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GRADUATION THESIS

on

The impact of e-commerce on Chinese economy

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ASSIGNMENT
FOR THE GRADUATION THESIS OF

Master's degree student Wang Feifei, group 2303BAM1, full-time mode of study

1 The topic of the graduation thesis: "The impact of e-commerce on the Chinese economy"

was approved by the university order
dated «___» _____ 20__ no. _____

2 The deadline for the Master's degree student to complete the graduation thesis is 11.06.2025.

3 The input data for the graduation thesis is the regulatory and legal framework, scientific literature and reference books, and Internet data.

4 The list of issues to be studied includes concept and theoretical basis of e-commerce; e-commerce platform and electronic payment; cross border e-commerce; empirical analysis of the impact of e-commerce on multiple sectors of the Chinese economy; impact of e-commerce on the expansion of trade markets; advantages and disadvantages of e-commerce in the Chinese economy; possible development trends and prospects of e-commerce in the future

5 The list of visuals contains tables and figures.

6 The date of setting the assignment is 7.09.2023.

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The assignment was accepted by Master's degree student _____ / Wang Feifei /
(signature) (full name)

Schedule for completing the graduation thesis

№ п/п	Content of the thesis	Deadline for completion	Due date, signature of the academic adviser
First year of study			
1	Substantiating of the research topic and methodology, subject and object of research	1.09.2023 – 31.10.2023	
2	Framing the scientific concept of research	1.11.2023 – 18.12.2023	
3	Collection of scientific literature for the thesis	19.12.2023 – 15.01.2024	
4	Substantiating the relevance, concept, and novelty of the research	16.01.2024 – 19.02.2024	
5	Framing of a detailed plan and layout of the research	20.02.2024 – 12.03.2024	
6	Studying new literature sources within the topic of the thesis	13.03.2024 – 26.03.2024	
7	Conducting theoretical research within the first chapter of the thesis	27.03.2024 – 30.04.2024	
8	Preparing the first chapter of the thesis	1.05.2024 – 30.06.2024	
Second year of study			
9	Conducting analytical research within the second chapter of the thesis	1.09.2024 – 22.10.2024	
10	Preparing the second chapter of the thesis	23.10.2024 – 24.12.2024	
11	Conducting analytical research within the third chapter of the thesis	25.12.2024 – 25.02.2025	
12	Preparing the third chapter of the thesis	26.02.2025 – 21.04.2025	
13	Preparing the introduction and conclusion	22.04.2025 – 12.05.2025	
14	Completing the graduation thesis	13.05.2025 – 26.05.2025	
15	Handing in the thesis for compliance control and antiplagiat	27.05.2025 – 9.06.2025	
16	Getting acquainted with the feedback and review	10.06.2025	
17	Presenting the written thesis	11.06.2025	

Academic adviser _____ / Salnikova O. V. /
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Summary

The graduation thesis comprises 72 pages, 3 chapters, 26 figures, 4 tables, 69 sources.

E-COMMERCE ECONOMY, CHINESE ECONOMY, CHINESE TRADITIONAL ECONOMY, CHINA'S FOREIGN TRADE ECONOMY, CORRELATION ANALYSIS, LINEAR REGRESSION ANALYSIS.

The target of research is study the relationship and impact between e-commerce and the Chinese economy

The goal of work is to study the future development of e-commerce in China and its advantages and disadvantages for the Chinese economy.

The methodological framework of the paper is formed by the complex of theoretical and practical methods such as combining the study of e-commerce related theories with the establishment of statistical models to investigate the relationship between e-commerce and the Chinese economy.

The results of research include: there is a positive correlation between the e-commerce economy and the Chinese economy. e-commerce plays an important role in the Chinese economy; the advantages and disadvantages of e-commerce in the Chinese economy are directly related to China's future development; in the era of big data, e-commerce can predict the Chinese economy.

The recommendations on disseminating and applying the results are as follows: rural e-commerce is an important node in the development of e-commerce, and it is necessary to solve the logistics problems of e-commerce in remote areas as a guarantee; strict supervision is required for laws and regulations to prevent illegal individuals from stealing information; attach importance to consumer rights and control the quality of goods; avoid price wars between e-commerce platforms to ensure the development of small and medium-sized enterprises.

The theoretical relevance of the thesis is established by Based on the development of e-commerce in the Chinese economy in the era of big data, explore whether e-commerce can affect the Chinese economy and make future predictions for the Chinese economy. And analyse the advantages and disadvantages of e-commerce in the Chinese economy at present, and put forward relevant suggestions.

The target of research can be further explored through use statistical prediction models to continue analysing the future development of the Chinese economy; analyse various economic aspects of e-commerce and identify weaknesses for improvement; using the same method as the author can predict the relationships between other economic systems.

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Introduction

With the continuous maturity of digital technology and Internet technology in the new era, all walks of life have been promoted to develop vigorously, including e-commerce industry. E-commerce has achieved leapfrog development in this process, gradually becoming the core force for countries and regions to achieve economic transformation and industrial upgrading. Currently, the e-commerce market in China is entering a stage of high-quality development. According to the latest industry research report, the e-commerce transaction volume in China is expected to exceed 50 trillion yuan by 2024, with online retail accounting for a quarter of the total retail sales of consumer goods. This upward trend not only redefines the domestic market, but also serves as a new driving force for the national and regional economies. This trend not only drives the upgrading of domestic consumption, but also optimizes the consumption structure, breaking the traditional "barter" model. Consumers' consumption patterns are simpler, and they only need to use their mobile phones or computers to purchase the items they need. In addition, e-commerce platforms provide multiple filtering modes, and big data analyzes consumers' preferences, fully meeting their daily shopping needs. Moreover, compared with traditional business forms, e-commerce shows unprecedented innovative advantages, with the help of the Internet. The integration of e-commerce can combine various industries and achieve upgrading and reconstruction of the industry, breaking geographical limitations while building a full climate, full scenario consumer network and market, enabling consumers to have real-time shopping experiences that fit real-life scenarios through mobile devices.

This paper focuses on the study of e-commerce in China. From a macroeconomic perspective, e-commerce in China has become a core driving force for economic growth. From the perspective of both supply and demand analysis: on the demand side, the explosive growth of online consumption effectively releases domestic demand pressure, deeply explores the potential of the domestic market, continuously promotes the evolution of consumption structure towards diversification and high quality, and forms an upgraded trend covering all levels of consumer demand; On the supply side, Internet technology has

spawned emerging industrial clusters such as smart logistics and digital marketing, and promoted the digital transformation of traditional industries.

Under the global context of the new era, the main research topic of This paper is the impact of Chinese e-commerce on the Chinese economy. This research focuses on the development of Chinese e-commerce in the context of the digital economy over the past decade, including four time points: the initial slow stage, gradual expansion stage, high-speed development stage, and normalization stage of e-commerce. Although the Chinese economy has developed slowly during the epidemic, it is still in an upward stage, and the role of e-commerce economy is becoming increasingly significant. Therefore, This paper studies the relationship and impact of e-commerce and the Chinese economy from different perspectives of e-commerce, as well as the relationship between e-commerce and other industries.

This paper conducts an in-depth analysis of the current status and trends of e-commerce and the Chinese economy. Based on this, it analyzes the relationship between the two from multiple perspectives and dimensions, and uses data analysis to provide more convincing evidence of the relationship between the two. By systematically representing China's traditional industrial economy and foreign trade economy as brief representatives of the Chinese economy, studying their relationship with e-commerce, and striving to confirm the relationship between the Chinese economy and e-commerce, a series of targeted suggestions and countermeasures are proposed.

Research task:

1 The main research task of this paper is divided into four stages: the first stage is data collection and preprocessing, collecting relevant research data through various channels, screening and cleaning the raw data, deleting data with low relevance to the research topic, and strictly verifying the accuracy and completeness of the data.

2 The second stage is to select research methods. In order to study the exact relationship between China's e-commerce economy and the Chinese economy, we select methods suitable for data and research topics from numerous statistical methods. Firstly, we confirm the correlation between China's e-commerce economy and traditional industrial economy, as well as between China's e-commerce economy and foreign trade economy. We

choose covariance and correlation analysis methods. For the sake of rigor and accuracy in our research, we will continue to use the least squares method based on the first step validation to study the relationship between Chinese e-commerce, traditional industrial economy, and foreign trade economic data elements.

3 The third stage is to interpret the errors and results of statistical analysis based on previous research findings.

4 Through research, it has been found that with the support of data analysis, while the research results meet expectations, e-commerce economy can also predict the Chinese economy from another perspective.

5 The fourth stage is to summarize the impact of e-commerce on the industrial and sector levels of the Chinese economy based on the research in the previous stage.

Research object is e-commerce. Research subject is impact of e-commerce on the Chinese economy.

The innovation of This paper is mainly reflected in two aspects: firstly, it innovatively uses statistical methods to divide the Chinese economy into two major sectors: traditional industrial economy and foreign trade economy, and compares and analyzes them with the e-commerce economy, using the e-commerce economy as an independent variable to systematically explain its explanatory role in the overall development of the Chinese economy; Secondly, the "Two Two Test" method is adopted, which cross verifies the relationship between e-commerce economy and traditional industrial economy, as well as foreign trade economy through two different statistical testing methods, to ensure the robustness and reliability of research conclusions, providing a new perspective and methodological reference for the study of the relationship between e-commerce and the Chinese economy.

In recent years, as people enjoy more "electronic services", the e-commerce industry has also undergone unprecedented changes. With the continuous development of technology, the e-commerce industry, like a rising star, is gradually becoming more important in China's economy and people's lives. In this context, vicious competition between industries, network laws and regulations, logistics and distribution issues have gradually emerged, becoming a major pain point and drawback of modern e-commerce. The

problems of network transaction security vulnerabilities, insufficient data privacy protection, and lagging market regulation system are gradually emerging, and the traditional retail industry is facing transformation pressure in the digital wave. How to balance innovative development and risk prevention, and achieve synergistic coexistence between e-commerce and the real economy, has become an important issue in current economic development. In view of this, promoting the all-round development of e-commerce has become an indispensable key link in China's economic development. Due to the background of information and data in the new era, people's clothing, food, housing, and transportation are basically linked to e-commerce platforms. Therefore, promoting the development of e-commerce and solving the problems existing in e-commerce have become the main issues in the e-commerce industry in the new era, and are related to China's sustainable economic situation.

This paper systematically analyzes the impact path and practical effects of e-commerce on the Chinese economy, explores its development opportunities and potential risks through data, and puts forward targeted suggestions, aiming to provide theoretical reference for optimizing policy environment and promoting industrial coordinated development, and help China's e-commerce achieve sustainable growth in the new development pattern.

Chapter 1 Concept and theoretical basis of e-commerce

1.1 E-commerce theory and types

E-commerce is a trade and operation method that uses virtual currency to conduct physical goods transactions. It is mainly a trading method in the physical market that is dominated by computer network technology. It includes buyers, sellers, third-party trading platforms, and virtual currencies required by third-party trading platforms. E-commerce is gradually replacing physical business models, and it improves the transaction efficiency of sellers and buyers, effectively promoting social and economic development. In the process of development, it effectively promotes information development and people's thinking and lifestyle.

E-Commerce is to apply Internet technology to economic activities, build a new electronic trading ecosystem relying on the digital economy era, improve the efficiency of resource use and distribution of all parties to the transaction, promote the flexibility and convenience of the transaction, reduce the transaction costs of both parties, and achieve the purpose of energy conservation and emission reduction [66]. E-commerce is the product of the rapid development of Internet information technology, which mainly refers to the trading activities carried out through online platforms through the Internet as a medium. In recent years, e-commerce has developed rapidly and presented many advantages. If the cost loss is consistent, the economic benefits of using e-commerce platforms are more ideal [36]. Moreover, the operation of e-commerce platforms is very convenient, easy for relevant personnel to master, and the application effect is precise. It can further strengthen the communication and interaction between consumers and sellers, effectively reducing unnecessary links in the middle. Consumers can choose the products they need without leaving their homes, saving their own time. By selecting products through mobile terminals, transaction efficiency is significantly improved, and different products can be compared and selected.

The core theories in e-commerce theory mainly include transaction cost theory, network economy theory, value chain theory, etc. Firstly, the transaction cost theory

explains the intrinsic mechanism by which e-commerce reduces transaction costs. Due to the fact that e-commerce relies on digital information, it can search and analyze the required information through network functional modules. This allows enterprises to save on offline search costs, negotiation and marketing costs, greatly reducing the uncertainty and inefficiency of offline clients. This online automated transaction process not only reduces legal loopholes and rigor in the era of big data, but also effectively controls transaction and negotiation risks. Effective research has shown that after joining the e-commerce model, the average transaction cost of e-commerce enterprises has decreased by about 35%, making it easier for small businesses to survive and greatly reforming the traditional business model. Secondly, the theory of network economy mainly studies the operating laws and characteristics of economic activities in the digital network environment. The core of the theory lies in revealing the decisive role of demand economies of scale on the economic behavior of external networks, mainly manifested in the production of a product or derived service by e-commerce enterprises or related enterprises. The value of the service or product increases with the increase of users, and at this time, the network value and the increase in the number of users show a proportional relationship. Since the emergence of this theory, the framework of diminishing marginal returns in traditional industrial economy has been overturned, and it has been proposed that e-commerce enterprises continuously develop platforms and build infrastructure through the network economy model in the early stage to achieve long-term development of the platform. However, the investment cost in the later stage is exactly the opposite to that in the early stage, with almost zero investment cost. As a result, e-commerce enterprise platforms have formed a positive cycle of user accumulation leading to value increase. Its essence lies in leveraging digitalization and big data to reset resources and highlight its own data advantages. Thirdly, the value chain theory was proposed by Harvard University professor Michael Porter in 1985 in his book "Competitive Advantage". It is a core theory in the field of enterprise strategic management that analyzes the mechanisms of competitive advantage and value creation. The core idea suggests that a company's competitive advantage stems from a series of interrelated value creation activities such as design, production, marketing, and delivery, which together form the "value chain". The value chain includes two types of activities: one is the basic activity, which covers raw

material supply (procurement, warehousing), production and manufacturing (processing and transformation), channel distribution (logistics distribution), market sales (promotion and transaction), and after-sales service (maintenance experience), directly related to the creation and delivery of products or services; Another type is support activities, including enterprise infrastructure (strategic management, organizational structure), human resource management (talent cultivation), technology development (R&D innovation), procurement management (resource acquisition), indirectly enhancing value through optimizing internal operations.

This theory points out that a company's competitive advantage is not the result of a single link, but rather stems from the synergistic effects and strategic focus between various activities - that is, by identifying core value links (such as brand design, supply chain management) and concentrating resources for optimization, or by outsourcing non core links (such as OEM production) to reduce costs. At the same time, value chain upgrading and competitive advantage reshaping can be achieved through vertical extension (controlling upstream and downstream), horizontal expansion (diversified layout), or digital reconstruction (such as platform transformation). Its essence is to deconstruct the value creation process, help enterprises explore cost optimization space and differentiation opportunities, and is the basic analytical framework for explaining the internal capability construction and industry chain competition of enterprises. The operation of e-commerce platforms is very convenient, easy for relevant personnel to master, and the application effect is precise. It can further strengthen the communication and interaction between consumers and sellers, effectively reduce unnecessary links in the middle, and enable consumers to purchase the products they need without leaving their homes, saving their own time. By selecting products through mobile terminals, transaction efficiency is significantly improved, and different products can be compared and selected [62].

Finally, the characteristics of e-commerce mainly include convenience, global reach, user big data, and efficiency. Firstly, convenience makes it more time-saving and labor-saving between the public and businesses or merchants, while greatly improving the efficiency of transactions between both parties, making it more popular among people. Secondly, globalization refers to the ability of e-commerce to break through and achieve

cross regional or even global trade exchanges. For both parties involved in the transaction, trade can be achieved through the internet. Next is user big data, which refers to recommending content that users like based on their different preferences, providing users with more personalized pages and products that are more in line with their needs. Finally, efficiency is crucial. Compared to traditional business models, e-commerce has lower costs, and this business mindset is the trend. It is conducive to improving healthy competition among enterprises and facilitating users' product selection.

