2014, Malaysia's actual investment in China had reached 6.72 billion USD, making Malaysia the second-largest foreign investor from ASEAN in China.

In recent years, under the impetus of the Belt and Road Initiative, trade exchanges between China and Malaysia have become particularly close. China has remained Malaysia's largest trading partner for eight consecutive years. In 2015, Chinese companies invested 8 billion CNY in the Malaysian construction sector, accounting for nearly half of all foreign contractors' projects. Currently, China continues to be Malaysia's largest trading partner, its largest source of imports, and its second-largest export destination. China's investments and constructions in Malaysia encompass significant projects such as the Kuala Lumpur-Singapore High-Speed Rail, Melaka Gateway, Kuantan Port, and East Coast Rail Link. These projects have brought capital, technology, and talent to Malaysia, thereby promoting local development, and have also provided substantial support for ASEAN connectivity and joint construction. Figure 4 depicts the relationship between trade and the economy.

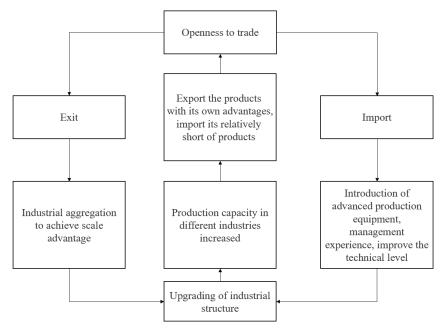


Figure 4. Relationship Between Trade and Economy

Based on Figure 4, a clear and symbiotic relationship between trade and the economy emerges as they mutually support and drive each other's progress. As an essential element of the economy, trade profoundly influences economic growth, job creation, resource allocation, and international competitiveness. Firstly, trade serves as a catalyst for economic growth, and fuels economic expansion by facilitating the exchange of goods and services across borders. This process unlocks new market opportunities, attracts investments, and fosters heightened productivity, thus propelling overall economic development. Secondly, trade plays a pivotal role in job creation. Trade generates employment prospects across various sectors and borders by facilitating the movement of goods and services, which contributes to a reduction in unemployment rates and an elevation of living standards for individuals within the economy. Furthermore, trade contributes significantly to the optimisation of resource allocation. By leveraging specialisation and comparative advantages, countries can concentrate on producing the goods and services in which they excel. This strategic allocation of resources enhances both productivity and economic

efficiency. Thirdly, trade enhances a country's international competitiveness. Active engagement in trade exposes domestic industries to global markets and fosters innovation, efficiency, and technological advancements. Such participation bolsters a country's standing in the international arena and attracts foreign investment. In conclusion, trade and the economy are mutually dependent and synergistic. Trade serves as a driving force of economic growth, fosters job creation, optimises resource allocation, and elevates a country's international competitiveness. Through proactive trade, a country can achieve prosperity and foster economic development.

(3) Social Environment

China and Malaysia share a long history of exchanges, which resulted in Malaysia being one of the countries/regions with the largest number of Chinese populations worldwide. This extensive history of cultural exchange provides a unique foundation for cultural and educational collaborations between both nations. Since the introduction of The Belt and Road Initiative, both governments have actively promoted non-governmental tourism exchanges, fostered closer cultural interactions, and strengthened both understanding and friendship between their respective peoples.

Regarding tourism, the Malaysian government began to gradually provide visas for Chinese tourists in 2015, with the aim to enhance peopleto-people exchanges. Since January 2, 2016, the electronic visa policy was implemented for Chinese tourists, significantly facilitating travel from China to Malaysia. According to the annual statistical report of Tourism Malaysia, in 2017, the number of Chinese tourists visiting Malaysia reached 2.28 million, contributing 9.05 billion CNY in revenue, and making China the largest source of tourists to Malaysia (after ASEAN countries).

4.4 Analysis of the E-commerce Business Model in Malaysia

Lelong is a Malaysian B2C e-commerce shopping platform based on the domestic market that offers consumers an online one-stop shopping experience. The profit model of Lelong revolves around three main components: advertising revenue, membership commission revenue, and value-added service revenue.

(1) Business Model Analysis

Cultural variations in online marketing: Situated in the tropical region, Southeast Asia experiences a consistently hot climate throughout the year. The local culture and traditions share certain similarities. Additionally, there are similarities in purchasing habits and preferences. However, each country possesses distinctive national traits, and e-commerce development must align with these unique characteristics (Naik Sharma, 2021).

