

**Czech University of Life Sciences Prague**

**Faculty of Economics and Management**

**Department of Economics**



**Bachelor Thesis**

**The economic position of China**

**Author : BSc JIAN ZHAOPENG**

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# **BACHELOR THESIS ASSIGNMENT**

ZhaoPeng Jian

Economics and Management

Economics and Management

Thesis title

**The economic position of China**

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## **Objectives of thesis**

This bachelor's thesis aims to evaluate the position of China in the world economy during the last 20 years. Partial aims will concretise the primary purpose. The author will focus on the economic structure, foreign trade and other macroeconomic indicators. Based on the economic indicators, China's economic situation will be described.

## **Methodology**

The thesis can be divided into three parts. The first part is a theoretical one. The theory part mainly introduces the theory of economic growth, analyzes the impact of economic transformation on China, and the factors that affect China's macroeconomic indicators.

The practical part then focuses on the data analysis to explain the changes in the Chinese economy.

The third part is the final, and it will conclude the results of the previous parts.

## The proposed extent of the thesis

30 – 40 pages

## Keywords

Developing country, developed country, transition, economic growth, world economy

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## Recommended information sources

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## The Bachelor Thesis Supervisor

doc. Ing. Irena Benešová, Ph.D.

## Supervising department

Department of Economics

Electronic approval: 21. 11. 2022

**prof. Ing. Lukáš Čechura, Ph.D.**

Head of department

Electronic approval: 24. 11. 2022

**doc. Ing. Tomáš Šubrt, Ph.D.**

Dean

Prague on 24. 11. 2022

## **Declaration**

I declare that I have worked on my bachelor thesis titled "The economic position of China" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break any copyrights.

In Prague on 22.11.2022

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# **Title of Bachelor Thesis in English**

## **Abstract**

China's economic transformation has brought significant improvements to both the country itself and the national economy, and it has also opened up a market for China to develop foreign trade. The main research purpose of this paper is to explore the important factors of China's economic growth in the past two decades,

Mainly analyze changes in trading partners and trade structure, discuss macroeconomic indicators, including inflation, GDP index changes and other factors that affect China's economic development. Through the RCA index, it is helpful to analyze and understand which industries China has more obvious advantages in export. The research results and implications can be used to explore the factors of China's economic growth and development as well as China's own economic development potential.

**Keywords:** developing country, developed country, transition, economic growth, world economy

# Title of Bachelor Thesis in Czech

## **Abstrakt**

Ekonomická transformace Číny přinesla značná zlepšení jak samotné zemi, tak národní ekonomice a také otevřela Číně trh pro rozvoj zahraničního obchodu. Hlavním výzkumným účelem tohoto článku je prozkoumat důležité faktory čínského hospodářského růstu v posledních dvou desetiletích,

Analyzujte především změny v obchodních partnerech a obchodní struktuře, diskutujte o makroekonomických ukazatelích, včetně inflace, změn indexu HDP a dalších faktorech, které ovlivňují ekonomický rozvoj Číny. Prostřednictvím indexu RCA je užitečné analyzovat a porozumět tomu, která průmyslová odvětví má Čína zjevnější výhody v exportu. Výsledky výzkumu a důsledky mohou být použity k prozkoumání faktorů čínského hospodářského růstu a rozvoje, stejně jako vlastního potenciálu čínského ekonomického rozvoje.

**Klíčová slova:** rozvojová země, rozvinutá země, transformace, ekonomický růst, světová ekonomika

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### LIST OF ABBREVIATIONS

<b>GDP</b>	Gross domestic product
<b>CPI</b>	Consumer price index
<b>RCA</b>	Revealed Comparative Advantage
<b>ILO</b>	International Labour Organization
<b>OEM</b>	Original Equipment Manufacturer

## **1. INTRODUCTION**

This thesis aims to explore the important factors for China's economic growth in the past two decades. Economic growth is an important factor for improving national economic strength, accelerating economic development, and expanding economic scale. Both social development and national income are conducive to accumulating a certain economic foundation and improving competitiveness with other countries. First, it analyzes the main economic structure including foreign trade. The trade structure is mainly analyzed from import and export commodities. Second, it analyzes what are the effects of macroeconomic indicators on China, mainly from the aspects of inflation and GDP, as well as the important role of other factors (high-tech) on China's economic growth. From the above factors, we can analyze China's current economic status in the world more intuitively.

## **2 OBJECTIVES AND METHODOLOGY**

### **2.1 Objectives**

The main goal of this thesis is to assess China's position in the world economy by analyzing the trend of China's economic growth over the past 20 years and comparing it with the United States in developed countries and Russia in developing countries. The following research questions will be stated and answered to achieve the main objectives:

1. What are the main industries developed after China's economic transformation?
2. What is the trade structure of China from 2000 to 2020?
3. During the analysis period, in which items did China, Russia, and the United States exhibit a significant comparative advantage?
4. What are the factors affecting China's Macroeconomic Indicators

### **2.2 Methodology**

The main objective of this dissertation is to assess China's economic status in the world, divided into two parts, theoretical and practical.

The theory part mainly introduces the theory of economic growth, analyzes the impact of economic transformation on China, and the factors that affect China's macroeconomic indicators. The last section introduces the basic concepts of RCA index analysis. The practical part mainly analyzes China's high-tech industry and some import and export trade situations.. It uses data to explain the changes in China's trade volume with other countries, as well as the increase or decrease in production capacity , use the data to explain China's macro economy - relevant indicators

finally use the significant advantage index to initially form China's advantage in this industry.

### 2.2.1 Description of Revealed Comparative Advantage

The revealed comparative advantage index provides a more reliable technical means for measuring a country's comparative advantage and international competitiveness. Through the comparative advantage index, it can be proved that a country's comparative advantage is superior to that of international trade, and the country shows a country's comparative advantage in China. RCA is the general term for revealed comparative advantage. Some scholars have successively proposed the method of using trade data to measure the comparative advantage of a product (industry or country) from different angles. This thesis uses the BRCA proposed by Balasa. The BRCA index gets rid of the constraints of various theoretical assumptions, and eliminates the influence of fluctuations in the total export volume of a country and the world on the calculation results, and can better reflect the relative advantages of a country's exports of a certain industry compared with the world's average export level. Therefore, since the index was proposed, it has become one of the most widely used indexes to measure a country's comparative advantage and its ranking. Balassa proposed the revealed comparative advantage index in 1965.

The advantage index is a measure of comparative advantage related to exports. It is the export quota of a country represented by a product in the international market. Refers to its representative or export category within the world export quota. Expressed by the formula:

*The mathematical definition of the Balassa Index is defined as:*

$$RCA_{d,i} = \frac{X_{d,i}/X_w}{X_d/X_w} \quad (1)$$

**d** is the country under study.

**w** is the set of all exporting countries.

**i** refers to a specific industry.

**X** are the exports.

It takes values of BRCA<sub>ij</sub> between [0, +∞]. If BRCA<sub>ij</sub> > 1, it can be regarded that the studied country is specialized in exporting selected industry's products. On the other

hand, if  $BRCA_{ij} < 1$ , the studied country is not specialized in exporting selected industry's products (COMTRADE).