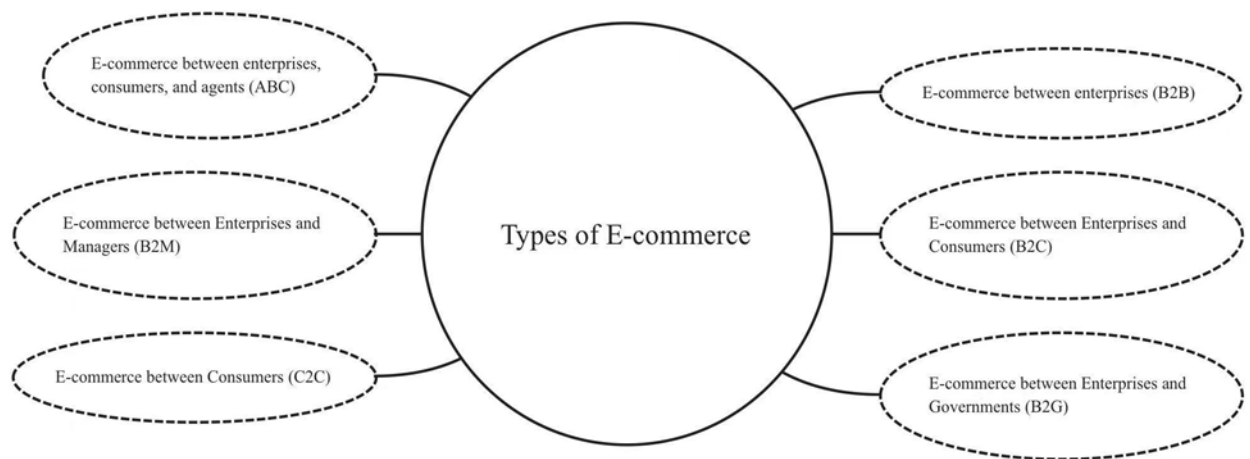


Figure 1 – Main types of e-commerce [done by author]

As shown in figure 1, it is a diagram of the main types of e-commerce. The types of e-commerce generally include but are not limited to: B2B (business to business), B2C (business to consumer), C2C (consumer to consumer), C2B (consumer to business), B2G (business to government e-commerce), C2G (consumer to government e-commerce), ABC (e-commerce where businesses, consumers, and agents transform into each other), and emerging O2O (online to offline). In addition, there are some other types of e-commerce models, such as B2M (Business to Manager), M2C (an extended concept for B2M e-commerce models), etc.

E-commerce (B2B) between enterprises. B2B e-commerce is a digital business model for enterprises to carry out data interaction and business transactions based on the Internet or private networks [16]. With the vigorous development of Internet technology, this model has been deeply integrated into the modern business ecology and has become an important

force to promote industrial upgrading. By integrating digital technologies such as big data and cloud computing, B2B e-commerce effectively simplifies the transaction process between enterprises, improves collaboration efficiency, provides innovative paths for optimizing resource allocation in the upstream and downstream of the industrial chain, helps enterprises break through the time and space limitations of traditional cooperation, and builds a broader and more efficient business network [51].

E-commerce (B2C) between businesses and individual consumers. B2C mode is a typical paradigm for consumers to directly participate in economic activities through the Internet, which is an important achievement of digital transformation of retail commerce [54]. In this mode, enterprises or merchants directly conduct online transactions with end consumers. Consumers only need to have network access conditions to complete commercial activities such as product selection, payment settlement, etc. anytime and anywhere, realizing the role transformation from demander to transaction participant. This form of transaction relying on the Internet breaks the time-space constraints of traditional retail. By efficiently linking the supply and demand ends through the digital platform, it not only meets the needs of consumers for convenient shopping, but also expands the market coverage for enterprises, and promotes the continuous evolution of the retail industry in the direction of intelligence and efficiency.

Business between individual consumption and individual consumers (C2C). This is the mode of consumers conducting personal transactions through online trading platforms. It refers to the fact that consumers only need a computer with an internet connection to register an account on a third-party platform, and can sell their personal property [61] or resources from another third-party platform on this platform. In this model, consumers can act as sellers or buyers, and the cost of e-commerce is relatively low.

The B2M model refers to a marketing oriented website established by e-commerce enterprises based on customer needs as the core. Compared to B2B, B2C and other e-commerce models, the B2M model not only provides a virtual shopping platform on the internet, but also fully brings online product and service information offline, assisting enterprises in promoting the website widely and standardizing shopping management through various online and offline channels [52].

B2B (Business to Government) refers to the electronic commerce between enterprises and government management departments. Enterprises cooperate with the government according to the standards proposed by the government, and the government can also supervise enterprises, thereby improving the efficiency of government work and the product quality rate of enterprises; For example, government procurement, project contracting, consulting, etc.

E-commerce (ABC) refers to the mutual transformation among enterprises, consumers, and agents. This is a new type of e-commerce model that integrates production, operation, and consumption, jointly built by agents, merchants, and consumers. At present, the vast majority of models on the market operate using the ABC model, which is characterized by low investment by enterprises and good interaction between sellers and buyers.

1.2 E-commerce platform and electronic payment

As one of the infrastructure for e-commerce transactions, e-commerce platforms have become an important platform for businesses and consumers to conduct e-commerce transactions. The e-commerce platform is an online platform based on Internet technology and e-commerce mode. It provides an online or offline place for sellers (enterprises) and buyers (consumers) to display goods and services, and allows consumers to select goods, purchase goods, third-party platform payment and other e-commerce operation services on the platform.

The content of e-commerce platforms usually includes basic functions such as virtual shopping malls, virtual shopping carts, electronic payment systems, and user after-sales support services, and provides users with personalized, marketing, and other value-added services to provide better user interaction experience and promote transaction completion. As of now, Taobao, JD, Tmall, Tiktok, etc. are the main representatives of China's e-commerce platforms, while WeChat and Alipay are the main third-party payment systems of Ping E-Commerce. E-commerce platform is an economic form that coordinates and organizes resource allocation and promotes e-commerce activities through the Internet platform, which

helps to achieve high-quality economic development. This economic form has three key characteristics: bilateral (or multilateral) market attributes, network effects, and lock-in effects [22].

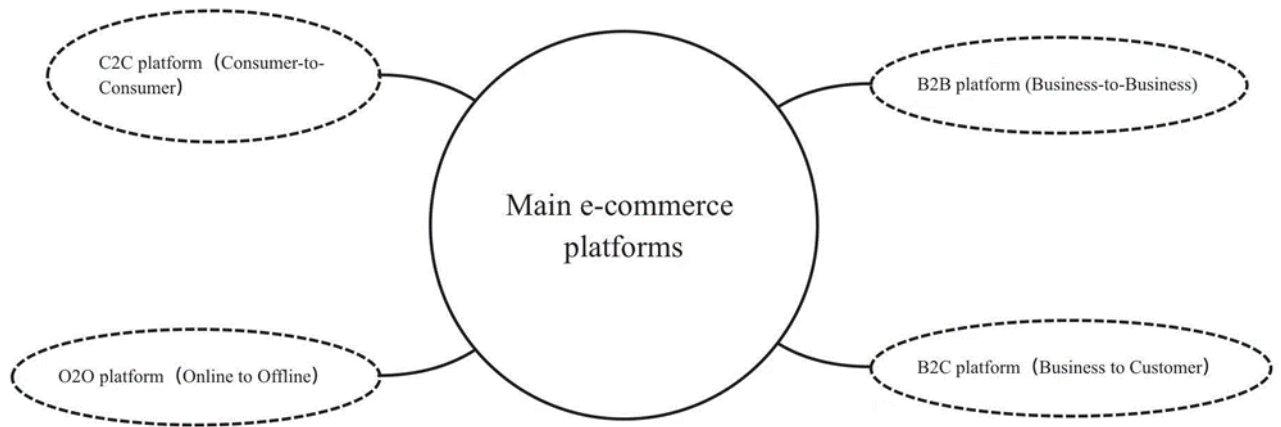


Figure 2 – Main platforms of e-commerce [done by author]

As shown in figure 2, the main platforms of e-commerce are the same as the types of e-commerce. Each type of e-commerce corresponds to its own platform. Its main platforms are also divided into B2B (Business to Business) platform, B2C (Business to Consumer) platform, C2C (Consumer to Consumer) platform, O2O (Online to Offline) platform, C2B (Consumer to Business) platform, G2B (Government to Business) platform, G2C (Government to Consumer) platform, etc.

B2B (Business to Business) platform. In actual operation, B2B platforms are divided into matching mode and self operated mode [6]. The matching mode specifically refers to the role of the B2B platform as only providing a purchasing platform, and the final interpretation right of the goods purchased by consumers is still the third-party enterprise or merchant registered on the B2B platform. The matching mode is divided into platform mode, integration mode, and franchise mode. The platform model refers to the operation mode and technical services provided by the B2B platform, based on which each enterprise operates on the B2B platform and sells products from offline sales stores through the B2B platform. The integration model refers to multiple enterprises "uniting" businesses in the same region and collaborating together on online platforms. The franchise model refers to the situation where

a company pays a certain franchise fee to operate a certain brand within a region, while maintaining a high level of trust in the brand. At this point, the B2B platform provides technical services and operations for the company's regional operations.

As the name suggests, the self operated model refers to the B2B platform being responsible for all operations and technology of the enterprise, as well as transaction payments and trading platforms. In the self operated mode, B2B platforms usually acquire goods on the market and then extract the goods from their own warehouses to customers based on their needs. Under the self operated mode, purchasing, payment, delivery, after-sales and other services have become an operational loop.

B2C (Business to Customer). Enterprises conduct B2C e-commerce by building Internet portals. In this form, enterprises can conduct transactions with consumer groups online. Compared to traditional sales models, the operating costs of e-commerce platforms are usually lower and have a wider coverage [49]. This paper defines B2C as a merchant identity registered by a company on a B2C platform, where customers act as consumers to purchase and trade goods from the merchant. At this point, the role of the B2C platform is only a third-party platform that provides transactions and services for consumers and companies.

Nowadays, B2C platforms cover multiple industries and sectors, with traces of B2C presence in people's daily lives such as clothing and housing. Compared to other platforms, B2C platforms are more widely accepted and favored by the public. In the era of big data, B2C's personalized services are more comprehensive and better able to serve the target audience, with fierce competition among enterprises. This is for consumers to obtain higher quality products, which is also beneficial for mutual supervision among enterprises.

B2C platforms in China can be described as a hundred schools of thought competing, with multiple B2C platforms coexisting in the current trend. For example; Taobao, Tmall, JD, Pinduoduo, Tiktok, Kwai and a series of platforms, and each platform has different characteristics, but the products basically include. This diverse situation will also make each platform more strict in screening companies that have already joined or want to join their own platform, and have higher requirements for the quality of products.

C2C (Consumer to Consumer) platform. C2C platform refers to the ability of consumers to conduct transactions anytime and anywhere through e-commerce platforms. At this time, the platform provides electronic payment services and matches transactions, and finally communicates with consumers for the logistics of goods. However, this type of transaction carries significant risks. When conducting transactions on C2C platforms, the platform will display the transaction completion status after checking the consumer's receipt and shipment status. However, it is inevitable that there may be fraudulent behavior by the consumer towards another consumer, where the goods and description are seriously inconsistent.

In summary, the characteristics of C2C generally include individual trading subjects, electronic transactions, transactions that are not constrained by time and space [59], and uncertainty of goods

O2O (Online to Offline) platform. The O2O platform referred to in This paper refers to the concept of "online payment and offline consumption". In this era driven by big data, many industries in China have begun to implement this O2O model, which makes consumer details more transparent and eliminates hidden consumption. More friendly to non local consumers, all details are traceable on the O2O platform, and the specific situation of each consumption can be queried. The O2O platform has realized the complete connection between offline physical commerce and the Internet. The Internet is equivalent to the foreground of offline physical commerce, guiding online consumers to offline consumption [7], such as "hungry, beautiful, taxi, etc." in China.

In summary, the characteristics of O2O include but are not limited to payment transparency, security, and protection of consumer rights and interests

In China, electronic mobile payments have become the norm. When going out, you only need to keep your phone with you and have enough third-party software currency in your phone to pay for goods to go anywhere. The broad definition of mobile payment refers to consumers paying bills generated by consumers through mobile devices and other wireless technologies, while the narrow definition of mobile payment refers to consumers paying bills on third-party platforms by converting currency from third-party platforms [30]. The main types of electronic payments mentioned in This paper in China include facial recognition

payments, QR code payments, and card payments. These payments are mostly made through the payment systems of third-party payment platforms or their own payment systems. Consumers convert their bank balances into a 1:1 ratio of third-party platform digital currency for offline or online transactions. Face brushing payment is mainly the third-party platform Alipay, which is widely used to deduct the price of purchased goods from consumers' Alipay balance through facial biometric technology. Scan code payment is a third-party platform that generates a QR code belonging to the consumer or merchant internally, and then uses the program functions of the third-party platform to detect the user of the QR code, read the balance information of the QR code user, and finally deduct the payment after confirmation by the consumer. Card swiping payment is quite common in the market, usually using a specific bank's bank card for payment functions.

China began to put forward the concept of electronic payment in 2005. It was pointed out in the No. 23 Guidelines for Electronic Payment (No. 1) of the People's Bank of China that "electronic payment refers to the act of units, individuals directly or authorizing others to send payment instructions through electronic terminals to realize currency payment and capital transfer.

China's third-party payment platforms are mainly WeChat and Alipay, among which Alipay Network Technology Co., Ltd. was founded by Alibaba Group. Products and services centered around "trust". Not only should we ensure the security of online payment for users' products, but we should also allow PayPal users to establish mutual trust on the network[39]. Alipay is characterized by clear interface, wide coverage, high security, and diverse payment methods, so Alipay's payment is chosen by more people.

1.3 Cross border e-commerce

Cross border e-commerce is the abbreviation for "cross-border trade e-commerce", which specifically refers to the trade of other goods between two countries during cross-border trade. But the issues of currency payment, cultural issues, and delivery of goods all need to be resolved through intermediaries, which is essentially a kind of commodity sales between countries. Although cross-border e-commerce has reduced the transaction costs of

complex procedures to some extent compared to traditional trade, it has also increased the trade costs arising from cultural distance and online payments under new models [17].

Cross border e-commerce can be divided into B2B enterprises, B2C enterprises, and C2C enterprises according to different entities [43]. B2B enterprises refer to enterprises from different countries that communicate online or offline, where buyers request goods and then both parties send and receive the goods through traditional international logistics and payment methods. B2C enterprises refer to companies that primarily provide consumers with the ability to purchase goods, education, healthcare, and other services outside of their home country on virtual shopping malls. C2C refers to consumers and businesses from different countries conducting transactions independently on third-party platforms based on their own preferences, with logistics and product prices being determined by both parties.

With the gradual development of society, cross-border trade between countries is becoming more and more frequent, including the rise of cross-border e-commerce. However, this type of cross-border e-commerce is different from domestic e-commerce because it needs to consider many issues such as customs, tax payment, and time, which may result in orders being returned. If orders are returned by the receiving country, the complexity is high because the traditional export return model is inefficient and costly. For consumers, even if the product can be returned, insufficient logistics timeliness may reduce their willingness to return. This has greatly affected consumers' shopping satisfaction and hindered the growth rate of cross-border e-commerce business [69]. And the essential cross-border logistics refers to the goods departing from country A, first passing through country A's inspection before being sent to country B, and then passing through country B's customs inspection before being sent to consumers or businesses. Compared with traditional logistics models, goods still need to go through customs supervision and inspection in countries A and B, and even in country C. Therefore, the overall process efficiency of cross-border logistics is relatively low, and the timeliness is poor. Moreover, if one of the goods in a batch does not meet the requirements, other goods need to be stopped, which greatly affects the user experience.

As countries see the opportunities brought by cross-border e-commerce, they have introduced cross-border e-commerce policies. Cross border e-commerce policies refer to a

series of policy groups formulated by the state to promote the development of cross-border e-commerce, including tax incentives, customs supervision, logistics services, payment services, national pilot projects, inspection and quarantine, etc[20]. The policy combination of cross-border e-commerce includes many aspects, among which tax and customs supervision policies occupy the first place, with the main purpose of promoting the economic growth of cross-border e-commerce and effectively eliminating national import and export threats. The responsibilities of tax policies and customs are different, with customs mainly responsible for regulating imports and exports and developing corresponding regulatory strategies to improve import and export related activities, while taxation mainly regulates the import of goods, as well as tax refunds, payments, and exemptions. The original intention and purpose of taxation and customs are to make import and export trade more standardized while seeking high-quality development, making transactions fair and transparent, and making commercial relationships between multiple trading countries more stable.