(2) Social Marketing Analysis

Effective marketing and promotion strategies play a crucial role in the success of e-commerce websites in Vietnam, Malaysia, and Thailand. Lelong in particular has evolved from a C2C platform to a B2C platform, and now offers exceptional services to both consumers and enterprises in terms of retail and procurement. Lelong has established its own group buying and unique sale platform to further enhance its operations, which enabled it to expand its business and maximise its outreach. This strategic approach has resulted in increased website traffic, improved conversion rates, and heightened product exposure, thereby facilitating both market development and product promotion (Wang Ying, Agyemang Martin, and Jia Fu, 2021).

(3) Total Trade and Major Traded Commodities

Between 2011 and 2020, the bilateral trade relationship between China and Malaysia followed a consistent upward trajectory. Based on data provided by the General Administration of Customs of China, the total bilateral trade volume increased from USD 83.5 billion in 2011 to USD 124.8 billion in 2020.

Electronic products: China holds a significant position as a global producer and exporter of electronic products, while Malaysia specialises in the assembly and manufacturing of electronic products. Consequently, China exports electronic components and equipment to Malaysia, where they are then assembled into finished products for export. According to data from the General Administration of Customs of China, the value of electronic products exported from China to Malaysia reached approximately USD 15 billion in 2019.

(4) Petroleum and Petrochemicals

Malaysia is a noteworthy producer of petroleum and petrochemical products, and China ranks among the largest consumers of oil worldwide. Malaysia exports crude oil, liquefied natural gas, and petrochemical products to China to meet Chinese energy demands. According to data from the Department of Statistics Malaysia, the value of petroleum and petrochemical products exported from Malaysia to China amounted to USD 11.3 billion in 2019.

(5) Industry Structure

Manufacturing sector: China has robust manufacturing capabilities and advantages in the supply chain, and has thus established itself as a global manufacturing hub. Conversely, Malaysia excels in areas such as electronic product assembly, automotive parts, and furniture production. This dynamic has led to China importing manufacturing products such as machinery and electronic goods from Malaysia while Malaysia imports raw materials and components from China. According to data from the General Administration of Customs of China, the value of machinery and electronic products imported from Malaysia to China totalled approximately USD 12 billion in 2019.

(6) Agricultural Products

The agricultural products trade between China and Malaysia has exhibited a positive growth pattern. China's demand for Malaysian agricultural products, particularly palm oil, rubber, and timber, has been increasing. Data from the Department of Statistics Malaysia indicates that in 2019, the value of agricultural products exported from Malaysia to China amounted to approximately USD 7 billion.

(7) Geographical Location and Regional Cooperation

The geographical proximity of Malaysia to China, which is situated in Southeast Asia, serves as a facilitator for bilateral trade between both nations. Both Malaysia and China actively engage in regional cooperation mechanisms such as the ASEAN and the China-ASEAN Free Trade Area. These collaborative frameworks facilitate trade and economic integration, thus creating more opportunities for bilateral trade. The establishment of the China-ASEAN Free Trade Area has notably reduced trade barriers and facilitated a smoother trade flow between both countries.

(8) Technological Cooperation and Industrial Upgrading

China and Malaysia also share the same goals in terms of technological cooperation and industrial upgrading. China holds strengths in high-tech manufacturing, the digital economy, and artificial intelligence, while Malaysia strives to further develop its capabilities in technological innovation and digital transformation. This shared pursuit drives both countries to enhance their cooperation in technology, research and development, innovation, and industrial upgrading. As a result, it promotes significant changes in the trade structure between both countries.

(9) Renminbi Settlement

The increasing utilisation of renminbi settlements further exemplifies the changing trade structure between China and Malaysia. As bilateral trade continues to grow, the adoption of renminbi settlements between both countries has gradually expanded. This shift reduces dependence on third-party currencies for trade payments and settlements, thereby facilitating trade and improving cost-effectiveness.

4.5 Quantitative Analysis of the Impact of China-Malaysia Trade Structure Changes on China-Malaysia Trade

Beckman intuitively observed that trade flows tend to increase between geographically proximate countries. Subsequently, economists from various nations utilised the universally applicable gravitational formula to develop foundational equations for the trade gravity model. These models were later further refined and adapted based on individual perspectives, establishing diverse trade gravity models. Among them, the trade gravity model proposed by Jan Tinbergen, the Nobel Laureate in Economics, has gained recognition as a classic and authoritative model.