This index should be used in industries where trade is not distorted by export incentives and trade barriers, because they are likely to obscure whether a country has a real comparative advantage (disadvantage) in these goods.

### **3.LITERATURE REVIEW**

At the current stage of world economic development, China is one of the countries that influence the development direction of the entire world system. Especially regarding China's place in the world economy. The theoretical part expounds the concepts and aspects of economic growth and economic transformation, analyzes the impact of import and export trade and advantageous industries to help further analysis and possibly answer the questions in the Objective part, and analyzes China's position in the world economy

#### **3.1 Theory of Economic Growth**

The economic growth theory mainly includes three concepts: classical, neoclassical and new growth. During the period of classical economics, economists paid special attention to the analysis of economic growth. Adam.Smith, David.Ricardo and Thomas.Malthus represented this period.

### **3.1.1 Economic growth**

Adam Smith (1776) pointed out in "A Study of the Nature and Causes of National Wealth" that the driving factors of an economy's growth are the accumulation of capital, the division of labor and technological progress. At the same time, he further pointed out that the scope of the market limits the division of labor, the proportion of productive labor in the total labor, and the increase in labor productivity caused by the division of labor are the main factors determining the increase of national wealth. David Ricardo (1817) proposed the concept of the law of diminishing returns in "Principles of Political Economy and Taxation". But he sees economic growth only as a competition between capital accumulation, market expansion, resource consumption, and population growth. Therefore, he is more pessimistic and believes that the process of economic growth follows the law of diminishing returns, and the process of economic growth will tend to stop in the long run. Economic growth eventually reaches a so-called "stagnation". Similarly, Thomas R. Malthus (1798) put forward the famous Malthus "trap" by analyzing the growth of the national economy and other aspects: the expansion of resources does not change the long-term per capita income level, technological progress and the increase of production factors such as land will This will lead to more population, long-term per capita income will converge to a static equilibrium level, and economic growth will be very pessimistic.

### **3.1.2 Analysis of Economic Growth from the Angle of Income Distribution**

Ricardo's (1817) analysis of economic growth revolves around income distribution. After examining the relationship between wages, profits and land rent, the law of change and the external factors that affect these distribution ratio variables, it is believed that the long-term economic growth trend has stopped under the effect of the law of diminishing returns. He believed that the amount of land was limited, and the product (grain) produced on the land was also limited. As the population increases, the demand for products produced on the land increases, which will lead to the expansion of production to less fertile lands. This means that with the increase of land

input, the increase of output on land becomes smaller and smaller, resulting in the phenomenon of diminishing marginal returns (H.Gausen,1854). The trend of diminishing returns increases the value of the output on the land, which in turn leads to an increase in the wages of labor, which in turn increases costs for capitalists and decreases profits. Since profit is the guide of investment, investment declines, which ultimately leads to less capital accumulation. At the same time, this will lead to an increase in the rent of limited land due to an increase in the value of the land output. But the landlords only engage in unproductive consumption without investing, so the above process will inevitably lead to a halt in capital accumulation (A.Smith, 1776).

It can be seen that Ricardo pays more attention to the role of labor increase and capital accumulation in Smith's growth analysis. However, due to the law of diminishing marginal returns to land, the contribution of these two factors to growth is getting smaller and smaller, so the growth of capitalism is limited. However, there is a difference between the diminishing returns discussed by Ricardo here and the diminishing returns discussed in modern economics. The modern law of diminishing marginal returns is based on quantity orientation, which means that, other things being equal, as the quantity of a factor increases, the marginal return of that factor will gradually decrease. But Ricardo's law of diminishing marginal returns is based on a quality orientation, and he points out that the main reason for diminishing returns is that the quality of land will gradually decrease. This also shows that some resources have the characteristics of being exhausted. (D.Rcardo, 1817)

### **3.1.3 The impact of marginal revenue**

Malthus' (1798) discussion of economic growth is linked to his population principle. In his view, population growth and output growth are out of sync. Population grows based on the existing population, and its growth rate increases further as output grows. Since the basic needs of human survival come from the output on the land, but the output on the land follows the law of diminishing returns. When all the land is used, the increase in the output of the land is gradually reduced with each improvement of

the land, so that "the growth of the population has a constant tendency to exceed the growth of the means of subsistence"(Malthus,1798). Therefore, economic growth in terms of output per capita is limited by population growth.

If the population grows, under the effect of diminishing marginal returns, the increase in output will decrease, and the standard of living will decrease, which in turn will lead to a decrease in the birth rate and an increase in the death rate(Malthus,1798). In equilibrium, the population growth rate is zero, and thus the economic growth is zero. This unpleasant result is because population growth and economic growth are subject to two different laws, any expansion of the amount of cultivated land or technological progress will lead to population growth exceeding output growth, that is, population disaster is inevitable. It can be seen that the population growth of Malthus is endogenously determined, that is, population growth depends on per capita income. At the same time, it is natural to employ policies outside the economic system that limit population growth beyond economic growth.

To sum up, classical economists have pointed out the scale drivers (capital, technology, land) and topological mechanisms (division of labor) of economic growth, and have also noticed the particularity of natural resources in growth. But their analysis focuses on economies where agricultural production dominates, and the laws of diminishing marginal returns, such as diminishing fertility, are overly reinforced. At the same time, the continuity of technological progress has not received the attention it deserves. Thus, their analysis appears somewhat pessimistic, that economic growth is not sustainable (R. Jones, 1831).

#### **3.1.4 Marginal analysis**

In the second half of the 19th century, the rise of neoclassical economics (W.Thompson,1824) characterized by "marginal analysis" marks that Western economics has entered a new stage of growth. However, the contribution of neoclassical economics lies mainly in the improvement of its analytical tools (marginal analysis, general equilibrium) rather than in the provision of economic



ideas. It is worth elaborating on Marshall's analysis of increasing returns to scale (Marshall, 1890) and Schumpeter's analysis of innovation. (Schumpeter,1912)

In exploring the source of economic growth, Marshall also believes that the increase of population, the increase of wealth (capital), the improvement of intelligence level, the introduction of industrial organization (division of labor and cooperation), etc., will increase industrial production and promote economic growth. The overall impact of these factors on the firm's production is manifested as increasing returns. Therefore, economic growth is associated with increasing returns.

In addition, Marshall also distinguishes between diminishing returns for firms and increasing returns for industries. In the process of long-term equilibrium, representative firms mainly exhibit diminishing returns, while changes in industry output can make representative firms have increasing returns. On the one hand, the expansion of the industry can rely on the internal economy of manufacturers to play a role, thereby reducing the cost of manufacturers and showing increasing returns to scale; This became the ideological source of the "spillover" model of later economic growth theory.

Although Marshall pays considerable attention to increasing returns to scale, his basic theoretical analysis remains static and partial. Therefore, he emphasizes the phenomenon of diminishing returns to scale in the economy, which is consistent with the entire neoclassical theory. It was not until 1928 that Smith and Marshall's division of labor, increasing returns to scale and the relationship between economic growth were further discussed in the article "Increasing Returns and Economic Progress". Marshall's explanation of increasing returns to scale is extended to the whole society, and an endogenous explanation is given for continuous increasing returns to scale.