In addition, when two countries engage in cross-border e-commerce, they must fully respect each other's national culture and beliefs. Cross cultural communication theory focuses on effectively overcoming communication barriers between different cultures, paying attention to the differences in language, symbols, and behavior between cultures, as well as their impact on marketing communication. International marketing strategies involve how to position products, price, promote, and distribute them in the global market, taking into account the market characteristics of different countries and regions [40].

Cross border e-commerce enterprises can be divided into cross-border e-commerce foreign trade enterprises, third-party cross-border e-commerce platform enterprises, and cross-border e-commerce service enterprises according to their different business models. Cross border e-commerce foreign trade enterprises refer to enterprises that conduct import and export transactions on third-party platforms. Secondly, third-party cross-border e-commerce platform enterprises build online shopping malls in virtual network environments, integrate their cross-border resources to attract merchants to register, and then charge a certain commission for each item sold by merchants. Finally, cross-border e-

commerce service enterprises are enterprises that provide resources and operational services to cross-border e-commerce enterprises and import and export trade platforms.

Finally, under the leadership of China's "Belt and Road" initiative, we have established deep trade relations with neighboring countries. The "Belt and Road" refers to the "Silk Road Economic Belt" and the "One Road" refers to the "21st Century Maritime Silk Road". The great strategic ideas proposed by President Xi Jinping during his visit to Southeast Asian and Central Asian countries in 2013 include the China Mongolia Russia Economic Corridor, the China Central Asia West Asia Economic Corridor, the New Eurasian Continental Bridge Economic Corridor, the China Indochina Peninsula Economic Corridor, the China Pakistan Economic Corridor, and the Bangladesh China India Myanmar Economic Corridor [57]. The original intention of the the Belt and Road is to build a community with a shared future for mankind, with close development and common prosperity among countries. This cannot be separated from cross-border transactions of goods between countries. Currently, cross-border e-commerce in cross-border transactions is the most economical and convenient choice, especially after the country has introduced relevant policies, cross-border e-commerce has been chosen by more enterprises and individuals.

The main characteristics of this paper are mainly five points. Firstly, in terms of the topic selection, it is closely related to the changes and developments of the times, mainly focusing on the fundamental aspect of the country - the economy - in the context of big data today. Based on the current economic situation and the needs of the times, the aim is to expose the impact of e-commerce economy on the Chinese economy. In today's rapidly developing economy, although the improvement of the economy still relies on the support of traditional economy, for the future economy, people will gradually rely on electronic information technology with the improvement of living standards. Therefore, e-commerce economy has become an essential part. Secondly, in terms of research methods, the pillars of the Chinese economy are complex and intricate. The data research section extracts the traditional industries of the Chinese economy, namely the primary and secondary industries, as the main components of the Chinese economy, and uses the main parts of the domestic economy to explain the overall situation in China. For the foreign part, foreign trade

economy is taken as a representative, followed by analysis and research on e-commerce economy, using the "double test" method. This not only makes the research more convincing but also more in line with the real situation, allowing other scholars to predict the future economy. Thirdly, from the perspective of the industry, This paper reveals the relationship between e-commerce and other industries, reveals the integration ability of the e-commerce industry with other industries, and finds that e-commerce has a good integration ability with many industries in China, while also driving the industry economy and the regional economy to which the industry belongs, and giving rise to other different industries, greatly increasing employment rates. Fourthly, from the research results, after statistical analysis of the data, a complete set of interpretation of the results was formed using two main parts and the remaining testing parts. The study found that both the analysis and testing results were indisputable and had significant effects.

Chapter 2 Empirical analysis of the impact of e-commerce on multiple sectors of the Chinese economy

2.1 Impact of e-commerce on traditional industrial economy

Traditional industries have been essential for human survival since the development of history, maintaining the basic necessities of daily life such as food, clothing, housing, and transportation. In addition, these industries have gradually stabilized and are not easily eliminated through the continuous evolution and alternation of history. In the development of history, they have gradually formed their own set of industrial processes, industrial structures, market structures, and unique economic systems. Many industries have been developed on the basis of traditional industries. Under the wave of digital economy, the development of traditional industries is under pressure. Only by accelerating transformation and upgrading can we enhance competitiveness and achieve sustainable development [63].

The country has introduced a series of policies to promote the transformation and upgrading of traditional industries, empowering them with the digital economy, focusing on high-end, intelligent, and green development, and providing institutional and policy guarantees in technological innovation, industrial integration, resource allocation, and other aspects. Traditional industrial economy refers to the economic entity formed by traditional industries in the process of development, which is unique to traditional industries and provides a significant role in a country's economic development. Traditional industrial economy mainly focuses on production and manufacturing, with low technological requirements and slow innovation speed [23].

Due to the fact that the traditional economy mainly consists of the first and second industries among the three industries, while the third industry is mainly the service industry, with the gradual development of time, some industries in the third industry have begun to transform towards modern service and information industries, and the modern information industry in the third industry has become an important force in promoting economic progress. Therefore, This paper uses data from the first and second industries in China's three industrial economies from 2013 to 2023 to replace traditional industrial economies for

economic modeling and analysis, exploring the relationship between e-commerce economy and traditional industrial economy.

Table 1 – Economic table of traditional industries in China [1]

Date	First industry (RMB/billion)	Second industry (RMB/billion)	Traditional Chinese industry economy (RMB/billion)
2013	53028.10	261951.60	314979.70
2014	55626.30	277282.80	332909.10
2015	57774.60	281338.90	339113.50
2016	60139.20	295427.80	355567.00
2017	62099.50	331580.50	393680.00
2018	64745.20	364835.20	429580.40
2019	70473.60	380670.60	451144.20
2020	78030.90	383562.40	461593.30
2021	83216.50	451544.10	534760.60
2022	88207.00	473789.90	561996.90
2023	89755.20	482588.50	572343.70

As shown in table 1, organize and extract data on traditional industry economy from 2013 to 2023. In order to present the development trends of these data more intuitively, we have drawn a trend chart of China's traditional industry economy from 2013 to 2023 based on the information in the table.

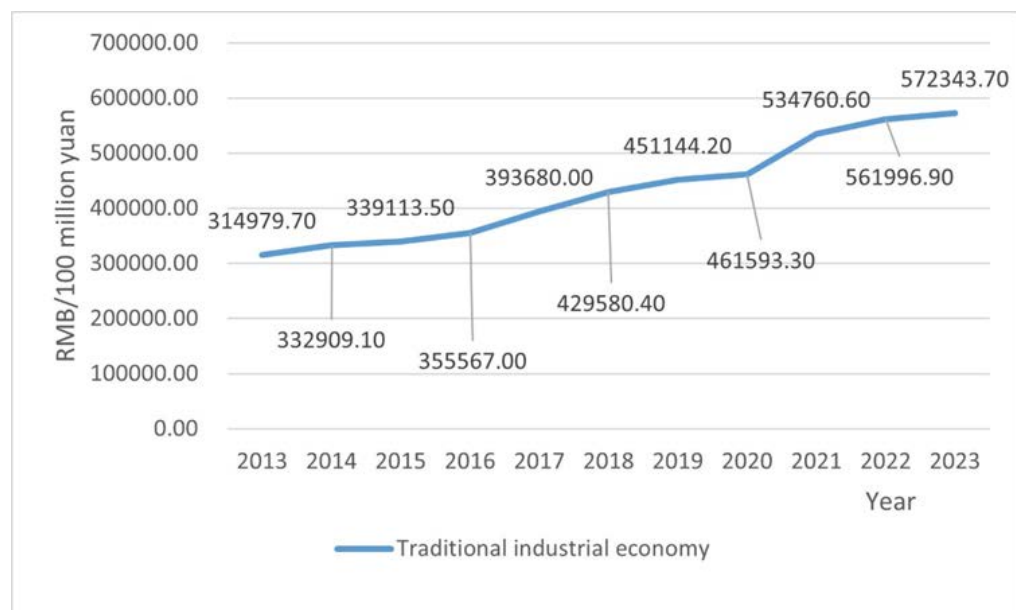


Figure 3 – Economic trends of traditional industries in China [done by author]

As shown in figure 3, it can be clearly observed that China's traditional industrial economy has shown a gradual upward trend over time, which is extremely beneficial for the development of industries and the economic health of the country. Despite experiencing a brief decline between 2020 and 2021, the overall trend shows that the growth momentum remains strong. Especially during the "COVID-19" epidemic, as shown in Figure 2.1, China's traditional industrial economy did not decline, but continued to grow. This phenomenon further confirms that China has taken firm measures and effective control in combating the COVID-19 epidemic, which has ensured the steady development of the economy.

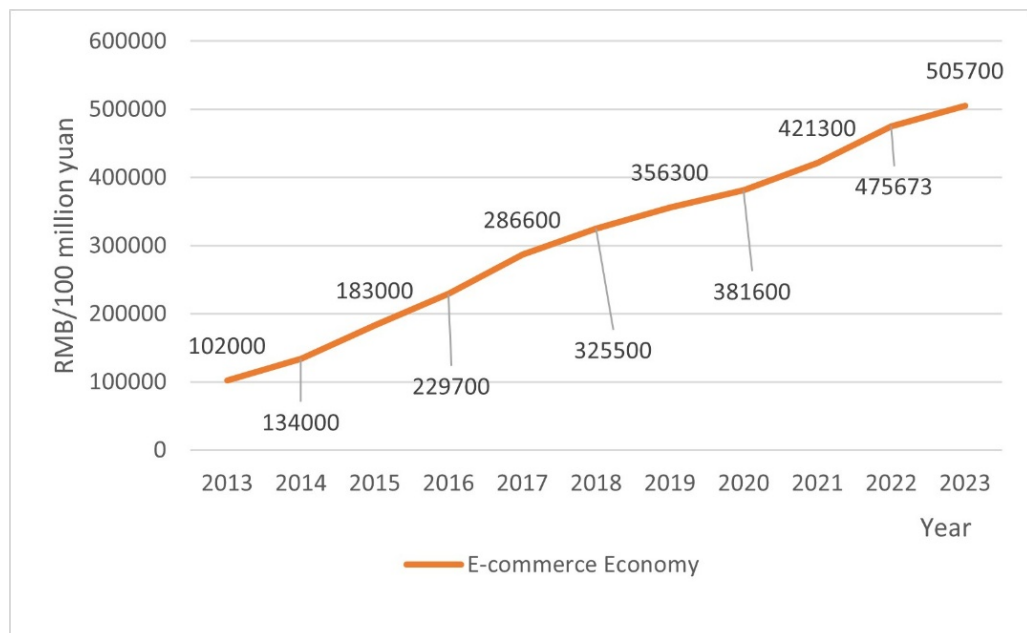


Figure 4 – Trend chart of China's e-commerce economy [12]

As the research content of this chapter is the impact of e-commerce economic data on traditional industrial economy, we also need to analyze the analysis and research of China's e-commerce economy from 2013 to 2023. As shown in figure 4, the trend chart of China's e-commerce from 2013 to 2023 shows that over time, the e-commerce economy in China has continued to climb, showing significant growth momentum. At the same time, the market size is also constantly expanding, with an average annual compound growth rate of over 50%. This data fully shows that with the increase of Internet penetration, the increasingly improved logistics system, and the change of consumers' shopping habits, e-

commerce economy is gradually becoming the key force to promote China's economic growth. Will China's e-commerce economy affect its traditional industrial economy? In other words, is there a certain relationship between China's e-commerce economy and its traditional economy? In order to explore this issue, This paper uses EViews software to conduct empirical analysis of China's e-commerce data and traditional industry economic data from 2013 to 2023. The specific flowchart is shown in Figure 5.

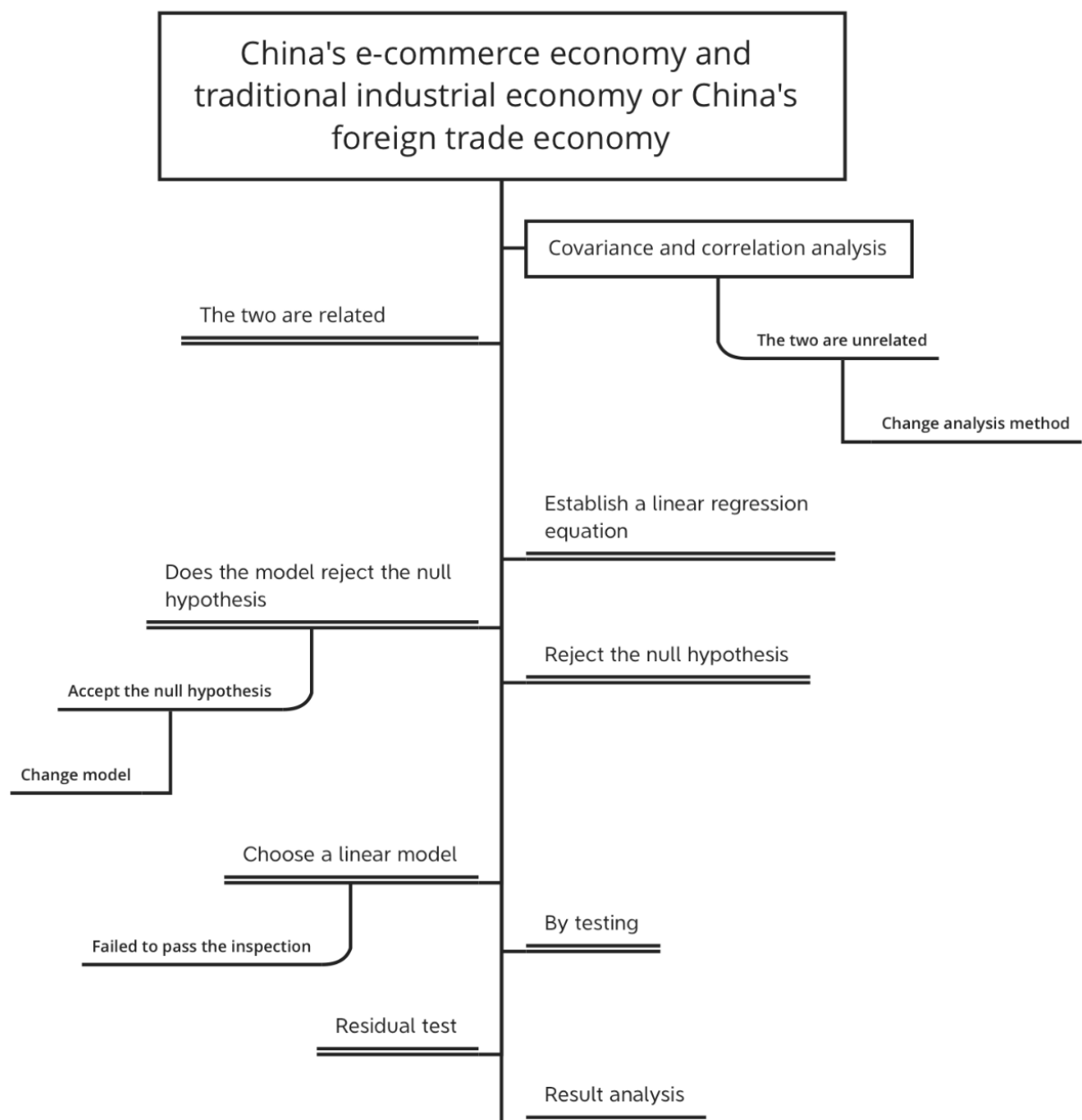


Figure 5 – Research flowchart [done by author]

Table 2 – Statistical table of e-commerce economy and traditional industry economy data [11]

Date	E-commerce economy (RMB/billion)	Traditional industry economy (RMB/billion)
2013	102000	314979.70
2014	134000	332909.10
2015	183000	339113.50
2016	229700	355567.00
2017	286600	393680.00
2018	325500	429580.40
2019	356300	451144.20
2020	381600	461593.30
2021	421300	534760.60
2022	475673	561996.90
2023	505700	572343.70

Table 2 is a statistical table of China's e-commerce economy and traditional industry economy from 2013 to 2023. This chapter mainly conducts statistical modeling analysis on the economic data of the two, with China's e-commerce economy as the explanatory variable and China's traditional industry economy as the dependent variable for analysis. The specific process is as follows:

(1) Covariance and correlation analysis

$$COV(X, Y) = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{n-1} \quad (\text{Formula 1})$$

Analysis of Covariance (ANCOVA) is a statistical method that combines analysis of variance and regression analysis techniques. It compares the means of two or more groups while controlling for the effects of one or more continuous variables (covariates). The essence of this method lies in eliminating or controlling external covariates that may distort the results when comparing between group means. By incorporating covariates for impact adjustment, ANCOVA ensures the fairness and credibility of inter group comparisons. As shown in formula 2.1, this formula is a covariance formula, where $COV(X, Y)$ is the covariance between variables X and Y , X_i and Y_i are the i -th observations of variables X and Y , n is the number of observations, and $\bar{X}$ and $\bar{Y}$ are the means of variables X and Y .

$$r = \frac{COV(X,Y)}{\sigma_X \sigma_Y} \quad (\text{Formula 2})$$

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}} \quad (\text{Formula 3})$$

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2} \sqrt{\sum_{i=1}^n (Y_i - \bar{Y})^2}} \quad (\text{Formula 4})$$

Correlation analysis is a statistical method used to measure the strength and direction of linear relationships between two or more variables. It can help us understand whether there is a certain connection between variables, as well as the nature and degree of this connection, but correlation analysis can only reveal the correlation between variables and does not imply a causal relationship. Formula 2 is the formula for the correlation coefficient, r is the correlation coefficient of the sample, $COV(X,Y)$ is the covariance, σ is the standard deviation of variables X and Y , and Formula 3 is the standard deviation formula. We can substitute and simplify the standard deviation formula and covariance formula to obtain Formula 4, which is also the expression for the correlation coefficient.