Let *Xij* represent the total export volume from China to Malaysia. By applying the natural logarithm to *Xij* and arranging the resulting equation, the gravity model can be expressed as Eq. (2).

$$lnX_{ij} = b_0 + b_1 \ln(Y_i^*Y_j) + b_2 \ln(GDP_i * GDP_j) + b_3 \ln TCI_{ij}^k + b_4 \ln TCI_{ij}^k + b_5 \ln TCD^k + u$$
2

In Eq. (2), b_0 is a constant, b_1 , b_2 , and b_3 represent coefficients, u denotes the random error term, $Y_i^* Y_j$ refers to the per capita gross domestic product (GDP), TCI_{ij}^k signifies the complementary coefficient, and TCD^k indicates the degree of trade integration.

During the computation of the proposed model, the GDP and per capita GDP data of China and Malaysia from various years are utilised as data sources. The relevant data from the World Trade Organization trade database is uniformly employed for calculating the indices to ensure the reliability of the results. The ratio is then computed based on these data. For the purpose of quantitative analysis, Eviews 6.0 and MS Excel 2003 were utilised as analytical tools.

4.6 Analysis of China-Malaysia Bilateral Trade Flow—An Empirical Study Based on the Gravity Model

Newton put forward the law of universal gravitation, the mathematical expression of which can be written as Eq. (3).

$$G_{ij} = K \frac{M_i M_j}{\left(D_{ij}\right)^2} \tag{3}$$

In Eq. (3), G_{ij} represents the gravity between objects *i* and *j*, D_{ij} signifies the distance between them, M_i and M_j denote the masses of objects *i* and *j*, respectively, and *K* is a constant. Eq. (3) shows that the magnitude of gravity is directly proportional to the masses of the objects and inversely proportional to the square of the distance between them. Building upon this concept, a trade gravity model was formulated, which can be mathematically expressed as Eq. (4).

$$X_{ij} = K \frac{(Y_i)^a (Y_j)^b}{(1+cD_{ij})^f} e^{\varepsilon}$$
(4)

In Eq. (4), X_{ij} refers to the exports from country *i* to country *j*, Y_i and Y_j express the total economic volume of country *i* and country *j*, respectively, D_{ij} represents the distance between both countries, *K* and *c* represent constants, *a* and *b* are parameters, and *e* is the disturbance term. The model

signifies that the trade volume between two countries is directly proportional to the size of their economies and inversely proportional to the square of the distance between them.

By logarithmically processing both sides of Eq. (4), the relationship expressed in Eq. (5) is obtained.

$$lX_{ij} = lK + alY_i + blY_j - fl(1 + eD_{ij}) + \varepsilon$$
(5)

To simplify Eq. (5) and account for the influence of the establishment of the China-ASEAN Free Trade Area (FTA) on bilateral economic and trade relations between China and Malaysia, dummy variables are introduced and the distance variable is modified, resulting in Eq. (6).

 $\ln \ln X_{ij} = \beta_0 + \beta_1 \ln \ln Y_i + \beta_2 \ln \ln Y_j + \beta_3 \ln \ln D_{ij} + \beta_4 W + \varepsilon_{ij}$ (6)

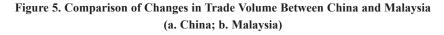
5. Experimental Results and Discussion

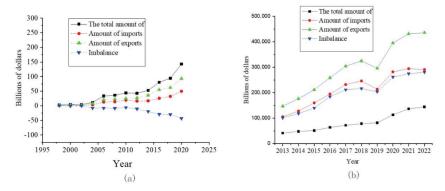
In this paper, the implications of changes in the China-Malaysia trade structure on China's import trade, and the factors that influence consumer behaviour in cross-border e-commerce in Malaysia are examined. The total trade volume is estimated by considering the combined value of the imports and exports of goods, as well as individual export and import values. The bilateral import and export data between China and Malaysia for different years were sourced from the *China Statistical Yearbook*.

5.1 Comparison of Changes in Trade Volume between China and Malaysia

Figure 5 presents a comparative analysis of trade volume fluctuations between China and Malaysia over the past three decades.