Marshall and his analysis of increasing returns to scale, division of labor, and economic growth had important implications for the New Growth Theory. The analysis of the economic development process provides a theoretical basis for the technological innovation model in the new growth theory.

Schumpeter(1912) uses the concept of "innovation" to explain the economic

development of capitalist societies. He believes that in a static economy of simple regeneration, the economy is in equilibrium when all productive resources are used optimally. This equilibrium repeats itself if the various inputs in the economy maintain the given data. In static equilibrium, however, there is no excess profit, no accumulation, and no economic development. The possibility of economic development comes from the destruction of static equilibrium, and the key to breaking the static equilibrium lies in the innovation induced by excess profits.

Innovation refers to the new combination of production factors realized by entrepreneurs, including: introducing new products, adopting new production methods, opening up new markets, acquiring new resources, and establishing new organizations. According to Schumpeter, innovation is the unique function of entrepreneurs, and its purpose is to obtain excess profits. Their work is different from that of inventors, as well as capitalists and laborers, and although they create nothing, they realize new combinations. Enterprises gain a monopoly position through innovation, thereby obtaining excess profits, which breaks the original equilibrium state, so the total income in the economy increases and the economy grows.

At the same time there is an imitation of innovation in the economy. Induced by excess profits, many firms begin to imitate innovative firms, so that innovation spreads throughout the economy, and the excess profits of innovative firms gradually decrease and eventually disappear. At this point, the economy has reached a new equilibrium state. In Schumpeter's view, innovation is a unique function of entrepreneurs, and entrepreneurial innovation often does not occur continuously. The evolution from one innovation to another is just a cyclical change in the economy. Contrary to traditional economic theory, Schumpeter believes that economic development is accompanied by economic cycles. In short, his ideas of creative destruction and its volatility growth and innovative monopoly are unique, which provided an important source of ideas for later new growth theories (Schumpeter, 1912) .

## **3.2 Difference between developed and developing countries**

In the past, people used to define whether a country was a developed country or a developing country by per capita GDP. However, there are obviously many shortcomings in using per capita GDP alone. GDP per capita is very unstable and fluctuates greatly under the influence of exchange rates, prices, etc. Therefore, the essential difference between developed and developing countries is the development of productive forces, which determines production relations. The meaning of productive forces is simply the ability of the entire society to produce, that is, the ability to create wealth.

### **3.2.1 Contradiction in the relations of production**

According to history, after World War II, the production relations of developed countries or regions such as Europe and the United States were sharply contradictory. Productivity was seriously affected, the revolutionary wave was unprecedentedly high, and the development of the large-scale trade union movement created enormous pressure on the governments of various countries. In order to prevent the intensification of contradictions and endanger the regime's stability, the government had to implement a concessional reform policy, which not only eased the relations between production and labor, but also promoted economic development. From the post-war period to the 1990s, the biggest feature of the changes in production-labor relations in western developed countries is that, through the pre-determination of the state, a set of norms and checks and balances have been established for the operation of production capital and labor-capital relations, thus ensuring the basic stability of labor-capital relations(Wang,2003). In the field of production relations, governments of various countries try their best to balance the strength of labor and capital, and ease the complex and intense labor conflicts. To this end, the government has strengthened the macro-prediction of labor-management relations with unprecedented strength. During this period, a large number of legislations related to the field of labor-capital relations were promulgated one after another, the principle of tripartism was generally

recognized, and various countries established various forms of tripartite institutions(for example ILO) , forming a pattern of mutual influence and mutual restriction among labor, capital, and government. The adjustment mechanism of production relations is also becoming more and more complete. Various norms for coordinating production relations have been comprehensively established. The collective bargaining system that determines labor conditions and labor standards in the form of labor and capital autonomy is generally implemented. The social welfare system in which the society shares the fruits of economic development is generally established. The production relations policy regulated by the government provides a more favorable environment for the development of the trade union movement. Therefore, the trade union movement achieved remarkable results in this period. The tense social antagonisms of the early postwar period were resolved into a form of social cohesion. Under this kind of mixed economic system with state in advance, although labor-capital conflicts and labor-capital struggles still exist, the adjustment and handling of labor-capital relations are basically brought into the track of standardization and legalization(Jin,2015). Therefore, with the development of productive forces and the further deepening of the labor movement in developed countries, especially the promotion of the knowledge economy and the impact of the wave of globalization, the economic mechanism, economic structure and enterprise system of developed countries have not been greatly affected, but also Profound changes have taken place, and these changes have a significant impact on the production relations, making the production relations in the post-war developed countries from confrontation to relaxation and then the tendency of labor-capital cooperation.

On the contrary, the production relations of developing countries are still full of contradictions, and the most prominent problem is the disparity between the rich and the poor. The "great disparity between the rich and the poor" here consists of two aspects: internal and external. Internally, the gap between the rich and the poor in developing countries is seriously uneven(Wang,2008). This gap is not only reflected

in income and status, but also in education, health care, housing and other livelihood issues. All the above cannot be satisfied, which leads to various phenomena of hatred for wealth, and this phenomenon is not conducive to the sustainable development of productivity, which may lead to the possibility of a crisis in the stability of the regime. Externally, this "gap between the rich and the poor" can be seen in the cooperation of the international division of labor. Developed countries can obtain high-tech product markets, while developing countries can only obtain some low-end and cheap products in the fierce competition. In the product market, the final low-end products are not made by developed countries, but the developing countries produce the final low-end products. The production of such low-end products often requires high-intensity labor. Capitalists will transfer this high-density labor capital to local workers, so that local workers can only use a longer time around the clock to complete the production of products, but the wages obtained in this way are still difficult to meet the survival of workers, to a certain extent. It has promoted the domestic "rich-poor gap" and further affected the development of production relations. It also has a negative impact on the liberation of productive forces, laying a bad opportunity for the development of developing countries. On the other hand, developed countries are mainly engaged in the work of leading industrialization and integrating information technology. Workers in developed countries can generally have more leisure time, study time and further study time can make the industrial chain of developed countries more streamlined, and the high-end products produced are more attractive to consumers, accumulating indispensable power for the next industrial revolution. The ultimate goal of development is to allow its citizens to get more time to live and rest, while the economic development of developing countries can only make worker pay more labor hours.

No matter whether it is a developed country or a developing country, there will be an explosion of productive forces. It just depends on whether the final productive force is compatible with the production relations determined by him. Otherwise, the development of productive forces will eventually be restricted.

The formate of today's developed countries

It is because the productive forces in the process of development are constrained by the production relations and cannot develop, and the contradictions become prominent, prompting the productive forces to develop towards a higher form, that is, to release the productive forces, and finally makes the country reach the level of developed countries.