Due to the fact that covariance analysis and correlation analysis can be analyzed together in EViews software, we will put them in a result table to analyze the correlation between their variables [64; 29; 42; 24]. In order to visually express the relationship between data in This paper, the explanatory variable (independent variable) is considered to be China's e-commerce economy (EE), and the dependent variable (dependent variable) is China's traditional industrial economy (TE). The processing results are as follows;

In the analysis result chart 6, it can be seen that the P-value of China's e-commerce economy on China's traditional economy is 0, far below the significance level standard of 0.05. Therefore, rejecting the null hypothesis that there is no linear relationship between variables (H_0), we can conclude that there is a linear relationship between China's e-commerce economy and traditional economy, which is very significant. In addition, the value of the t-statistic is a particularly large positive value, so the correlation between China's e-commerce economy and traditional industrial economy in statistics is also very significant.

Covariance Analysis: Ordinary
Date: 11/27/24 Time: 23:38
Sample: 2013 2023
Included observations: 11

Covariance Correlation t-Statistic Probability	TE	EE
TE	7.99E+09 1.000000 ----- -----	
EE	1.13E+10 0.978066 14.08668 0.0000	1.66E+10 1.000000 ----- -----

Figure 6 – Covariance and correlation analysis of EViews [done by author]

Linear regression analysis. After testing, we found that there is a linear relationship between the two. However, in order to ensure the accuracy of the experimental results and to examine other relationships between variables, we established a regression model on the data to examine the linear relationship and other relationships between variables. The so-called linear regression model refers to the use of the "least squares method" to estimate the parameters between the dependent variable and multiple explanatory variables, and then explore the statistical relationship between the explanatory variable and the dependent variable [4; 53; 15].

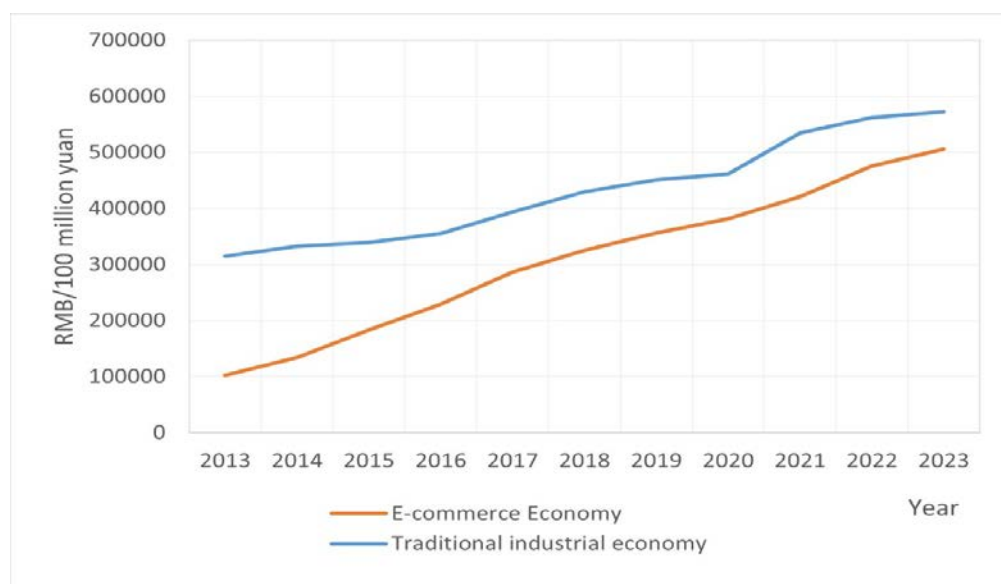


Figure 7 – EViews linear relationship point line diagram [done by author]

As shown in figure 7, there is a linear relationship point line graph between China's e-commerce economy and traditional industrial economy in EViews software. It can be seen from the graph that there is a clear linear relationship between China's e-commerce economy and traditional industrial economy. Since there are only two variables, we use a univariate linear regression model for empirical analysis.

$$y = b_0 + b_1 * x + \varepsilon \quad (\text{Formula 5})$$

$$b_1 = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2} \quad (\text{Formula 6})$$

$$b_0 = \bar{y} - b_1 * \bar{x} \quad (\text{Formula 7})$$

Formula 5 is the expression of a univariate linear regression equation, also known as the least squares method. Among them, y represents the dependent variable (dependent variable) China's traditional industrial economy, x is the independent variable (explanatory variable) China's e-commerce economy, b_0 is the intercept term (the expected value of y when $x=0$), b_1 is the slope, and ε is the error term, representing the difference between the observed value obtained through the regression equation and the estimated value. Generally, the null hypothesis (H_0) follows a normal distribution of 0. When the normal distribution is 0, there is no correlation between the two variables. Formula 6 is the slope expression, where n is the number of selected data points. Formula 7 is an intercept term expression, where $\bar{y}$ and $\bar{x}$ are sample means.

In test result 8, it can be seen that the overall R-squared value of the model is 0.956613, indicating that the model has a good fitting effect and strong explanatory power for the data. Then, looking at the probability p-value of the F-statistic being much lower than the standard 0.05, rejecting the null hypothesis (H_0) that all independent variable coefficients are 0, it can be concluded that using a linear regression model to explain the relationship between the two is very reasonable. From the perspective of regression coefficients, if the p-value of TE (Chinese traditional industrial economy) is also less than 0.05, the null hypothesis (H_0) that there is no significant difference between the regression coefficient and 0 is still rejected.

Dependent Variable: TE
Method: Least Squares
Date: 05/24/25 Time: 17:32
Sample: 2013 2023
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	222060.2	16117.74	13.77738	0.0000
EE	0.677669	0.048107	14.08668	0.0000

R-squared	0.956613	Mean dependent var	431606.2
Adjusted R-squared	0.951792	S.D. dependent var	93729.82
S.E. of regression	20579.61	Akaike info criterion	22.86496
Sum squared resid	3.81E+09	Schwarz criterion	22.93730
Log likelihood	-123.7573	Hannan-Quinn criter.	22.81935
F-statistic	198.4345	Durbin-Watson stat	0.903347
Prob(F-statistic)	0.000000		

Figure 8 – EViews univariate linear regression test results [done by author]

Residual test. After conducting linear regression model analysis, in order to ensure the reliability and effectiveness of the model, we also need to perform residual testing on the model [3; 14; 27] The specific steps are as follows.

Date: 11/27/24 Time: 13:01
Sample: 2013 2023
Included observations: 11

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.466	0.466	3.1119	0.078
		2	-0.026	-0.312	3.1228	0.210
		3	-0.237	-0.106	4.1232	0.248
		4	-0.323	-0.204	6.2482	0.181
		5	-0.400	-0.292	10.064	0.073

Figure 9 – EViews residual Q-statistic test [done by author]

As shown in figure 9, the Q-statistic test results of EViews residuals are mainly used to test whether the residuals of the model are white noise, that is, the autocorrelation between residuals. It can be seen from the figure that the p-values of the residual sequence and its lagged 5th order are both greater than the 0.05 standard value, so the null hypothesis (H_0) that there is no autocorrelation in the residual sequence is not rejected.

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.478155	Prob. F(2,7)	0.2914
Obs*R-squared	3.266211	Prob. Chi-Square(2)	0.1953

Figure 10 – EViews residual LM test [done by author]

As shown in Figure 10, the EViews residual LM test is also a method for testing the autocorrelation of residuals. Generally, LM is tested together with Q-statistic test. If the results are different, models or LM test results are usually used. From the figure, it can be seen that the p-value of the F-statistic and the observed p-value of R-squared are both greater than the 0.05 standard value, so the null hypothesis (H_0) that there is no autocorrelation between residual sequences is not rejected. Combining Q-test and LM test, there is no autocorrelation between residual sequences and the measurement accuracy is high.

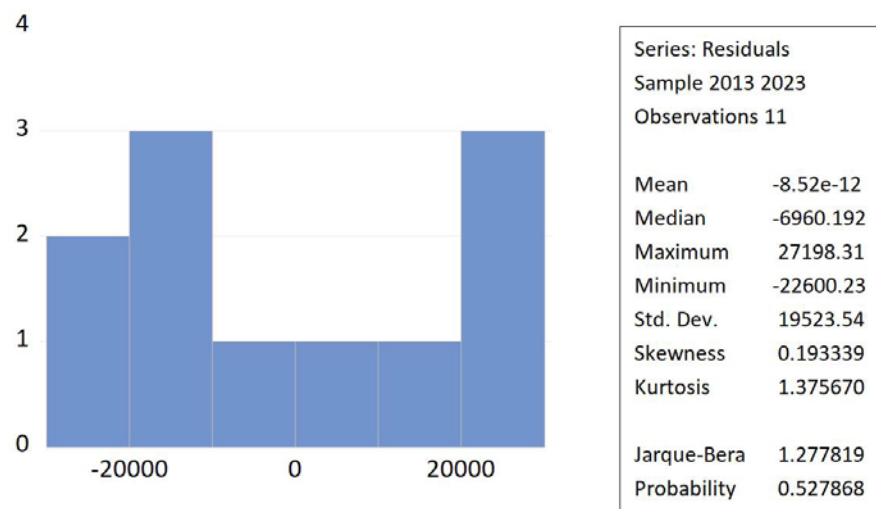


Figure 11 – EViews residual normality test [done by author]

Figure 11 shows the normality test of EViews residual histogram, which is a statistical method used to test whether the residual sequence follows a normal distribution. If the residuals follow a normal distribution, the accuracy of the prediction interval will be higher. From the graph, it can be seen that the p-value is much greater than the standard value of

0.05. Therefore, the null hypothesis that the residual sequence follows a normal distribution (H_0) is not rejected, and the residual sequence follows a normal distribution.

Heteroskedasticity Test: White			
Null hypothesis: Homoskedasticity			
F-statistic	0.184277	Prob. F(2,8)	0.8351
Obs*R-squared	0.484443	Prob. Chi-Square(2)	0.7849
Scaled explained SS	0.060914	Prob. Chi-Square(2)	0.9700

Figure 12 – EViews residual variance test [done by author]

Figure 12 shows the results of EViews residual variance test, which tests whether there is stable variance in the residual terms of the regression model [47]. If there is no heteroscedasticity, it satisfies the assumption of homoscedasticity in the model, indicating that the accuracy and explanatory power of the model are good, and the model test results are reliable and the confidence interval is accurate. From the graph, it can be seen that the p-value of the F-statistic and the p-value of R-squared are both much greater than the standard value of 0.05, so the null hypothesis (H_0) that the residual sequence is homoscedastic and there is no heteroscedasticity is not rejected.

The significance and results of the model:

$$E = C(1) + C(2) * EE \quad (\text{Formula 8})$$

$$E = 222060.206796 + 0.677669319198 * EE \quad (\text{Formula 9})$$

Since we use the least squares method to analyze the vectors, in order to more intuitively express the relationship between China's e-commerce economy (EE) and traditional industrial economy (TE), we use the general form of the least squares method to represent the specific coefficient estimates of the model test results in this paper. Formula 8 is based on the general form of the regression model obtained in This paper, where $C(1)$ represents the intercept term, also known as the constant term, and $C(2)$ is the coefficient of the independent variable EE. Formula 9 is the estimated coefficient value obtained by integrating the dataset and regression analysis in This paper. 222060.206796 represents the predicted value of the dependent variable TE, also known as the expected value, when EE

is 0. 0.6776693198 is the coefficient of the independent variable EE, indicating that every time one unit of EE is added, TE increases by an average of about 67.76%.

Through empirical analysis and research on China's e-commerce economy (EE) and traditional industry economy (TE), we have drawn the following two conclusions. Firstly, there is a linear correlation between China's e-commerce economy (EE) and traditional industry economy (TE). From the regression model, the linear relationship between the two is particularly significant, and China's e-commerce economy (EE) has a significant positive impact on China's traditional industry economy (TE). In other words, when China's e-commerce economy (EE) increases, it also leads to an increase in China's traditional industry economy (TE); Secondly, using regression models, we can predict the future dependent variable, China's traditional industry economy (TE), based on the current independent variable, China's e-commerce economy (EE) data. As we found in the model testing that the model's prediction reliability and accuracy are high, we can use current data to predict future economic data, which has great reference significance for national economic data departments.

Finally, it can be seen that both are constantly growing over time. The growth rate of China's e-commerce economy is relatively fast, and although traditional industrial economy is also growing, the slow growth rate has been surpassed by China's e-commerce economy. In the future, China's e-commerce may gradually approach and surpass traditional industrial economy [65].

2.2 Impact of e-commerce on China's foreign trade economy

Foreign trade refers to the activity of commodity trade between a country or region and other countries or regions, and it is an important component of maintaining communication relationships between countries and regions [5]. Foreign trade mainly includes two parts: import and export. Import refers to a country or region purchasing goods from other countries or regions according to its own market demand to make up for its own market deficiency. These goods can be technology, services, or physical goods. Export refers to a country or region selling physical goods, technologies, or services from its own

market to other countries with demand, maximizing resource utilization and generating income for the country.

Among them, foreign trade economy refers to the economic changes that occur during the process of foreign trade. It can demonstrate the degree of openness and economic strength of a country or region to the outside world, and is an important component of evaluating a country's economic indicators [19]. Not only can it affect a country's employment rate and economic growth, but it can also affect the country's status and diplomatic relations in the international community. Therefore, countries will formulate relevant policies for their own foreign trade to achieve friendly exchanges between countries and promote mutual economic benefits.

Table 3 – Statistics of China's foreign trade and economy [1]

Date	Foreign trade economy (RMB/billion)
2013	258168.90
2014	264241.80
2015	245502.90
2016	243386.50
2017	278099.20
2018	305010.10
2019	315627.30
2020	322215.20
2021	387414.60
2022	418011.60
2023	417568.30

As shown in Table 3, the data of China's foreign trade and economy from 2013 to 2023 is presented. It can be seen from the table that China's foreign trade and economy data have been increasing year by year. However, in order to express this data intuitively, we still draw and display it.

As shown in Figure 12, it is the economic growth chart of China's foreign economic and trade based on Table 3. From the graph, it can be seen that there was a downward trend in foreign economic and trade in 2015, 2016, and 2020. However, overall, with the passage of time, the overall trend of foreign trade economy has also been increasing. The growth rate in the past 10 years has been huge, increasing by about 70% from 2013 to 2023.