The data shown in Figure 5 suggest that over the past two years, the trade volume of goods between China and Malaysia has exhibited a consistent growth pattern with minor fluctuations, while overall imports have declined. Notably, the Sino-Malaysian trade experienced significant volatility in 2012. Regarding exports, although the trade volume of goods between China and Malaysia declined slightly in the fourth quarter of 2012, it rebounded sharply and stabilised in the first quarter of 2013. This time coincided with intensified negotiations and cooperation between the governments of China and Malaysia. However, the import trend clearly reflects the slowdown of the Malaysian economy and the increasing cost of China's exported products.





[Data source: China Economic Information (CEI) Data]

From 2010 to 2020, several factors have contributed to the trade imbalance between China and Malaysia:

- Intensification of competition in the electronic products sector: China has emerged as one of the global leaders in electronic product manufacturing and export, while Malaysia faces challenges in this sector. With increasing global competition, China's export volume of electronic products has witnessed significant growth, whereas Malaysia's export volume has remained relatively stagnant. This disparity has resulted in a trade imbalance between both countries.
- 2. Adjustments in bilateral trade policies: Changes in trade policies by both China and Malaysia have also influenced the trade balance. For instance, the Chinese government has actively promoted domestic demand expansion, implemented structural adjustments, and enhanced intellectual property protection. These measures may have impacted the export volume of Malaysia. Similarly, Malaysia implemented strategies to strengthen the development and protection of its domestic industries, which may have influenced the bilateral trade volume balance.

In conclusion, the trade imbalance between China and Malaysia during the period of 2010-2020 can be attributed to intensified competition in the electronic products sector and adjustments in bilateral trade policies. Addressing these factors and fostering a balanced trade environment could contribute to a more equitable trade relationship between both countries.

5.2 Inspecting the Impact of Sino-Malaysia Trade Structure Changes on China's Import Trade

Variable	С	LOG(1)	LOG(2)	LOG(3)	R-Square	Adjusted R-Square	Regression	Sum
Coefficient	-176	-14	14	-0.7	-0.21	-0.54	0.05	0.012
Std. Error	48	4.6	4.18	0.9	0.67	0.44	0.31	0.21
t-Statistic	-2 (p<0.01)	-1 (p<0.01)	0.1 (p<0.05)	-0.77 (p<0.01)	-0.39 (p<0.01)	-1.14 (p<0.05)	-1.0 (p<0.05)	-0.89 (p<0.05)
Prob.	0.022	0.038	0.028	0.48	0.71	0.27	11.21	0.35
Coefficient	-171	-14	16	-0.71	-0.23	-0.54	0.05	0.012
Std. Error	42	4.1	4.28	0.91	0.17	0.14	0.41	0.21
t-Statistic	-2.1 (p<0.01)	-1.1 (p<0.01)	0.1 (p<0.05)	-0.76 (p<0.01)	-0.30 (p<0.01)	-1.14 (p<0.05)	-1.0 (p<0.05)	-0.89 (p<0.05)
Prob.	0.012	0.138	0.018	0.41	0.71	0.27	1.21	0.25

 Table 1. The Impact of Changes in the Structure of Trade in Goods on Malaysia's

 Import Trade with China Import Trade

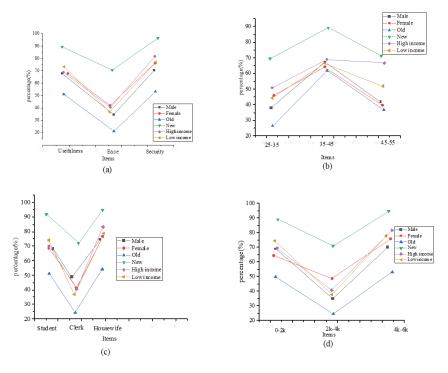
According to the data shown in Table 1, the regression results for per capita GDP and GDP of China and Malaysia are statistically significant (p < 0.05) and meet expectations. As anticipated, the trade relationship between China and Malaysia in primary products does not significantly impact Malaysia's exports or imports to China. However, for technology or capital-intensive products, the Sino-Malaysian trade relations can significantly impact Malaysia's exports to China, although it does not have a notable impact on Malaysia's imports from China.

Specifically, the empirical results demonstrate that stronger complementarity between China and Malaysia in technology or capitalintensive products leads to higher export values for related products from Malaysia to China. Furthermore, the coefficient is greater than 1, indicating a robust driving effect, which aligns with general expectations. However, Malaysia's imports of technology or capital-intensive products from China are not significantly affected by the trade structure. This outcome may explain the relatively small proportion, low technology content, and strong substitutability of Malaysia's imports of such products from China, indicating a low degree of dependence. It is worth noting that many of the technology-intensive products that are imported by Malaysia from China are sourced from foreign-funded companies operating in China. Moreover, the import of certain products primarily depends on individual company strategies rather than on changes in the China-Malaysia trade structure.