### **3.2.2 The root cause of economic development**

The fundamental reason for the difference in the speed of economic development between developed and developing countries is determined by the advance speed of science and technology(Lin,2017)y. Due to the high development of science and technology in developed countries, the economy is highly developed, resulting in a relatively small gap between economic development potential and science and technology. If science and technology do not advance in developed countries, the potential for economic development will be very small, and eventually economic development will stagnate. Ultimately, the economic development status of developed countries will be adapted to the science and technology of developed countries(Ji,2018). Since the current science and technology in developed countries are not stagnant, but advancing slowly, the economic development of developed countries is also advancing. Overall or in the long run, the economic development speed of developed countries is equal to the product of the advance speed of science and technology and the growth rate of the labor force. The reasons for the economic growth of developed countries are mainly caused by the advancement of science and technology.

This scientific and technological advance speed is the weighted average advance speed. It is the weighted average advance speed of science and technology for each industry and each sector, and it is also the weighted average advance speed of science and technology for all industries and sectors. The fact that developed countries are advanced in science and technology does not mean that developed countries are advancing rapidly in science and technology, but on the contrary, the group with the

slowest rate of advancement in science and technology in the world today is the developed countries(Lu,2004). Scientific and technological progress in developing countries is just faster. Due to the backwardness of science and technology in developing countries, while developed countries have many ready-made science and technology, learning is always easier than innovation, which leads to the fact that the development speed of science and technology in developing countries is faster than that in developed countries. This is the main reason why the economic development of developing countries in the modern world is faster than that of developed countries. Another reason is that the population growth rate in developing countries is faster than that in developed countries. In fact, labor force growth in developing countries is faster than in developed countries. This is one reason why the economic growth rate of developing countries is faster than that of developed countries.

The growth rate of the population is generally consistent with the growth rate of the labor force, and sometimes inconsistent. Using the concept of the growth rate of the labor force is more accurate than using the concept of the growth rate of the population. For example, when the population growth rate in developed countries is positive, the growth rate of the labor force may have been negative.

Because developing countries are relatively backward, they have a late-mover advantage in economic development. This late-mover advantage is the advantage that science and technology advance faster on a weighted average in each industry and each sector.

Due to the relatively backwardness of science and technology in developing countries, no country will like the advantage that science and technology have a relatively fast weighted average speed of progress in various industries and sectors. Every developing country is trying to reduce this comparative advantage, which is an undesired advantage. This is the main driving force for reducing the disparity in economic development between countries around the world. If the population talents of different countries in the world are relatively similar, the differences in economic development between countries in the world will become smaller and smaller, and the world will eventually converge. However, there are huge differences in population

talent between countries around the world. These demographic differences are the main driving force for increasing the differences in economic development among countries in the world. The uneven distribution of natural resources also increases the degree of differences in economic development among countries around the world.

### **3.2.3 Traditional explanations are unsatisfactory**

The per capita income level is the natural difference between the developed and the underdeveloped. However, whether the income level or the quality of life is good, they are the result of development or underdevelopment, but not the cause. Economics, on the other hand, seeks Adam Smith-esque questions about the ultimate reasons why some countries are rich and others poor (A.Sen,1981) .

The fundamental difference between developed and underdeveloped is clearly not resource endowment. There are two sources of resource endowment differences. First, if resource endowment refers to natural resource endowment, or natural historical heritage, it is not a human choice. Those who insist on explaining differences between countries in this way have something in common with scholars who hold a more or less "geographical determinism" view, such as Landers (1999), Diamond (1999), and Jeffrey Sachs (Demurgere et al., 2001). The interference of this view can be ruled out with some common historical facts. Although oil countries can earn a lot of foreign exchange, due to other reasons, they cannot form effective and efficient investments. As in many Middle Eastern countries, they cannot make investments that are conducive to resource allocation in the event of external shocks. adjustment, as happened in Ecuador in 1999.

Secondly, if resource endowment refers to the resource endowment structure that reflects the relative scarcity of production factors, what traditional economic theory sees is exactly the resource endowment structure of developed and underdeveloped countries—that is, the relative abundance of production factors (scarcity). ) the huge difference above. For example, the Harold-Dorner model attributed the key factors for economic growth to the national saving rate and the capital-output ratio, while



Rostow and Lewis simply took a specific saving rate as the key condition for economic take-off. Failure to meet this condition will lead to underdevelopment in a vicious circle of poverty. If the problem is only the difference in per capita capital level, once this bottleneck is overcome, the backward countries can converge to the income level of the developed countries according to the assumption of neoclassical growth theory.

However, this difference is actually the result of economic development. For example, the transition from an economic state with relatively abundant labor to an economic state with relatively abundant capital is precisely the consequence of economic growth, which is reflected in the increase in economic aggregate and changes in industrial structure. Explanatory factors for differences in growth. In the past, some political leaders and non-scientific development economists (see Meyer, 1995) did explain the difference between developing countries and developed countries with differences in resource endowment structure, and believed that the former should focus on changing their own resource endowment structure. , leading to a series of theories of catch-up strategies. On the other hand, the neoclassical growth economists themselves have clearly observed that absolute convergence of the type constrained by the level of capital per capita does not actually exist, and that there are hundreds of variables that have a significant impact on convergence (Sala-i-Martin, 1996).

#### **3.2.4 The fundamental difference is the ability to allocate resources**

If the hundreds of differences revealed by growth economics are listed one by one, it is possible to exhaust the displayed differences between developing and developed countries at the current level of people's understanding, but this is like a movie The new generation of construction workers in "Youth Luban" has returned to the enlarged sample, losing the abstract ability of economics. Therefore, we need to refine and abstract in order to form the theory with the broadest explanatory power.

While traditional development economics and growth theories have failed to reveal the fundamental difference between developed and underdeveloped, many economists

have gradually come into contact with the essence of the problem. For example, it has been pointed out that the real difference is not quantitative but qualitative (Gottheil, 1996, p.426). Kalecki (1976, p. 27), in the simplest form, reveals the difference between a highly developed economy and a developing economy: "In a situation, existing resources must be used, And contemporary capitalism has learned the trick to doing so.

In the other case, resources remain to be expanded, and this requires a revolutionary and profound reform. "

In fact, the simplest but true truth can be obtained through the most direct observation, but requires a high degree of generalization and abstraction. The most essential difference between developed and developing countries is that they have different resource allocation capabilities. The form of this capability is the resource allocation mechanism, and the performance is the efficiency of resource allocation.

### **3.2.5 Further define resource allocation capabilities**

The resource allocation capability should have the following. First, it refers to the mobilization of factors of production. From the perspective of accumulation, the accumulation of capital is accompanied by economic growth, that is, it reflects how much of the accumulation available for investment can be saved out of profit(Wang,2006). The accumulation of labor force is the product of demographic changes, usually expressed as the proportion of the working-age population, as well as the labor force participation rate and employment rate. How to use the accumulated production factors effectively can be mobilized by the government, such as the traditional planned economic system and the wartime economic system. However, economic development experience shows that this mobilization method is not sustainable and eventually leads to institutional reform or institutional regression. Where is the reform or return? That is an effective production factor market allocation system. In this market, the most basic principle is that the prices of factors of production reflect their relative scarcity. On this basis, producers form an industrial

and technological structure with comparative advantages in accordance with the principle of using relatively abundant factors and saving relatively scarce factors. Only in this way, products and services as a result of resource allocation are competitive.