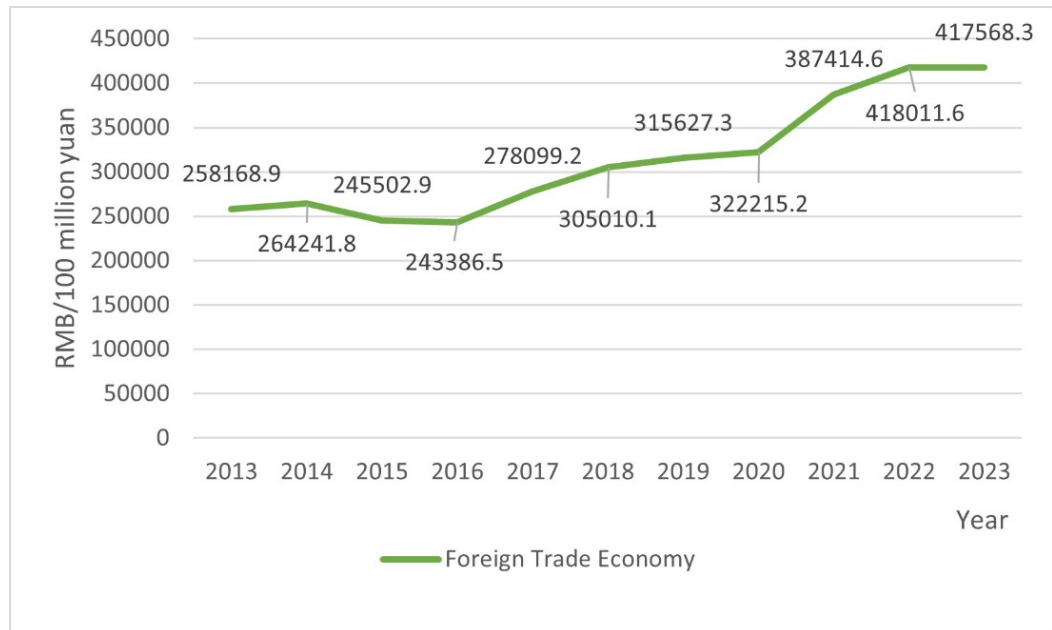


Figure 13 – Growth chart of China's foreign trade economy [done by author]

As we discussed the impact of China's e-commerce economic data on its traditional economy in the previous chapter, this chapter will continue to use the empirical research method of the previous chapter to explore in depth the correlation between China's e-commerce and foreign trade economy. Similarly, we will explore whether Chinese e-commerce has an impact on China's foreign trade economy, and what specific connections exist between the two. Next, we will follow the research path of the previous chapter to further verify and analyze these issues.

Table 4 – Statistical table of e-commerce economy and foreign trade economy data [11]

Date	E-commerce economy (RMB/billion)	Foreign trade economy (RMB/billion)
2013	102000	258168.90
2014	134000	264241.80
2015	183000	245502.90
2016	229700	243386.50
2017	286600	278099.20
2018	325500	305010.10
2019	356300	315627.30
2020	381600	322215.20
2021	421300	387414.60
2022	475673	418011.60
2023	505700	417568.30

Table 4 is a statistical table of China's e-commerce economy and foreign trade economy data. We will still use EViews software to perform covariance and correlation analysis as well as linear regression analysis on these two sets of statistical data, and then observe the results to determine the relationship between the two. Still using EE to represent China's e-commerce economy and FE to represent foreign trade economy, where the independent variable (explanatory variable) is EE and the dependent variable (dependent variable) is FE.

Covariance and correlation analysis. Figure 14 shows the covariance and correlation analysis between China's e-commerce economy (EE) and China's foreign trade economy (FE). From this result table, we can see that the p-value of China's e-commerce economy (EE) on China's foreign trade economy (FE) is much smaller than the standard value of 0.05. So, reject the null hypothesis (H_0) that there is no linear relationship between variables. So there is a linear relationship between China's e-commerce economy and its foreign trade economy, and this relationship is very significant. Next, linear regression will still be used to verify the accuracy of the model.

Covariance Analysis: Ordinary
Date: 11/27/24 Time: 23:41
Sample: 2013 2023
Included observations: 11

Covariance Correlation t-Statistic Probability	FE	EE
FE	3.97E+09 1.000000 ----- -----	
EE	7.43E+09 0.915020 6.804647 0.0001	1.66E+10 1.000000 ----- -----

Figure 14 – Covariance and correlation analysis of EViews [done by author]

Linear regression analysis. As shown in figure15, this graph is a linear relationship between China's e-commerce economy and its foreign trade economy. It can be seen from

the graph that there is a certain linear relationship between China's e-commerce economy and its foreign trade economy, and the overall trend of both variables is gradually increasing over time. Since the discussion is still focused on the relationship between two variables, we will continue to use a univariate linear regression model to explain the detailed relationship between the two.

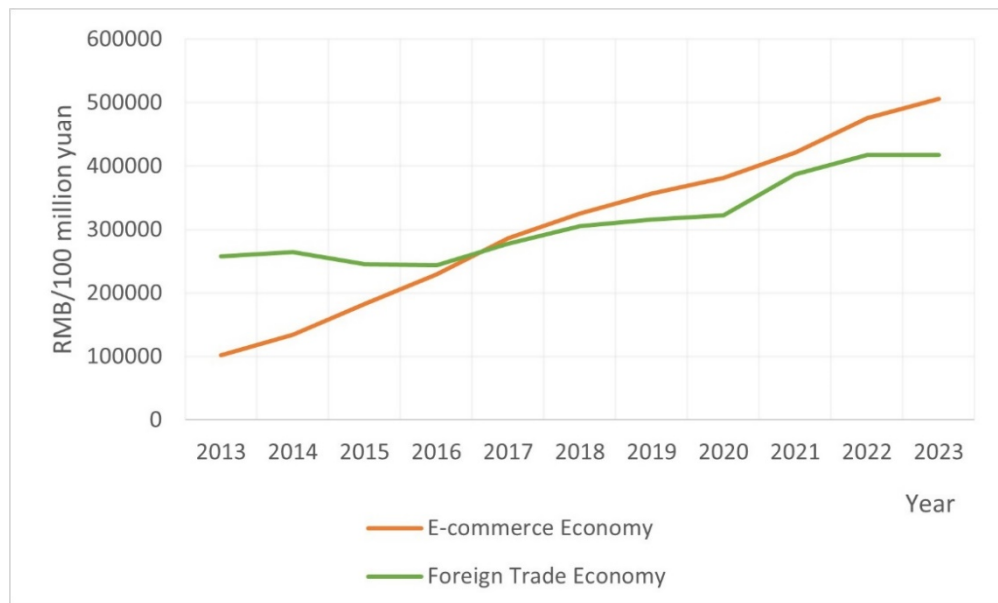


Figure 15 – EViews linear relationship point line diagram [done by author]

As shown in figure 16, the results of the univariate linear regression tested in EViews provide the following information. Firstly, from the overall perspective of the model, the R-squared value is 0.837216, which is close to 1, indicating a strong fitting effect of the model. Secondly, the value of the F-statistic is $p < 0.05$ (set as the standard value), rejecting the null hypothesis that all independent variable coefficients are 0 (H_0), indicating that using a linear regression model to explain the relationship between the two is very reasonable. Thirdly, the standard value indicator of the regression coefficient FE (China's foreign trade economy) with $p < 0.05$ rejects the null hypothesis that there is no significant difference between the regression coefficient and 0 (H_0)

Dependent Variable: FE
Method: Least Squares
Date: 11/27/24 Time: 23:46
Sample: 2013 2023
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	175937.3	22001.91	7.996455	0.0000
EE	0.446860	0.065670	6.804647	0.0001

R-squared	0.837261	Mean dependent var	314113.3
Adjusted R-squared	0.819179	S.D. dependent var	66064.59
S.E. of regression	28092.70	Akaike info criterion	23.48737
Sum squared resid	7.10E+09	Schwarz criterion	23.55972
Log likelihood	-127.1806	Hannan-Quinn criter.	23.44177
F-statistic	46.30322	Durbin-Watson stat	0.695576
Prob(F-statistic)	0.000079		

Figure 16 – EViews univariate linear regression test [done by author]

Residual test. After using linear regression models for China's e-commerce economy and foreign trade economy, we still conducted residual tests to make the models more convincing. As shown in figure 17, the test results of the Q-statistic of the residuals are obtained. From the results, we obtained the standard value of $p > 0.05$ with a lag of 5 orders for the residual sequence. Therefore, we do not reject the null hypothesis (H_0) that there is no autocorrelation in the residual sequence, indicating that the residual terms are independent of each other and do not exhibit typical time series patterns.

Date: 11/27/24 Time: 23:48
Sample: 2013 2023
Included observations: 11

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
		1 0.540	0.540	4.1760	0.041
		2 -0.064	-0.503	4.2419	0.120
		3 -0.260	0.122	5.4509	0.142
		4 -0.241	-0.228	6.6406	0.156
		5 -0.380	-0.427	10.078	0.073

Figure 17 – EViews residual Q-statistic test [done by author]

As shown in figure 18, we continue to perform LM test on the autocorrelation of the residual sequence. From the results, we can conclude that the p-value of the F-statistic is greater than the 0.05 standard value, and the p-value of the R-squared is also greater than

the 0.05 standard value. Therefore, we do not reject the null hypothesis (H_0) that there is no autocorrelation between residual sequences. Through LM test and Q-statistic test, it was found that there is no autocorrelation between the residual sequences, indicating that the model setting is correct and the variance stationarity is also high.

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	3.381965	Prob. F(2,7)	0.0938
Obs*R-squared	5.405668	Prob. Chi-Square(2)	0.0670

Figure 18 – EViews residual LM test [done by author]

As shown in figure 19, after completing the residual autocorrelation test, the normality test was performed on the residuals. From the figure, the standard value of $p > 0.05$ is obtained. Therefore, the null hypothesis that the residual sequence follows a normal distribution (H_0) is not rejected, and the residual sequence follows a normal distribution. This indicates that the model is applicable to the current data and there are no abnormal distributions or nonlinear issues.

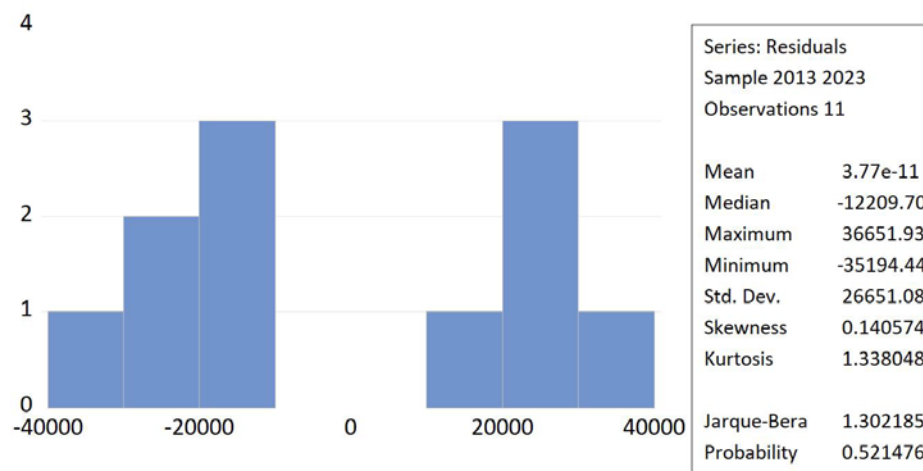


Figure 19 – EViews residual normality test [done by author]

As shown in figure 20, it is the heteroscedasticity test result of the residuals of the linear regression model for China's e-commerce economic data and China's foreign trade

economic data. From the graph, we can conclude that the F-statistic has a p-value of $p > 0.05$ and the p-value of R-squared is also greater than 0.05. Therefore, we do not reject the null hypothesis that the residual sequence is homoscedastic and there is no heteroscedasticity (H_0). The relationship between the establishment and verification of the model is accurate.

Heteroskedasticity Test: White
Null hypothesis: Homoskedasticity

F-statistic	1.395544	Prob. F(2,8)	0.3021
Obs*R-squared	2.845123	Prob. Chi-Square(2)	0.2411
Scaled explained SS	0.321921	Prob. Chi-Square(2)	0.8513

Figure 20 – EViews residual variance test [done by author]

The significance and results of the model:

$$FE = C(1) + C(2) * EE \quad (\text{Formula 10})$$

$$FE = 175937.293551 + 0.446859597855 * EE \quad (\text{Formula 11})$$

In order to more intuitively express the linear relationship between China's e-commerce economy (EE) and China's foreign trade economy (FE), we use the formula obtained from EViews analysis to demonstrate the relationship between the two variables. Formula 10 is the general form of the least squares method for China's e-commerce economy (EE) and China's foreign trade economy (FE). Formula 11 is the estimated value of the specific coefficient obtained by combining regression model analysis of China's e-commerce economy (EE) and China's foreign trade economy data (FE). 175937.293551 represents the expected value of the dependent variable FE when the independent variable EE is 0, and 0.446859597855 is the coefficient of the independent variable EE, indicating that every time one unit of EE is added, FE increases by an average of about 44.68%. This indicates that China's e-commerce economy has a significant impact on its foreign trade economy.

Through empirical analysis and research on China's e-commerce economy (EE) and China's foreign trade economy (TE), we have come to the following two conclusions.

Firstly, there is a significant linear relationship between China's e-commerce economy (EE) and China's foreign trade economy (FE), and regression models show that China's e-commerce economy (EE) also has a positive impact on China's foreign trade economy (FE). Combined with previous research on China's e-commerce economy (EE) and traditional industrial economy (TE), China's e-commerce economy (EE) has become an indispensable part of China's economic development and can also affect other economic fields. Secondly, using regression models can predict future values. As we have found that the data in terms of accuracy, predictability, and model fitting ability are relatively good, we can make predictions for the relevant economy of this type.

2.3 Impact of e-commerce on expansion of trade markets

Through economic research on China's traditional economy and foreign trade, we can find that the impact of China's e-commerce economy on the trade market is significant. China's e-commerce economy has an impact on both traditional industries that generate economic benefits on their own and foreign trade that brings economic benefits from other countries. Among them, Chinese e-commerce has a significant impact on market expansion.

First, e-commerce connects sellers and buyers from all over the world through the Internet, which helps different countries expand their market scope and better break the geographical constraints. Countries can also increase their own income while trading goods, create sales channels for their own enterprises or individuals, and increase economic income. In addition, cross-border e-commerce platforms, as innovative business models, have shown a vigorous development trend in recent years. With its efficient and convenient trade advantages, it attracts numerous enterprises to explore international markets through this platform, accelerating the expansion and integration of global business maps [68; 41].

Secondly, Chinese e-commerce platforms can provide rich marketing methods for the market. Enterprises and individuals belonging to this market can better utilize e-commerce platforms to promote their products, develop appropriate marketing plans for products to increase trade volume, brand awareness, innovate marketing methods, and enhance market attractiveness. This plays a significant role in expanding the market.

Thirdly, e-commerce simplifies the transaction process, breaks the limitations of time and space, and thus reduces the operating costs of enterprises [33]. Enterprises do not need to spend huge amounts of money to establish physical stores, they only need to set up virtual stores online to sell products. At the same time, e-commerce reduces the intermediate links in the circulation of goods, lowers circulation costs, and enables enterprises to participate in market competition at more competitive prices.

Fourthly, e-commerce has significantly improved transaction efficiency by achieving instant transmission of information and paperless transactions, enabling enterprises to capture market dynamics in real time and quickly adjust their production and sales strategies to meet market demand [46]. At the same time, consumers are able to discover and purchase products that meet their personalized needs in a short period of time. This efficient transaction method not only accelerates market response speed, but also provides strong impetus for enterprises to quickly expand their markets. In addition, the data analysis capabilities of e-commerce platforms also help enterprises accurately target their customer groups, further optimize products and services, and enhance market competitiveness.

Finally, in the current trend of global economic integration, the wave of e-commerce has triggered deep changes in traditional industries and driven the rapid rise of emerging industries. These emerging industries reshape the market competition pattern through innovative technologies and models, forcing traditional industries to break through development bottlenecks, achieve transformation through technological iteration and upgrading, and optimize industrial structure, ultimately promoting the replacement of old and new industries and the reshaping of market position [26]. E-commerce has a significant impact on the trade market, and China should better seize opportunities to achieve its own breakthroughs, which is consistent with our country's concept of "green and sustainable development". Following the trend of the economy, we should achieve complementary advantages and resource sharing.

In 2024, e-commerce sales grew by 8% year over year, outpacing traditional retail and accounting for over half of total retail growth. This shift highlights the increasing role of digital commerce in international trade, creating new opportunities for businesses to

expand their market reach. To support this demand, companies are optimizing logistics hubs and investing in advanced fulfillment strategies to facilitate smoother trade operations.

Cross-border e-commerce is also reshaping logistics networks, as evolving trade policies encourage businesses to strengthen domestic inventory storage and streamline import processes. With the potential for regulatory changes, supply chains are adapting to ensure stable and cost-effective movement of goods across borders.

Fast delivery remains a priority in global trade, with 70% of consumers expecting same-day or next-day shipping. To meet these demands, companies are expanding their warehouse networks near key trade hubs, ensuring efficient distribution and enhanced trade connectivity. E-commerce fulfillment requires three times the space of traditional retail, underscoring the need for robust logistics infrastructure to support growing international commerce.