5.3 Empirical Analysis of Factors Influencing Cross-border E-commerce Consumer Behaviour in Malaysia

Figure 6 shows the results of the empirical analysis of the influencing factors of cross-border e-commerce consumer behaviour in Malaysia.

Figure 6. Results of the Analysis (a. Factor; b. Age; c. Occupation; d. Disposable Consumption)



[Data source: CEI Data]

According to the data depicted in Figure 6, the factors of usefulness, ease, and security were crucial in influencing cross-border e-commerce consumer behaviour in Malaysia. Both males and females prioritised usefulness as the most significant factor, followed by ease and security. Younger consumers exhibited higher percentages across all factors, indicating their heavy reliance on cross-border e-commerce. High-income individuals also assigned slightly greater importance to these factors compared to low-income individuals. Consequently, businesses aiming to succeed in the Malaysian cross-border e-commerce market should prioritise offering useful and convenient experiences while ensuring robust security measures to build consumer trust. Furthermore, age groups played a significant role in consumer behaviour, with the 25-35 age group exhibiting the highest percentages for most factors. This suggests that businesses should focus on catering to the needs and preferences of younger consumers while also considering strategies to engage older age groups. Occupations also influenced consumer behaviour, with students and housewives showing higher percentages across most factors. Tailoring strategies to meet the needs of these occupational groups, while finding effective approaches to engage clerks, can enhance business success in the Malaysian cross-border e-commerce market. Lastly, income levels had a limited impact on consumer behaviour, indicating that factors like usefulness, ease, and security were important for consumers across different income levels. Therefore, businesses should prioritise delivering value, convenience, and security to all consumers, irrespective of their income level.

5.4 Model Estimation and Result Analysis

The mathematical expression of the estimated import and export trade volume is shown in Eq. (7).

$$ln X_{ii} = 0.5547 ln Y_i + 1.2768 ln Y_i - 1.0934 ln D + 0.6855 W$$
(7)

The coefficient of determination R^2 is 0.9763, indicating a high degree of goodness of fit for the model and a relatively good estimation result. The performance of the model suggests strong alignment with the observed data. The specific findings are as follows:

- 1. Economic growth plays a significant role in promoting bilateral trade. An increase of 1 per cent in Malaysia's economy leads to a corresponding 1.2768 per cent increase in bilateral trade between China and Malaysia. Similarly, a 1 per cent increase in China's economy results in a 0.5547 per cent increase in bilateral trade between both countries. These results indicate that higher economic aggregates strengthen domestic enterprises and contribute to the expansion of foreign trade.
- 2. The coefficient of the distance variable is -1.0934, indicating that greater distance between countries leads to a decrease in bilateral trade. With increasing distance, trade volume tends to diminish. This finding highlights the importance of geographic proximity and logistical factors in trade relationships.
- 3. The coefficient of the dummy variable is 0.6855, demonstrating that the establishment of the China-ASEAN FTA in 2002 has indeed promoted bilateral trade between China and Malaysia. The creation of the FTA has created a favourable environment for trade cooperation and has facilitated an increase of trade between both nations.

6. Conclusion

In this study, the following results were obtained: 1. Economic growth helps to promote bilateral trade. The China-ASEAN FTA has played an important role in promoting bilateral trade between China and Malaysia 2. The Sino-Malaysian trade potential presents a pronounced upward trend, and China is a vital market provider for Malaysia. However, at present, both China and Malaysia face problems of unreasonable industrial structures and a low degree of opening to the outside world. Therefore, relevant measures must be formulated to accelerate the effective realisation of the bilateral trade potential between China and Malaysia. 3. While the competitiveness of China's traditional and primary products has declined significantly, the competitiveness of Malaysia's trade in these products has remained relatively stable, showing only slight fluctuations. Food still occupies a major position in the import of primary products. 4. China's demand for Malaysia's primary products has increased. This increase demonstrates that China has increased the consumption capacity of traditional and primary products but still lacks internal productivity. 5. Malaysian cross-border e-commerce consumers have apparent main effects related to perceived ease of use, e-commerce

platform factors, and purchase intentions. Some deficiencies still exist, such as insufficient research elements. Future work will include the necessary research elements to improve this research.

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