Second, it refers to the incentive mechanism for the combination of production factors. This includes both the incentive mechanism for the combination of production factors or the incentive mechanism for entrepreneurship. The modern enterprise system and corporate governance structure solve this problem. It also includes the incentive mechanism of the production process, that is, reasonable returns to various factors of production. For example, wage system, compensation system, return on human capital, etc., are to solve such problems. Corresponding to the administrative resource mobilization system, the planned economic system does not focus on incentive mechanisms, which is also the fundamental reason for its lack of micro-technical efficiency and thus unsustainable.

Third, it refers to the infrastructure and policy and cultural environment required for the combination of production factors. In terms of hardware, the allocation of production factors needs to be carried out in a certain infrastructure, including facilities such as transportation and energy. These are already included in the explanatory variables chosen by neoclassical growth economics. In terms of soft environment, it should include entrepreneurial culture, as well as laws and their principles to protect competition, protect property rights, and maintain order, including effective public management and public services by the government. Among them, the economic function of the government should not be juxtaposed with other contents because of its special importance.

### **3.3 The impact of developing countries on the world economy**

In 1945, developed countries were in a monopoly position in many aspects such as international trade, currency and finance, technology, and tariff systems. This international economic environment affected the development of the national

economy of developing countries.

Beginning in the 1950s, developing countries engaged in a series of struggles to establish a new economic order. Adopted a series of documents establishing a new economic order, and clarified the basic content: the sovereign equality of all countries and the inalienable right to participate in the solution of world economic, financial and monetary problems on an equal basis; each country has its natural resources and all economic activities. Exercise permanent sovereignty, including free choice of economic and social systems. (Li Jie. 2008)

2: Abundant products and large energy reserves are distributed in developing countries:

Developing countries have extremely rich human and material resources and vast markets. The vast territory and large population provide huge market capacity and scale, and provide a broader field for the development of the world economy. At present, energy competition is becoming more and more intense, and the resource advantages of developing countries are gradually becoming prominent. With the development of the industrialization process of the developing countries led by China, the global oil consumption has increased greatly, and the competition for energy among the world's major powers has become more and more fierce. However, a large amount of energy resources are in the hands of developing countries, and developing countries have oil reserves It accounts for about 80% of the world's proven reserves, 50% of the world's total output, and 83.5% of the world's total export volume. The existing world oil production capacity is approaching its limit, and the contradiction between supply and demand is becoming increasingly prominent.

Although the energy dispute has brought certain negative effects, it has also appeared to be beneficial to the economies of developing countries. Energy is mainly in the hands of developing countries.

At the same time, developing countries also occupy an important part of the world's reserves in terms of coal, natural gas and water resources. About 30 of the 51 known rare metals are produced entirely or mostly in developing countries. Developing countries are also major producers of many important commercial crops and

agricultural raw materials in the world, such as natural rubber, coffee, cocoa, coconut, jute, palm and other tropical and subtropical crops. These are the special products of Asian, African and Latin American countries, and their exports account for 90%-100% of the world's exports of similar products. (Li Jie. 2008)

### 3: High speed of economic development:

The economies of developing countries have only recently begun to open up to the outside world and have enormous development potential.

From the 1950s to the 1970s, the economic development speed of developing countries achieved rapid growth, with an average annual growth rate of 4.7%, 5.6% and 5.3%, respectively, compared with 4.1%, 5.0% and 3.1% in developed countries during the same period. In the 30 years from 1950 to 1980, the share of developing countries in the world economy rose from 28% to 33%. With the steady and sustained rapid economic growth, the living standards of the people in the developing countries have improved to varying degrees in the past 20 years, especially the populous countries such as China and India have been able to maintain rapid growth in the past decade or two and basically solve the problem. In order to solve the problem of food and clothing for nearly one-third of the world's population, the average purchasing power of the market in the global GDP increased from 39.7% in 1990 to 48% in 2006. In the 10 years from 1991 to 2000, the economies of developing countries grew at an average rate of 5 percent. In the same period, the fastest growing year for developed countries was 3.9%, which indicates that the overall strength of developing countries has improved.

The so-called "BRIC countries" are Brazil, Russia, India and China. The rapid economic growth of developing countries has an increasing impact on the world economy. Three of the four countries are developing countries. In particular, China, as a major developing country, has successfully risen to an important pole in the world economy. Together with the United States, it has driven the world economy and promoted solidarity and cooperation among major developing countries and regional integration. In today's multi-polar development pattern, the strong development of China's economy has a great influence on the world. With the decline of the US

economy, China will become one of the main driving forces of the world economy, driving the world economy, especially emerging economies. **Sustained growth** provides developing countries with the goal of independent development.

Although developing countries are still far behind developed countries in terms of per capita production and consumption, it is an indisputable fact that developing countries have become an important force and pillar of the world economy, especially since the 21st century. The 2-3 times growth rate makes the developing countries keep getting closer to the developed countries in terms of economic scale. (Li Juan,2011)

The economic development of developing countries also needs the capital, technology and market of developed countries. Therefore, in the interdependent world economy, the economic development of developing countries will inevitably affect the economy of developed countries, and even the development of the entire world economy.

### **3.4 The impact of economic transformation on China**

The transformation of China's economy has not only affected the sustainable development of China's economy and society, but also affected the changes in the world economic pattern. It is mainly analyzed in the following two aspects:

#### ***1: The transformation of consumption structure drives the development of China's economy:***

After years of rapid development, China is now the second largest economy in the world. However, there is still a long way to go from developed countries in terms of per capita development level, economic structure, resources and environment, etc. Based on the world economy, China's economy needs to be transformed.

The investment model of China's economic and national economic development has long been dominated by trade, with the country relying primarily on exports and investment to sustain growth. Heavy industry construction is also a major source of economic growth in China.

In China's new economic growth model, China has increased the trade of imported commodities, and has driven the development of the export economy of various

countries in the world. In the early stage of China's reform, the labor price of Chinese residents was cheap, and the gap between the rich and the poor was large, which led to China's overall consumption. The level has dropped, from 51% in 1985 to 38% in 2005, but with the transformation of the economic model, China began to improve the system, improve the income level of individuals, and provide opportunities for entrepreneurship. These policies have made the disposable income of Chinese residents. Income has increased, the total consumption of Chinese residents accounted for 76% of the world's total expenditure in 2014. This shows that the transformation of China's economic structure has been successful, which has also led to the development of the world's export economy.(Ming,JW, 2017)

***2: The transformation of the industrial structure brings business opportunities to the Chinese economy:***

Under the development of the new economic model, China and Russia started the construction of free trade zones at the earliest stage, which improved the effect of foreign trade creation, improved service quality in logistics and products, and enriched the variety and quantity of products. The discussion on finance and other aspects has increased the import of Russian technical products, improved the traditional bilateral trade status, and is more conducive to China's technological development and expansion of foreign trade channels.

Therefore, China's economic transformation not only promotes China's economic growth, but also drives the world's economic growth.