As digital trade continues to thrive, supply chain networks are evolving to support increased e-commerce activity. This expansion is driving job creation, strengthening global trade ties, and positioning logistics as a key enabler of economic growth. The future of trade remains promising, with e-commerce acting as a catalyst for innovation and connectivity in global markets.

This chapter mainly establishes relevant economic analysis models based on statistical analysis methods to analyze relevant data. Overall, the e-commerce economy mainly has an impact on the Chinese economy and trade market. However, the author divides the Chinese economy into domestic flow economy and external flow economy, namely the traditional industrial economy and foreign trade economy of China. So, this chapter focuses on the research and analysis of the impact of China's e-commerce economy on three different fields: China's traditional industrial economy, China's foreign trade economy, and China's trade market.

Firstly, the author explores the economic relationship between China's e-commerce economy and traditional industrial economy. Covariance analysis is used to analyze the initial statistical relationship between the two economic data, and the corresponding regression equation is used to confirm and test the initial argument, making the experimental results more accurate. Secondly, the author conducted the same statistical analysis on

China's e-commerce economy and foreign trade economy. The test results found that there is a positive impact relationship between China's e-commerce economy, traditional industrial economy, and foreign trade economy, and it is consistent with the standard values in model fitting, error analysis, white noise testing, and other model tests. Finally, based on statistical analysis of relevant data, the author summarized and analyzed the impact of China's e-commerce economy and trade market in combination with global trends, and drew relevant conclusions.

Chapter 3 Advantages and disadvantages of e-commerce in the Chinese economy

3.1 Advantages of e-commerce in the Chinese economy

Based on the in-depth analysis of e-commerce economy, traditional economy, and foreign trade economy in the previous section, this section will focus on the perspective and further explore the unique advantages of e-commerce in China's economic landscape. And around the significant characteristics of e-commerce in China, its advantages are analyzed one by one. The Chinese e-commerce market has experienced explosive growth in the past decade, becoming the world's largest e-commerce market [31]. The development of e-commerce in China presents several significant characteristics: firstly, mobile e-commerce currently occupies a dominant position. With the continuous development of the digital age, smartphones have almost achieved all-round and full coverage in China, making mobile online shopping mainstream [55]. Second, the rapid rise of social e-commerce platforms [28]. Social e-commerce platforms mean that businesses can use social media platforms to promote and sell goods, while consumers can browse and use social media applications to purchase the goods they need. At present, this model is becoming increasingly popular. Thirdly, the rapid development of cross-border e-commerce has opened up a favorable international market for the country, greatly enhancing foreign trade and economy while promoting cultural exports [37]. Fourthly, the booming development of rural e-commerce has provided strong support for rural revitalization and targeted poverty alleviation [38]. These characteristics not only reflect the innovative vitality of China's e-commerce, but also indicate its enormous potential for future development.

At present, China's e-commerce is developing rapidly and vigorously, and its many characteristics and details provide rich materials for understanding how it empowers the Chinese economy. Focusing on economic growth, the online trading platform built by e-commerce breaks the constraints of time and space, greatly expanding the boundaries of the consumer market. Taking the annual "618" shopping carnival in China as an example, during this e-commerce feast, a massive number of consumers can purchase global goods

without leaving their homes, and billions of orders instantly flock to major e-commerce platforms. This not only drives explosive growth on the consumer side, but also stimulates accelerated operation on the production side, prompting upstream and downstream enterprises in the supply chain to fully stock, produce, and distribute goods, thereby injecting strong momentum into GDP growth in a short period of time[56]. This bidirectional driving force of consumption and production runs through various e-commerce promotion nodes throughout the year, becoming a key supporting force for China's stable economic growth. As shown in figure 21, the main advantages of e-commerce in China will be explained in detail below

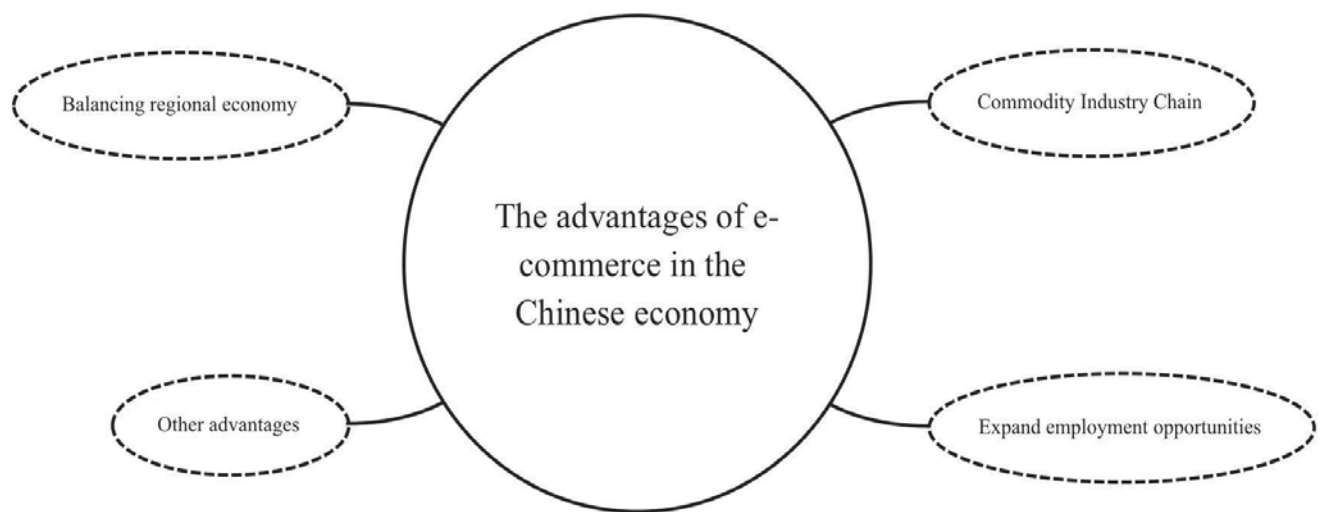


Figure 21 – Advantages of e-commerce in China [done by author]

This paper summarizes the three main advantages of China's e-commerce under the background of global green development in the new era. Firstly, it is undeniable that e-commerce has a driving effect on the Chinese economy, which is manifested in the industrial chain of platform goods. Secondly, e-commerce also plays a certain role in expanding the job market and reducing national employment pressure, mainly in two aspects: direct employment and indirect employment. Thirdly, e-commerce has certain advantages in terms of economic balance within the Chinese region, as shown below:

Firstly, the driving force of e-commerce on China's economic growth, as shown in figure 22, plays a crucial role in the process of China's economic growth. Over time, the

proportion of e-commerce in the Chinese economy has gradually increased, effectively improving economic efficiency. Previously, goods had to go through many intermediate links from production to sales, with costs accumulating layer by layer and resource allocation not being reasonable enough. After the emergence of e-commerce, some obstacles between manufacturers and consumers were directly eliminated, unnecessary intermediate links were reduced, and supply chain management became smoother. In this way, transaction costs are reduced, and companies can use the saved money for research and development, expanding production, and other aspects. Resources can also be more accurately allocated according to market demand, and overall economic efficiency is significantly improved.

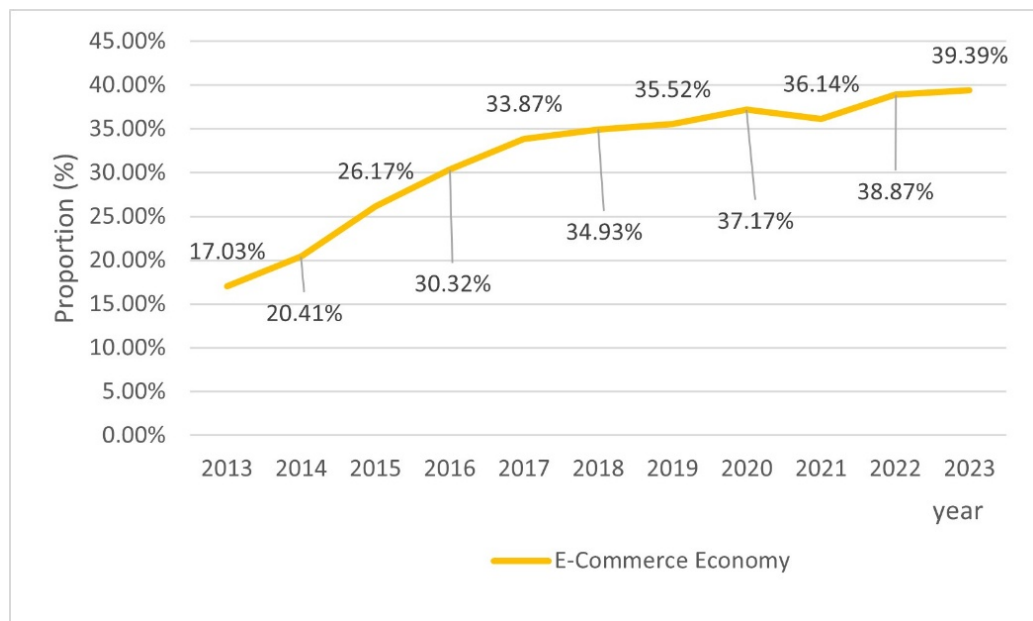


Figure 22 – The proportion of e-commerce in China's GDP [9]

From the perspective of the market for goods, e-commerce has greatly expanded the consumer market. Previously, due to geographical limitations, it was inconvenient for consumers to buy specialty products from other regions, and it was also difficult for merchants to sell their products further away. E-commerce has broken down geographical barriers, allowing consumers to place orders and shop anytime with the internet and electronic devices, regardless of their location. This has unleashed previously suppressed consumer demand. Especially during the epidemic, people cannot go out shopping at will,

and e-commerce has become a key channel to ensure the normal operation of the consumer market and maintain consumer vitality. Even when people are quarantined at home, they can buy daily necessities, and businesses can continue to do business. In this process, e-commerce has also promoted the digital transformation of traditional industries [58]. Due to the traditional retail and manufacturing industries relying mainly on offline stores and traditional sales channels in the past, their business models were relatively single. However, e-commerce has prompted them to combine online and offline, such as traditional retail stores opening online stores and receiving orders online followed by offline delivery; Traditional manufacturing uses online platforms to collect consumer demand and improve product production. Through such integration, these industries have reconstructed their business models and improved their competitiveness [34]. Taking all these aspects into consideration, e-commerce has gathered the industrial chain of goods into a powerful force, driving the continuous development of the Chinese economy and becoming a new engine for China's economic growth.

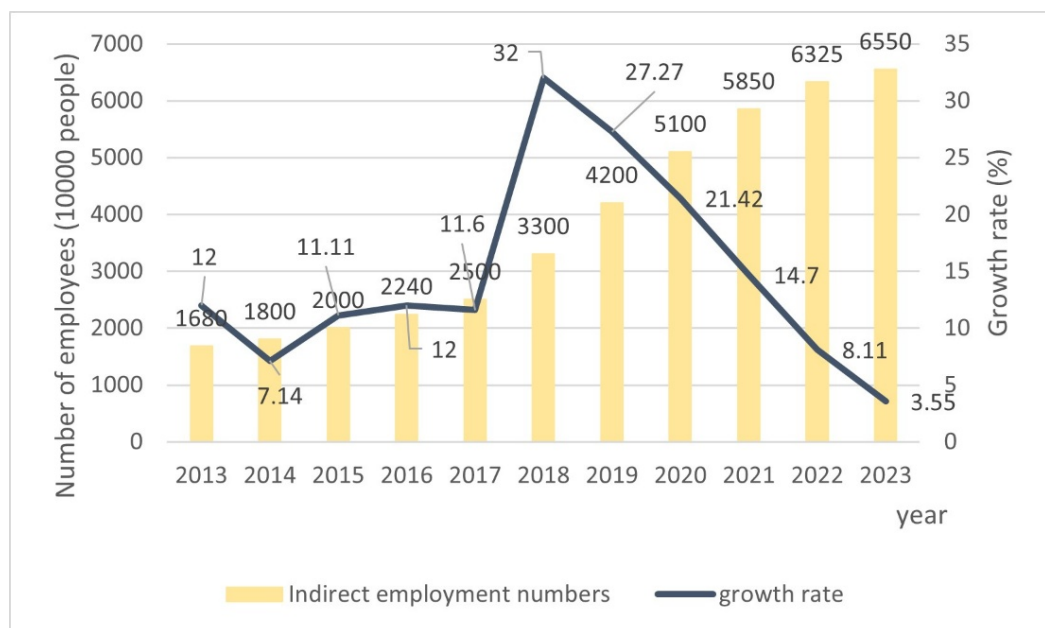


Figure 23 – Indirect employment scale and growth rate of e-commerce [13]

Secondly, e-commerce also has significant advantages in terms of employment. Both indirect and direct employment scales have a significant moderating effect. As shown in figure 23, e-commerce can indirectly bear the pressure of employment in China. From the

perspective of indirect employment, the booming development of e-commerce has given rise to a large number of emerging professions closely related to it. In the front-end of e-commerce, e-commerce anchors use their professional knowledge to display various products comprehensively to consumers on the other end of the screen, while online models use diverse styles to showcase the charm of the products; In the mid-range, store operators carefully manage their stores and plan various marketing activities, while data analysts analyze data to explore business opportunities; Looking at the backend, many express logistics practitioners are tirelessly running around to ensure that packages can be quickly and accurately delivered to thousands of households. Thus, a complete employment chain was formed. According to incomplete statistics, in the field of live streaming e-commerce alone, the number of professional anchors has been rapidly increasing at a double-digit percentage every year in recent years, and they have made great efforts to promote product sales; The logistics industry has rapidly expanded with the development of e-commerce, and countless express delivery workers shuttle through the streets and alleys of cities, absorbing a large number of surplus rural and urban labor and playing a key role in stabilizing social employment.

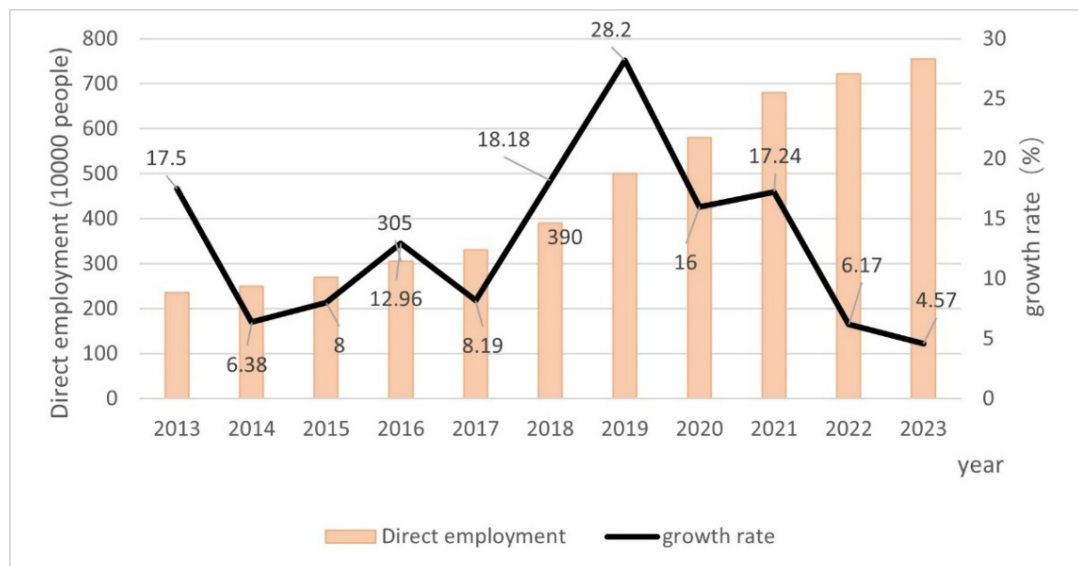


Figure 24 – Scale and growth rate of direct employment in e-commerce [13]

As shown in figure 24, the emergence of e-commerce has directly created a large number of job opportunities, from the operation and management of e-commerce platforms,

the daily operation of online stores, to various links of logistics and distribution, requiring a large amount of manpower throughout the industrial chain. Not only that, e-commerce has also broadened the path for flexible employment. New forms of employment such as WeChat business and live streaming e-commerce have provided many people with opportunities for entrepreneurship and part-time work, such as housewives and retirees, who can also find employment opportunities from them. In addition, the promoting effect of e-commerce on rural employment should not be underestimated. With the development of rural e-commerce, many farmers have achieved employment and entrepreneurship at their doorstep, increasing their income and alleviating the problem of rural labor outflow. Finally, e-commerce has driven the growth of employment in related industries. The service industries such as express delivery, payment, and information technology have all expanded their employment scale due to the development of e-commerce. With these advantages, e-commerce has become an important force for stabilizing and expanding employment.