### **3.5 The development and influence of import and export trade**

From the development trend of import and export trade, the following points are analyzed:

***1: Globalization***

Today's trade liberalization has become a major factor in the development of the global economy, prompting all countries to further strengthen communication and

enhance business exchanges in various countries, so as to obtain more economic benefits and promote their own economies. In the process of economic globalization, multinational enterprises will adopt the above-mentioned means to carry out trade cooperation with other countries and enhance the understanding between enterprises, which can not only improve the management level and operation level of their own enterprises, but also play a role in the improvement of their own competitiveness. Positive role, both parties can achieve a win-win situation. Under the globalization of international trade, the expansion of the trade market has intensified the competition among enterprises, and the environment in which the enterprises themselves are located will also be more difficult. Growing perseveringly in the environment, constantly improving their competitiveness, learning to gain insight into market opportunities, analyzing market development laws, and seizing opportunities to promote the steady development of enterprises (Zhang Duo, Du Yingying. et al2021.)

## ***2: Technological***

Artificial intelligence, big data, etc., have developed rapidly in the era of rapid development of science and technology. These new technologies have been gradually applied to international trade, so international trade has shown a trend of technological development. The significance of scientific and technological development in international trade is undeniable. On the one hand, technology enables the world to achieve barrier-free communication and borderless exchanges. It can also enhance trade cooperation between countries, which plays a role in improving the technological level of enterprises themselves. On the other hand, a large part of whether an enterprise has the right to speak in international trade is determined by the level of science and technology, so the economic benefits of the enterprise will also be affected accordingly.

In a word, the level of today's technology directly determines the competitiveness of enterprises. It has a direct impact on the status of international trade. For enterprise development, the core foundation is to carry out international trade business better and improve one's scientific research strength. Therefore, it is necessary to continuously study professional theories and innovate them, improve their own



scientific and technological level, and improve their comprehensive strength and product competitiveness. (Zhang Duo, Du Yingying. et al2021.)

All in all, the development trend of today's international trade is very obvious, and at the same time, it also puts forward higher requirements for international trade-related activities, and countries will face greater pressure. Judging from the actual development situation, if the country wants to develop for a long time, it is necessary to give full play to the advantages of international influence, and appropriately adjust the economic development strategy in order to participate in the international trade process more efficiently. For the development of the enterprise, it should continuously improve its core technology level and improve the competitiveness of its products, so as to continuously improve its advantages in the future development of international trade, improve its own core strength, and ultimately achieve long-term development.

### **3.6 Theory of Comparative Advantage**

The theory of comparative advantage is that the gap in labor productivity between two countries is not equal for any product. Each country should focus on producing and exporting products with comparative advantages, and importing products with comparative disadvantages. Both parties can save labor, obtain more efficient division of labor, and increase labor productivity. The comparative advantage trade theory explains the basis of trade and trade gains on a more general basis, and also greatly develops the absolute advantage trade theory behind it.

The comparative cost theory is also one of the theoretical contents of the early division of labor theory, which allows the two countries to exert their respective advantages to improve labor productivity, increase output and reduce costs. (Smith and Tang 2005). This is followed by David Ricardo's comparative cost theory. The absolute cost theory is also flawed, so Ricardo proposed the "comparative cost theory", which is a theory developed on the basis of Adam Smith's absolute cost

The two key concepts in the theory of comparative advantage are: factor intensity refers to the proportional relationship between different input factors expended to

produce a product. If a product consumes a relatively large amount of capital, it is a capital-intensive product; It is called labor-intensive products; factor endowment refers to the relative relationship of various available production factors owned by a country, which can be expressed by the ratio between the available factor stocks or by the relative price between the factors. The basic theorems are:

### **The Heckshire-Ohlin (H-O) Theorem**

Suppose the two countries have the same technological level and similar demand, and there is no factor-intensity reversal under free trade conditions. In that case, each country will export the country's relatively abundant and cheap factor-intensive products and import the country's relatively poor and expensive factors-intensive products.

### **Factor Price Equalization Theorem (FPE)**

Given the technological level of each country, if free trade of commodities is allowed, the relative price ratios of factors that were originally inconsistent will gradually become equal, and finally reach the exact same level, or the same production factor in different countries. Unequal absolute prices will gradually become equal, and finally reach perfect equality

### **Stolpa-Samuelson (S-S) theorem**

An increase in the relative domestic price of a commodity will lead to an increase in the real price or return of the intensively used factor of production for that commodity, while the real price or return of another factor of production will increase decline.

### **Rybczynski's theorem**

If a country can maintain diversification of production, a slight increase in the stock of a factor will not only cause the product that uses that factor intensively in production to be part of the total product under the condition that commodity prices remain constant. An increase in the share of output, and will lead to an increase in the absolute amount of output of this product. (Li Huiwen.2006.)

The theory of comparative advantage occupies a core position in international trade. After continuous improvement and development, the practice of modern international trade and cooperation has further promoted the progress of the theory. The theory of

comparative advantage has developed from the original absolute comparative advantage theory. Today's theory of comparative advantage is based on the division of labor within the industry, the product, and the value chain.

But it also has some limitations. Under the terms of trade, two countries can implement a complete division of labor, with one country producing a product of its own benefit, and the other country doing the same. But in the real world, to achieve complete specialization and classification of production requires conditions, and can only be achieved under the condition that the timing capital remains unchanged or the timing capital is reduced. **Rybczynski** believes that if two parties produce different products to trade, both parties will benefit.

This theory also has many advantages; first of all, it fully plays a positive role. Ricardo's theory of comparative advantage argues that this theory looks at the country as a whole, but he does not go further to analyze the huge impact of trade on other aspects of the country. In real trade, there are advantages and disadvantages. Ricardo assumes that the only factor of production input into production is labor, so only labor productivity determines a country's comparative advantage. The production of a product requires different labor, because the technology is different. Many other factors determine a country's comparative advantage.

So further analysis is required. It is also the development and progress of the times. In recent years, many economists have made up for the deficiencies of this theory and have further developed international trade in terms of theory and analysis methods. (Wang,2007).

At a period when the economies of numerous nations started to deteriorate, Their economy has to expand quickly.. But it is not very easy for such a country to catch up with the developed countries before. This will form a competitive situation, and in this competition, a positive role is indispensable. A country If you want to change the economic structure relative to the backwardness, you should select some industries that can play a role and implement a positive improvement. The state should also play an active role in helping. Give some financial assistance, establish a large-scale industry, and then use some good competitive models to participate in some

competitions, so as to achieve faster economic development. Therefore, in this competitive situation, it is necessary to implement some good strategies, proceeding from some national conditions and industries of the country, and develop in a rapid and positive direction. It is also necessary to strengthen investment in infrastructure, accelerate the establishment of markets for products and production factors, and improve systems to create a favorable external environment for enterprise competition.