Thirdly, e-commerce has played an important role in promoting regional economic balance. Focusing on balanced regional economic development, e-commerce has opened up a new development path for remote and economically underdeveloped areas. By developing rural e-commerce, specialty products from remote areas can enter the national and even global markets, promoting local economic development. At the same time, e-commerce has also facilitated the flow of urban and rural resource elements, promoting the integrated development of urban and rural areas[8]. In addition, the big data accumulated by e-commerce platforms provides important references for the government to formulate regional economic policies, which helps to achieve coordinated development of regional economy. In mountainous areas where transportation was once inconvenient and information was blocked, with the help of e-commerce platforms, local specialty agricultural products such as deep mountain honey, organic tea, and handmade embroidery can cross mountains and rivers, enter urban dining tables and households, and transform geographical disadvantages into product advantages. Farmers in these areas have significantly increased their income through e-commerce entrepreneurship and online sales, reigniting local economic vitality and narrowing the economic gap between urban and rural areas and regions to a certain extent.

In addition to the main advantages mentioned above, the advantages of Chinese e-commerce in other areas are gradually emerging, such as entrepreneurship for small and medium-sized enterprises and industrial upgrading in China. Firstly, e-commerce has played a significant role in promoting innovation. Small and medium-sized enterprises often lack strong financial resources and have faced many difficulties in starting their own businesses in the past, such as high venue rent and high promotion costs [48]. After the emergence of e-commerce platforms, they provided them with a low-cost starting point for entrepreneurship, giving more people the opportunity to try entrepreneurship. The atmosphere of mass entrepreneurship and innovation suddenly became active. Moreover, e-commerce platforms collect a large amount of data on consumer shopping habits, preferences, etc. in their daily operations. Once these data are accumulated, they can be used for precise marketing, pushing products that may be of interest to different consumers, and customizing products based on their personalized needs, opening up new business models [18].

Secondly, in the process of industrial upgrading, e-commerce plays a crucial role as a catalyst. On the one hand, the big data accumulated by consumers through online shopping provides a basis for enterprises to accurately grasp market demand, prompting traditional manufacturing enterprises to transform from large-scale standardized production to personalized customization and flexible production, which promotes the digital transformation of traditional industries [2]. Through e-commerce platforms, traditional enterprises can better understand market demand, optimize production processes, and improve product quality. Secondly, e-commerce has driven the development of emerging service industries. For example, new service formats such as Internet finance, online education, and telemedicine all rely on e-commerce platforms for rapid development. For example, some clothing companies can accurately understand the preferences of consumers of different ages, regions, and body types based on feedback data from e-commerce platforms, and adjust the production ratio of styles, colors, and sizes in real time to enhance product added value; On the other hand, e-commerce is closely integrated with high-tech industries, promoting the landing and application of cutting-edge technologies such as cloud computing, artificial intelligence, and blockchain in the commercial field, accelerating the

rise of emerging formats such as smart logistics and intelligent warehousing, and enhancing the technological content and operational efficiency of the entire industrial system.

In summary, through a comprehensive and multi-dimensional analysis of China's current e-commerce situation, e-commerce has demonstrated significant advantages in the Chinese economy. It not only drives economic growth and improves economic efficiency, but also promotes innovation and the expansion of consumer markets. In terms of employment, e-commerce has created a large number of job opportunities, providing new channels for flexible employment and rural employment. Meanwhile, e-commerce has also played an important role in promoting industrial upgrading and regional economic balance. In the future, with the further development of digital technology, e-commerce is expected to play a more important role in the Chinese economy, providing sustained momentum for high-quality economic development.

3.2 Shortcomings of e-commerce in the Chinese economy

In recent years, e-commerce has shown an explosive growth trend in China, deeply entering various branches of the national economy. However, behind its vigorous development, some deep-seated flaws and shortcomings have gradually emerged. By comprehensively examining the problems exposed by e-commerce from multiple perspectives such as market competition, regulatory oversight, logistics systems, data security issues, and consumer rights protection, and carefully sorting out its development trajectory in China, a more transparent perspective can be provided for understanding the challenges that e-commerce brings to the Chinese economy. As shown in figure 25, it is the shortcoming of e-commerce in the Chinese economy.

Firstly, it must be acknowledged that e-commerce has become one of the key driving forces behind the development of China's economy and even the world economy. It plays a huge role in activating the market and expanding the marketing path of the market in many fields, but the road to growth is not always smooth.

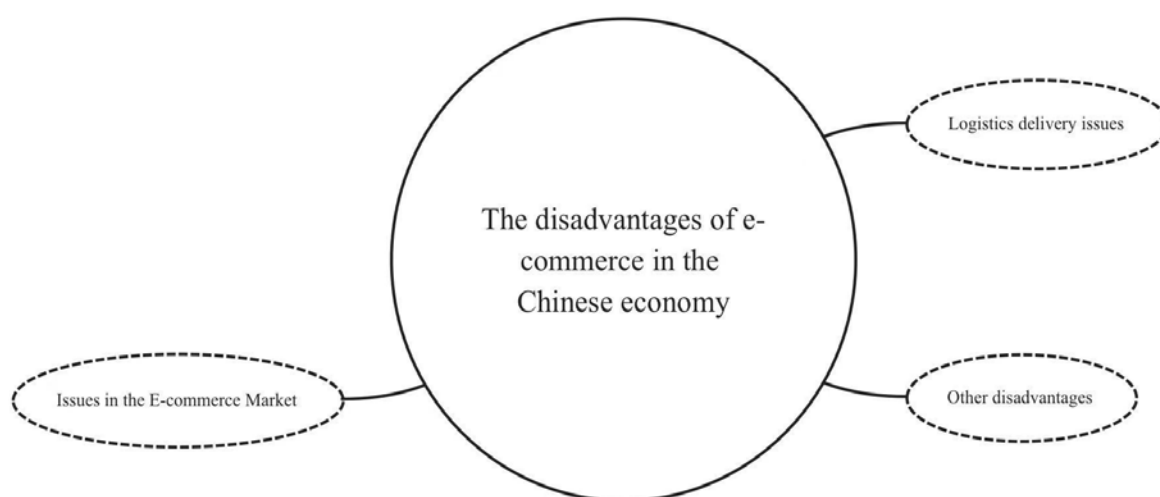


Figure 25 – Disadvantages of e-commerce in the Chinese economy [done by author]

The e-commerce economy is like a double-edged sword, with many problems gradually exposed along with its demonstrated advantages. Based on this, This paper studies two main disadvantages of e-commerce. Firstly, as e-commerce is a non-traditional industry that relies on the internet, the delivery problem of e-commerce in remote areas has always been a weakness for China's e-commerce and even the e-commerce industry. Secondly, it is the chain reaction caused by the e-commerce market. In order to seize the opportunity, enterprises and platforms will lead to a series of chain reactions in the market.

Firstly, in terms of logistics and distribution in e-commerce, logistics and distribution are obvious shortcomings of e-commerce in the Chinese economic landscape. In recent years, China has invested a large amount of manpower and material resources in the construction of its logistics infrastructure. Although there are no logistics problems in urban areas, they have extended to remote mountainous and rural areas. The uncertainty of delivery time and the high cost of delivery have become apparent. Many consumers in rural areas place orders on e-commerce platforms, which can take as little as a few days or as long as half a month. They often have to go through a long waiting period before they can receive the goods, which lowers their expectations for the products. Even though the price is low, online shopping is still not a choice unless absolutely necessary. The role of e-commerce is to provide users with more convenient and high-quality services. If the logistics problem of "urgent goods" cannot be solved correctly, e-commerce platforms will lose a lot

of customer resources in the long run. Similarly, for delivery in remote mountainous areas, the high logistics costs will make many businesses give up exploring the rural market, which greatly limits the penetration of e-commerce in these areas [45; 35].

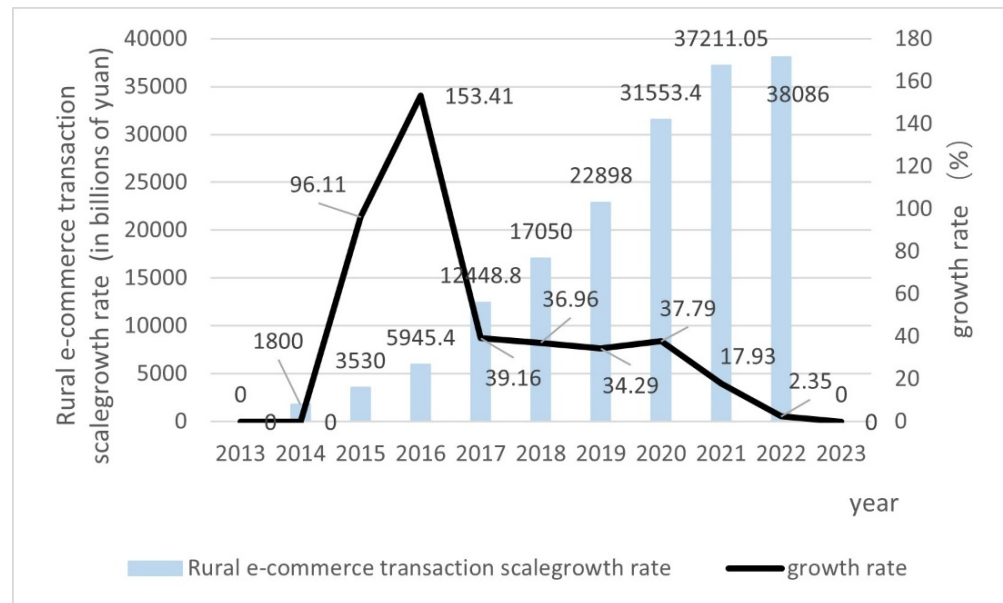


Figure 26 – Rural e-commerce transaction scale and growth rate [10]

As shown in figure 26, the scale of rural e-commerce transactions continues to increase. If there is an imbalance between logistics development and e-commerce transaction scale, it will be a huge loss for the e-commerce industry. Furthermore, in the field of logistics and distribution, the current situation will still trigger a series of negative chain reactions. In terms of logistics and distribution in e-commerce, node congestion is a frequent problem, similar to "intestinal obstruction" on transportation arteries, which seriously hinders the smooth flow of goods and has many adverse effects on the coordinated development of regional economy. In remote mountainous areas and vast rural areas, despite the surging wave of e-commerce in the new era, which brings many opportunities to various fields, these areas are unable to enjoy the dividends brought by e-commerce development due to the lagging logistics and distribution. The lack of smooth logistics and distribution has further widened the gap between urban and rural areas, as well as between different regions, in terms of digital resource acquisition and integration into e-commerce economy, as if drawing an increasingly wide "digital divide" between regions. This not only hinders

the optimal allocation of resources, but also confines human, material, and financial resources that should have flowed reasonably and been accurately deployed in limited areas, making it impossible to achieve maximum efficiency; Further hindering the implementation of the balanced development strategy, the pace of rural revitalization and common prosperity in China has been further slowed down, and the great ideals of urban-rural integration and regional coordinated development will also be hindered to some extent [25].

Secondly, in addition to the aforementioned disadvantages in the operation of the Chinese economy, e-commerce's disadvantages will trigger a series of chain effects like dominoes. Firstly, from the perspective of the development of e-commerce enterprises, fierce market competition and ongoing price wars can lead to many emerging companies facing problems such as funding shortages, inability to invest in innovative technologies, and product upgrades [60]. And the e-commerce process is a cycle. If it continues, these new e-commerce enterprises will gradually be eliminated in multiple rounds of competition. With the increase of elimination rate in the industry, the overall industry is difficult to upgrade and iterate. The industrial economy and products will always be controlled by e-commerce leading enterprises. If enterprises still follow the traditional mode and stick to the old ways, the development of the industry and economic growth will be relatively slow. The importance of the new era e-commerce economy to the Chinese economy is evident. If it continues to develop, it will not only be detrimental to the e-commerce industry, but also have a certain impact on the Chinese economy.

From the perspective of the e-commerce market, when market competition reaches a white hot stage, it will still cause a series of chain reactions, which will lead to many e-commerce platforms triggering price wars to compete for limited customer resources and avoid stockpiling goods. This is already a normalized manifestation. In this case, the profits of various e-commerce companies will be severely squeezed, and as profits decrease, many companies will choose to focus on key aspects such as research and development investment costs, talent development costs, and product quality costs, which will lack original effectiveness and plans, and can only fall into a low-level repeated competition swamp, repeating these processes.

In addition to the main disadvantages that will be clearly revealed, other disadvantages will also follow the development of e-commerce. There is a close and intricate connection between data security issues and consumer rights protection issues, and the two are intertwined, with each one having a ripple effect. On the one hand, data security issues are like a hidden time bomb that can explode at any time. In this era of surging digitalization, without comprehensive and rigorous multiple protection measures, once triggered, the privacy of users' data stored on various digital platforms will be exposed to risks without reservation, and will be freely explored and exploited by criminals. The chain reaction caused by this situation is extremely serious, and consumers will fall into panic as a result, breeding a strong sense of distrust towards all digital products and platforms, like a startled bird, cautiously and step by step in the digital world. This will undoubtedly cast a heavy shadow over the grand blueprint of "Smart China, Digital China" that China is fully promoting, seriously hindering the steady progress of the digitalization process. As the scalability of e-commerce platforms gradually expands, the drawbacks of lag in national laws and regulations are becoming apparent. And the online information platform gathers sensitive data such as personal information security, privacy information, and consumption records of many users, but the risks of data leakage and theft continue to exist and increase [44]. Criminals steal user information through relevant channels for precise fraud or illegally sell data to others, which poses unprecedented challenges to users' privacy and security, while reducing their trust in e-commerce platforms. Due to the fact that the current development of e-commerce is also a new beginning, it is difficult for laws related to e-commerce to keep up with the pace of development in the new era. There are still many loopholes in the legal network of online supervision. This provides an opportunity for illegal merchants to take advantage of the impact of counterfeit and shoddy goods on the online market, and the means of false advertising continue to be updated. Even if the corresponding law enforcement and supervision departments repeatedly crack down, it is still difficult to completely eliminate the illegal elements from the source. These illegal elements seriously disrupt the normal order of the e-commerce market.

The imperfection of e-commerce laws and regulations has led to frequent market problems at the international macroeconomic level [21]. Because of this, those unscrupulous

merchants are given an opportunity to take advantage of, and the interests and shares of legitimate and compliant merchants in the market are constantly encroached upon by these unscrupulous merchants, resulting in insufficient profits for legitimate merchants to support their business operations, and ultimately forced to withdraw from the market. In this way, the majority of products sold to consumers in the e-commerce market will be replaced by counterfeit goods, resulting in a decrease in the credibility of the platform for consumers after purchasing inferior products, thereby affecting the entire e-commerce platform. Transaction costs continue to rise, and the vitality of the market is suppressed.

On the other hand, from the perspective of consumers, protecting consumer rights is a crucial part of the e-commerce ecosystem and is of utmost importance. Once the protection is inadequate, consumers will not be able to truly enjoy the rights they deserve, and will encounter bad things such as false advertising, lack of after-sales service, and worrying product quality during the shopping process. This will inevitably lead to a sharp decline in the reputation of e-commerce, and the image of the entire industry will also be severely damaged in consumer criticism. This negative effect will also have an indirect impact, causing some consumers who were originally fond of e-commerce shopping to become disheartened and quietly return to the traditional retail industry. Looking back at the beginning of the rise of e-commerce, its impact on traditional industries was too fierce. A large number of physical stores closed down due to the competitive pressure brought by e-commerce, and consumer demand sharply decreased, greatly reducing market vitality[67].

What is even more severe is that this series of changes has triggered a wave of unemployment, causing a large number of people to lose their jobs, and the pressure on social employment has suddenly increased. Economic development has also been burdened by this, adding many new unstable factors to the process of moving towards harmony and stability, and putting all parties facing numerous difficulties in their development. With the continuous development of e-commerce, consumer rights issues will face many unknown challenges in the future, such as return and exchange issues, after-sales service response speed, logistics problems, etc., which will continue to arise in the e-commerce transaction process. Consumers often fail to resolve product quality issues, false advertising, and harm to their own rights in a timely manner, spending a huge amount of time and energy to protect

their own rights, and the result may not be properly resolved. Such problems happen every day and greatly dampen consumers' shopping enthusiasm and trust in e-commerce platforms, while also laying hidden dangers for the subsequent development of e-commerce.

Looking back at the development process of e-commerce in China and comprehensively examining its various key aspects - from fierce market competition and the degree of compliance with laws and regulations, to the coordination and cooperation of logistics and distribution, data control and governance, and to the defense and protection of consumer rights - a series of deep-seated problems have been exposed. It is not difficult to find that although e-commerce has firmly occupied a key position in the wave of rapid economic development in China, becoming a powerful engine for promoting economic growth and changing consumption patterns, every step it takes is full of hardships and faces many complex challenges.

This chapter breaks down the negative effects of e-commerce on the Chinese economy one by one, providing valuable decision-making basis for precise strategy formulation and targeted improvement in the future. It cannot be denied that e-commerce has made great achievements in many fields such as tapping into economic growth potential and accelerating economic operation pace, greatly expanding business boundaries, reforming and updating transaction models, and enabling more efficient allocation of resources. However, the numerous "traps" on the path of development are gradually becoming apparent; Chaos is rampant in the market, with vicious competition among peers, frequent price wars, plagiarism and imitation, which disrupt the normal order of the market; When laws and regulations are responding to the rapid changes in the e-commerce industry, there is a clear lag, and the regulatory tentacles are difficult to fully cover emerging formats, resulting in some unscrupulous merchants taking advantage of the situation; Logistics delivery often encounters numerous obstacles when going deep into remote areas and rural terminals, with low delivery efficiency and difficulty in solving the "last mile" problem; Data security bombs can explode at any time, posing frequent risks of user privacy breaches and causing great inconvenience to consumers; There are also obvious shortcomings in consumer rights protection, such as false advertising and difficulties in after-sales service, which make consumers suffer greatly. These issues are intertwined like vines, severely

constraining the pace of e-commerce towards healthy and sustainable development, and casting a shadow over the sustained prosperity of the Chinese economy.

If we expect e-commerce to fully exert its positive empowering role in the big game of the Chinese economy, the government, enterprises, and consumers must work hand in hand, unite forces, and work together. For the government, the urgent task is to accelerate the improvement of the relevant legal and regulatory system, timely fill the gaps in supervision, so that every business model can operate in an orderly manner within the legal framework. At the same time, law enforcement efforts should be strengthened, and illegal and irregular behavior should not be tolerated or compromised, thus creating a fair and hopeful legal sky for the e-commerce industry; For enterprises, as market entities, improving service quality should be regarded as the lifeline of their survival and development, continuously optimizing after-sales service processes, attaching importance to and responding quickly to every legitimate demand of consumers, and establishing a foothold and expanding their territory in the market with high-quality reputation; For consumers, they themselves cannot remain indifferent and need to constantly enhance their sensitivity and insight in self-protection. Faced with massive product information, they should learn to rationally identify false information, not blindly follow the trend of consumption, reflect on their own consumption ability and behavior, and in turn promote enterprises to optimize and upgrade on the supply side. Only by working together and making progress simultaneously can we fill the gaps in e-commerce in the Chinese economy, open up a sustainable development path, and continue to write a magnificent chapter of China's booming digital economy.

3.3 Development trends and prospects of e-commerce in the future

With the continuous iteration of digital technology and profound changes in the global economic landscape, e-commerce is accelerating its evolution towards intelligence, ecology, and globalization. This paper is mainly based on three dimensions: technology driven, mode innovation, and social value. It systematically analyzes the core trends of the future development of e-commerce, explores its strategic value in promoting high-quality

economic development, driving social governance reform, and reconstructing the global trade system, and proposes innovative paths to address challenges. Under the sweeping wave of digitalization today, the field of e-commerce is undergoing a magnificent and comprehensive transformation, profoundly reshaping the business landscape and social ecology.

Firstly, from a technological perspective, significant breakthroughs in artificial intelligence technology are like magical brushes, outlining a new operational process for e-commerce. Machine learning algorithms are like precise consumer insights, relying on deep mining of massive consumer behavior data to not only achieve accurate product recommendations, but also flexibly price based on market dynamics, making every consumption match just right; Natural language processing technology injects intelligent soul into the customer service system, with intelligent customer service on standby at any time, responding quickly and accurately to customer inquiries, significantly reducing enterprise operating costs, and improving service efficiency; Computer vision technology, with its cool applications such as virtual fitting rooms and 3D product displays, breaks the constraints of two-dimensional screens and introduces consumers into immersive shopping scenes, upgrading the shopping experience in all aspects. According to authoritative data from iResearch Consulting, as of 2024, the coverage of AI applications on Chinese e-commerce platforms has reached 87%, and according to the current rapid development trend, it is expected to achieve full chain intelligent decision-making by 2028, ushering in a new era of intelligent e-commerce.

Secondly, from the perspective of pattern innovation, the sudden rise of metaverse technology has opened up a fantasy consumption world of virtual and real interaction for e-commerce. Taobao's carefully crafted "Metaverse Shopping Festival" allows consumers to explore virtual shopping malls with their digital avatars and encounter their favorite items; Luxury brands such as Gucci keep up with the trend and open virtual flagship stores in Decentraland, leading the fashion metaverse trend. This shopping experience that breaks through the physical boundaries of reality not only expands consumer scenarios, but also gives rise to unprecedented new economic forms such as digital commodity trading and virtual real estate development, injecting new vitality into the development of e-

commerce[50]. At the business model level, there is also continuous innovation, with community group buying models represented by Meituan Youxuan and Duoduo Maicai innovatively adopting the "pre-sale+self pickup" strategy to optimize and reconstruct the fresh food supply chain. By grid layout of community leaders, a tight county-level market sales network is woven to accurately reach every consumer. Data shows that in 2024, the scale of China's community group buying market will strongly exceed 600 billion yuan, with footprints covering 95% of county-level administrative regions across the country, successfully building a high-speed bridge between urban and rural consumption, and effectively promoting the integration of urban and rural consumption.

Thirdly, in terms of creating social value, e-commerce also performs outstandingly. Rural e-commerce has transformed into a "new agricultural tool" for rural revitalization, leveraging the dual engines of "live streaming sales+supply chain construction" to help agricultural products "move from mountains to cities". Tiktok's "New Farmer Plan" has attracted more than 100000 rural anchors. In 2024, the sales of agricultural products will exceed 80 billion yuan, making the specialty products in the fields available to thousands of families; The Kwai "Happy Rural Leader Plan" has driven 500000 farmers to increase their income and become a booster for the prosperity of rural industries. This wave of digital transformation not only awakens the dormant consumption potential in rural areas, but also attracts talent back like a magnet, stimulates industrial agglomeration effects, and injects vitality into rural development. E-commerce platforms are also transforming from commodity circulation hubs to green pioneers, striving to build a circular economy system and safeguard sustainable development. As a leading platform for idle trading, Xianyu's second-hand commodity trading volume will exceed 280 million units in 2024, equivalent to reducing carbon emissions by over 12 million tons and reducing the burden on the earth; Cainiao Network's "Green Package" plan is accelerating its nationwide layout, covering 300 cities and reducing packaging consumables by 400000 tons, making express packages full of "green" meaning. E-commerce companies continue to make efforts in the journey of environmental protection, reshaping their own ecological value.

The collision of gig economy and flexible employment has sparked innovation in the field of e-commerce. The army of Meituan food delivery riders exceeds 6 million, of which

35% are young people returning to their hometowns, contributing to employment opportunities in their hometowns; Tiktok's live broadcast industry has led to more than 30 million jobs, and has spawned a complete talent ecological chain covering anchor, operation and supply chain. This new form of employment is like a "timely rain", on the one hand cleverly resolving structural employment problems, and on the other hand fully stimulating innovation and entrepreneurship enthusiasm, becoming a social employment stabilizer and talent incubator.

While intuitively expressing the future development of e-commerce, the future development of e-commerce in other aspects is also quite promising. For example, blockchain technology and G2M model, blockchain technology is like a solid cornerstone, steadily supporting the construction of a trustworthy e-commerce ecosystem. In the field of supply chain traceability, it enables the full process information of every product from raw material collection to finished product delivery to be truthfully and permanently recorded. The JD Logistics blockchain traceability platform covers over 2000 agricultural product categories, which is a powerful example. Consumers can clearly trace the source of products through this platform, and their trust has soared accordingly; In the cross-border payment scenario, Ant Group has created a miracle by achieving lightning fast digital circulation of cross-border trade documents, reducing the traditional process that originally took 7 days to 4 hours, greatly improving capital turnover and trade efficiency; At the level of intellectual property protection, blockchain, with its tamper proof and transparent nature, provides strong armor for original works, effectively curbing infringement and chaos, and creating a secure environment for e-commerce innovation.

The C2M (User Direct Manufacturing) model is like a "baton" for the transformation of the manufacturing industry, deeply integrating fragmented consumer demand data and driving the production side towards customized production. The Pinduoduo "Farmland Cloud Pinduoduo" project cleverly leverages the power of the platform to gather scattered agricultural product orders in the fields into a large-scale demand torrent, and reverse promote the process of standardized agricultural production; The Xiaomi ecosystem closely follows user feedback, racing against time to iterate products and significantly compressing the entire product lifecycle from design blueprints to market shelves. This new model of

demand driven production breaks the traditional manufacturing industry's "closed door" dilemma and reshapes the upstream and downstream ecology of the value chain. With the establishment of the RCEP agreement and the steady progress of the "the Belt and Road" initiative, cross-border e-commerce has ushered in a golden opportunity for development. SHEIN has achieved a market share of over 35 % in Southeast Asia through its localization and deep cultivation strategy, becoming a local fashion trendsetter; The Temu platform has innovated a fully managed operation model, and the daily order volume has skyrocketed like a rocket, surpassing 2 million orders has become commonplace. According to statistics from the General Administration of Customs, China's cross-border e-commerce import and export volume surged to 3.2 trillion yuan in 2024, a year-on-year increase of 35 %. The new engine of foreign trade growth is roaring, driving Chinese goods to travel globally.

However, the road to e-commerce development is not smooth, and challenges come one after another. With the rapid marketization of data elements, the alarm bell for data security is ringing. It is urgent to establish a refined data governance architecture with hierarchical classification, rigorously improve cross-border data flow standards, deeply explore cutting-edge technology application scenarios such as privacy computing, find a delicate balance between mining data value and safeguarding privacy and security, and ensure the stable operation of e-commerce data assets. The uneven digital literacy between urban and rural areas and regions has become a "roadblock" to the inclusive development of e-commerce. The urgent task is to strengthen the construction of rural digital infrastructure and build a solid digital foundation [32]; Widely carry out nationwide digital skills training to enhance digital literacy; Promote aging friendly transformation, let the digital dividend benefit everyone, and ensure that the achievements of e-commerce development are shared by all. In addition, the rapid development of cross-border e-commerce is like a surging wave, challenging the old barriers of traditional trade rules. China needs to take the initiative to actively participate in the negotiation table for the formulation of international digital trade rules, and make every effort to promote the establishment of a long-term multilateral cooperation mechanism covering key areas such as data rights verification, tax collection and management, and intellectual property protection, in order to safeguard the global expansion of cross-border e-commerce.

In summary, e-commerce, as the flagship of the digital economy, has deeply rewritten the paradigm of human production and life. Looking ahead to the future, with the continuous breakthroughs in cutting-edge technologies such as the Web, e-commerce will accelerate its evolution towards a high-level form of virtual real symbiosis, intelligent decision-making, and sustainable development. As a major e-commerce country, China should firmly grasp this historical opportunity, ingeniously build a globally competitive digital trade ecosystem, inject tremendous new momentum into high-quality economic development, and lead the new path of global digital economy.

Conclusion

In today's era deeply swept by the digital wave, the rapid advancement of information technology is gradually reconstructing the economic landscape at an unprecedented speed. The e-commerce economy, like one of the rising stars, shines brightly in the vast sky of the Chinese economy and has already established an emerging force that cannot be underestimated.

This paper, with a broad perspective and firmly rooted in a multidimensional research field, embarks on a deep decryption journey of the e-commerce economy. On the one hand, cautiously tracing the stable structure formed by the accumulation of time in China's traditional economy, and carefully exploring the economic logic, industrial models, and consumption habits contained therein, in order to find the convergence point and transformation path with the e-commerce economy; On the other hand, always keeping a keen eye on the changes in foreign trade and economy, accurately capturing the latest trends, demand dynamics, and competitive patterns in the international market, and deeply analyzing how these external factors nourish and shape the growth of e-commerce economy. Based on this dual dimension as a solid foundation, it is like unfolding a magnificent picture, exploring comprehensively and without blind spots how the e-commerce economy exerts profound and lasting influence on the overall pattern of the Chinese economy from many key aspects such as the re planning of industrial layout, disruptive changes in consumption patterns, and optimization and reshaping of employment structure, providing precise guidance for understanding the internal rhythm of the Chinese economy in the process of digital transformation.

During the research process, the author extensively collected various economic data from different time periods, accurately depicting the dynamic trajectory of the e-commerce economy's fluctuations over time, and vividly presenting its key role in the grand system of the national economy.

Looking back along the vertical timeline, e-commerce is still in its infancy, like a weak seedling, with insignificant transaction scale, and its positive impact on the overall economy is almost imperceptible. However, with the passage of time and the rapid

development of science and technology, especially in the high light moment when the mobile Internet is fully popularized, the e-commerce system seems to be injected with a super catalyst, and the transaction data shows explosive and exponential growth. The retail performance on the consumer end has been soaring, with an overwhelming number of online store orders and a dazzling array of products constantly breaking sales records; The B2B e-commerce transaction volume between enterprises is also booming, with efficient integration of raw material procurement, component supply and other links through online platforms, and frequent refresh of large orders. These remarkable data are like striking footprints on the growth path of the e-commerce economy, intuitively demonstrating its progress from a stumbling start to a steady and fast run, and more strongly demonstrating its outstanding characteristics of seizing the opportunity during economic prosperity and persevering in economic downturns, vividly interpreting its strong adaptability.

Further apply cutting-edge statistical methods to construct rigorous analytical models, closely linking the core elements of e-commerce economy with traditional economy and foreign trade economy. The model incorporates variables such as network penetration rate, logistics delivery efficiency, and electronic payment activity to deeply explore their potential linkage effects with macroeconomic indicators. With the precise quantitative analysis of the model, the experimental conclusions go beyond the scope of experience and have solid scientific basis, providing highly persuasive decision-making references for policy makers and business operators.

When exploring the influence of e-commerce economy, we should balance its advantages and disadvantages, and deeply analyze its role positioning in the context of China's characteristic economy. On the one hand, the inherent convenience of e-commerce breaks down geographical barriers, allowing characteristic products from remote areas to directly connect to the vast consumer market, and building a bridge for balanced regional economic development; The massive accumulation of online transaction data nurtures enterprise research and development innovation, giving birth to new manufacturing models such as personalized customization and flexible production, and driving industrial upgrading and replacement; Millions of e-commerce store operations and express delivery jobs have been created, absorbing a large number of employed people and alleviating social

employment pressure; Rich and diverse online shopping options stimulate residents' consumption potential, expand consumption boundaries, and become a key engine for driving domestic demand. On the other hand, the rapid expansion of e-commerce economies has also exposed issues such as data security risks, intensified competition among small and medium-sized businesses, and chaotic false transactions, sounding the alarm for the sustainable development of the industry.

Not only that, e-commerce is also like a powerful "power engine", continuously delivering surging energy for the optimization and upgrading of China's economic structure. On the one hand, it prompts manufacturing enterprises to deeply reflect on traditional production models, rely on massive online consumption data to accurately understand market demand, and gradually shift from mass production to personalized customization and flexible production, promoting the magnificent transformation of "Made in China" to "Made in China"; On the other hand, it has stimulated the innovation enthusiasm of the whole society, giving birth to a series of emerging formats such as live streaming sales, and allowing innovation vitality to flow everywhere in the economic field.

In summary, rigorous and in-depth research undoubtedly indicates that the flourishing development of e-commerce in China is not a superficial change in business forms, but rather a comprehensive and profound economic transformation with profound significance. It is like a "master key" that continues to exert efforts in many key areas, such as unlocking the key to economic transformation, sharpening the sharp blade of economic efficiency, igniting innovation vitality, and expanding the broad boundaries of consumer territory. Nowadays, e-commerce has undoubtedly become one of the core driving forces for China's economy to move towards a new stage of high-quality development, and with its unique development model and successful experience, it has contributed valuable Chinese wisdom and practical Chinese solutions to the booming global digital economy.

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