(wang, 2007)

Second, we must speed up trade transformation and progress. In today's era, the main reasons why trade methods are inclined to processing trade are the low level of industrial technology, the unstable product quality, and the excessive tilt of the industrial system to the industry. Therefore, it is necessary to promote the adjustment of the regional economic structure and promote the development of the regional economy based on the market mechanism. It is precise because of this that a complete and comprehensive institutional structure must be established. Actively promote the processing industry and the system and production environment in each region (Wang, 2007)

## 4. PRACTICAL PART

### 4.1 China's economic development

#### 4.1.1 Analysis of China's Macroeconomic Indicators

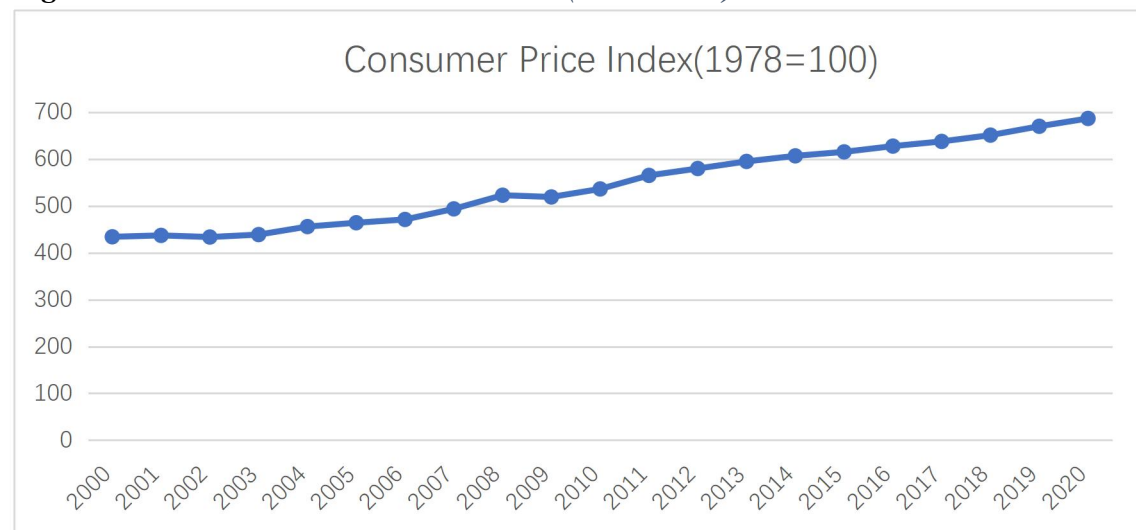
Macroeconomics' function in economic development is to stimulate economic growth and maintain economic aggregate balance, control inflation, optimize the economic structure, and achieve steady economic growth.

However, macroeconomic indicators play an essential role in and reference for a country's economic development and economic adjustment. The main indicators include gross domestic product (GDP), consumer price index CPI (an important indicator for observing inflation), consumer price index CPI (an important indicator for observing inflation) important indicators), etc.

The following uses GDP and inflation in macroeconomic indicators to analyze China's economic development over the past two decades:

The analysis is based on the following China's Consumer Price Index over the past two decades (figure 1).

**Figure 1 Consumer Price Index in China (2000 -2020)**



Source <https://www.ceicdata.com/en/plan>

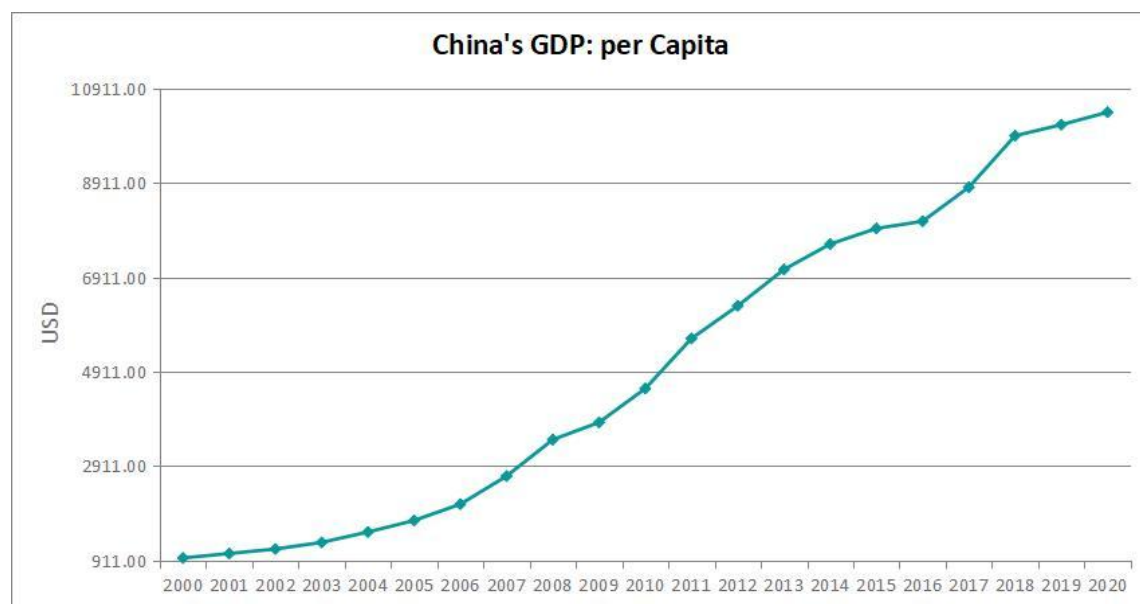
According to Figure 1, it can be seen that the consumer price index from 2000 to 2008

basically showed an upward trend, indicating an increase in resident consumption and an increase in the price level. However, due to the global financial crisis in 2008, from 2008 to 2009 There is a downward trend, indicating that residents' consumption declined during the year and the economy was depressed. From 2009 to 2020, the residents' consumption index basically maintained an upward trend, and residents' consumption began to increase again, but the rise in CPI can only be said to be related to currency. It is related to the inflation factor, and it cannot be said that it means that there is inflation.

It can be seen from the resident consumption index of China in the past 20 years that residents' consumption is basically on the rise, and residents' purchasing power is also increasing, which has also played a role in the development of China's economy.

The analysis is based on China's per capita GDP over the past two decades as follows:

**Figure 2: China's GDP:per Capita (2000 -2020)**



Source: <https://www.ceicdata.com/en/plan>

According to the above trend chart of China's per capita GDP from 2000 to 2020, it can be seen that it has risen from US\$959.37 in 2000 to US\$10,409.99 in 2020. The per capita GDP has maintained an upward trend, indicating that residents' income is gradually increasing, the people's consumption level is also gradually improving, and the situation of China's economic development has basically remained stable. China's production capacity is also increasing. GDP per capita measures the standard of living

of people in various countries. When the residents' living standard improves, a country's economic situation rises. Therefore, the rise and fall of the gross national product means the economic development and income status of a country, the strength of its economic strength,

Judging from the above-mentioned consumer price index and per capita GDP data, China's economic development has been basically stable with some growth over the past 20 years. Residents' income and labor remuneration have increased year by year, which is also an important aspect of China's long-term economic development.

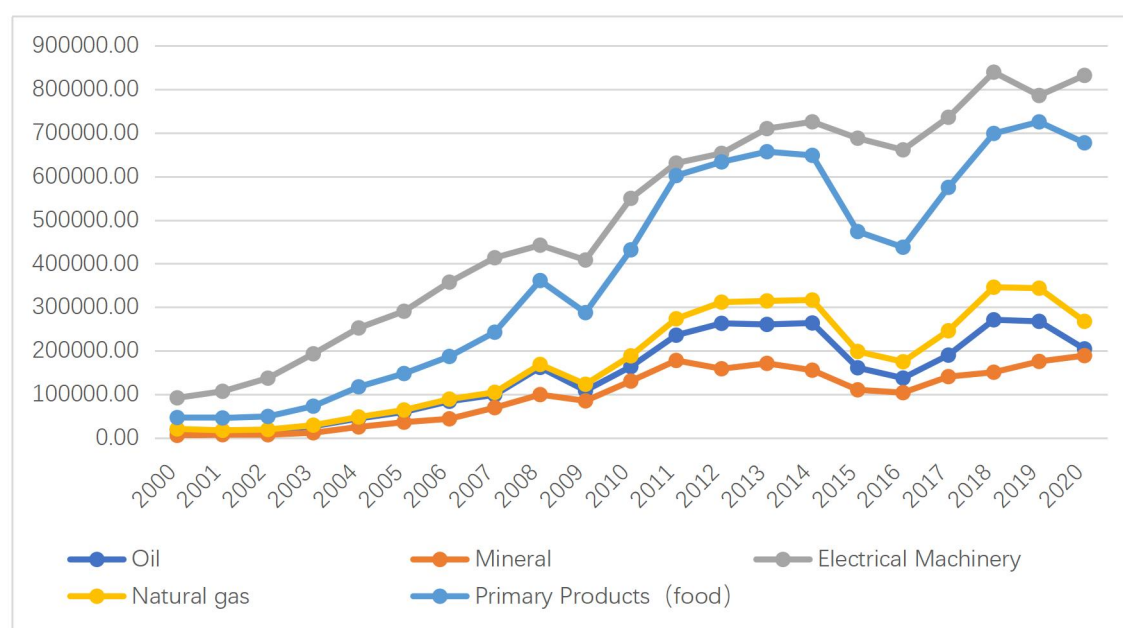
## 5. Commodity structure of foreign trade import and export

### 5.1 China's commodity import structure

China's import and export structure mainly focuses on primary products, such as mining, food, agriculture, forestry, etc. The proportion of raw materials is also increasing.

The following is the import value of China's major imported commodities in the past two decades (unit: million US dollars):

**Figure 3: Import value of China's main imported goods (2000-2020)**



Source: <https://www.ceicdata.com/en/plan>

According to the above import volume of China in the past two decades, it can be seen that the trade commodities that China imports with a relatively large trade structure are non-agricultural primary products, such as machinery and transportation equipment. It is also because China lacks sufficient resources and energy for production, so it must be imported from abroad. The second is primary food products, which is basically an upward trend, growing from \$100 billion to \$900 billion and \$50 billion to \$700 billion from 2000 to 2020. Then the imported products are fuel, oil, and minerals, in that order.

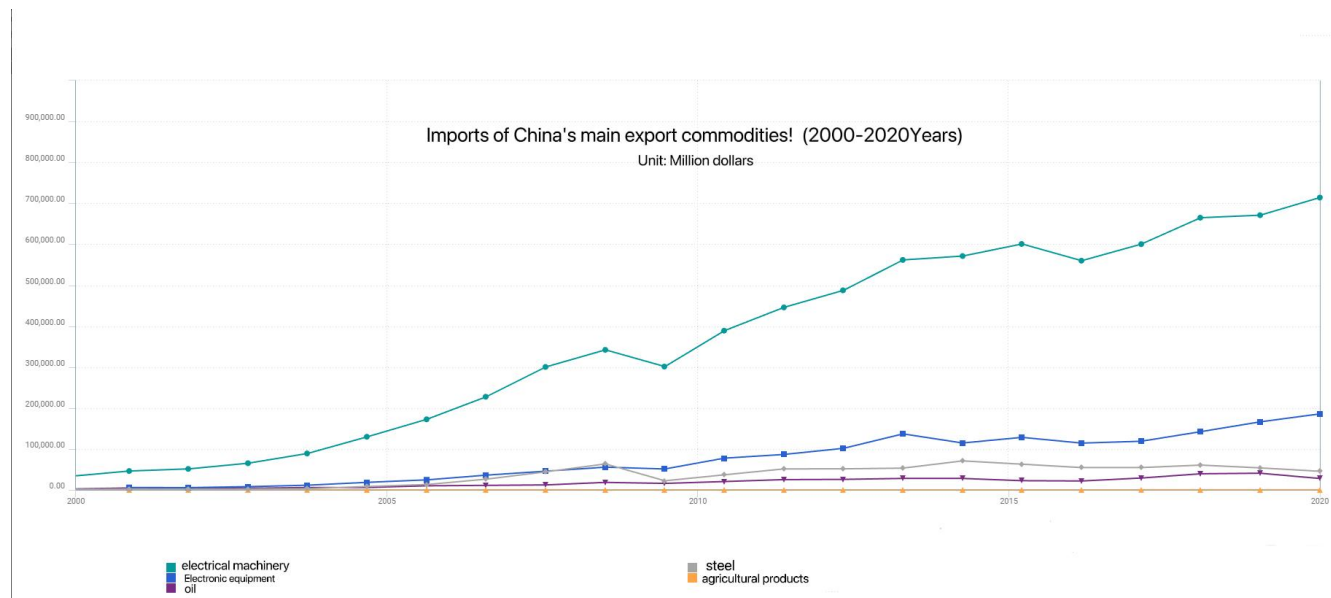
There have also been two relatively apparent declines in the import value of trade products. From 2008 to 2009, due to the financial crisis, China's major trade products were affected and showed a downward trend. From \$20 billion to \$400 billion and from \$38 billion to \$300 billion

From 2014 to 2016, China implemented the "One Belt, One Road" policy, and many companies were waiting to see the trade policy, so there was a downward trend from 2014 to 2016, from US\$71 billion to US\$6.2 billion and US\$6,000 respectively. \$200 million to \$410 million. However, China is a country with a large population, a large population density and a small per capita land. In order to improve people's living standards, it needs to consume more agricultural products. China's agricultural output value currently accounts for nearly 1/4 of the world's total. After importing agricultural products, China consumes more than 40 percent of the world's agricultural products. Therefore, to improve living standards, China not only needs to import a large number of agricultural products, energy, and minerals but also a large number of automobiles and machinery.

Import value of China's main export commodities in the past two decades (unit: million US dollars).



**Figure 4: Import of China's main export commodities(2000-2020)**



**Source:** <https://www.ceicdata.com/en/plan>

According to the above data, it can be seen that China's exports of trade commodities are mainly industrially manufactured products, first of all, trade commodities such as machinery and equipment. From 40 billion US dollars in 2000 to 700 billion US dollars in 2020, the overall It is also an upward trend, followed by electronic equipment, which rises steadily every year, from US\$2 billion in 2000 to US\$100 billion in 2020, and then the trade products exported are steel, oil, and agricultural products.

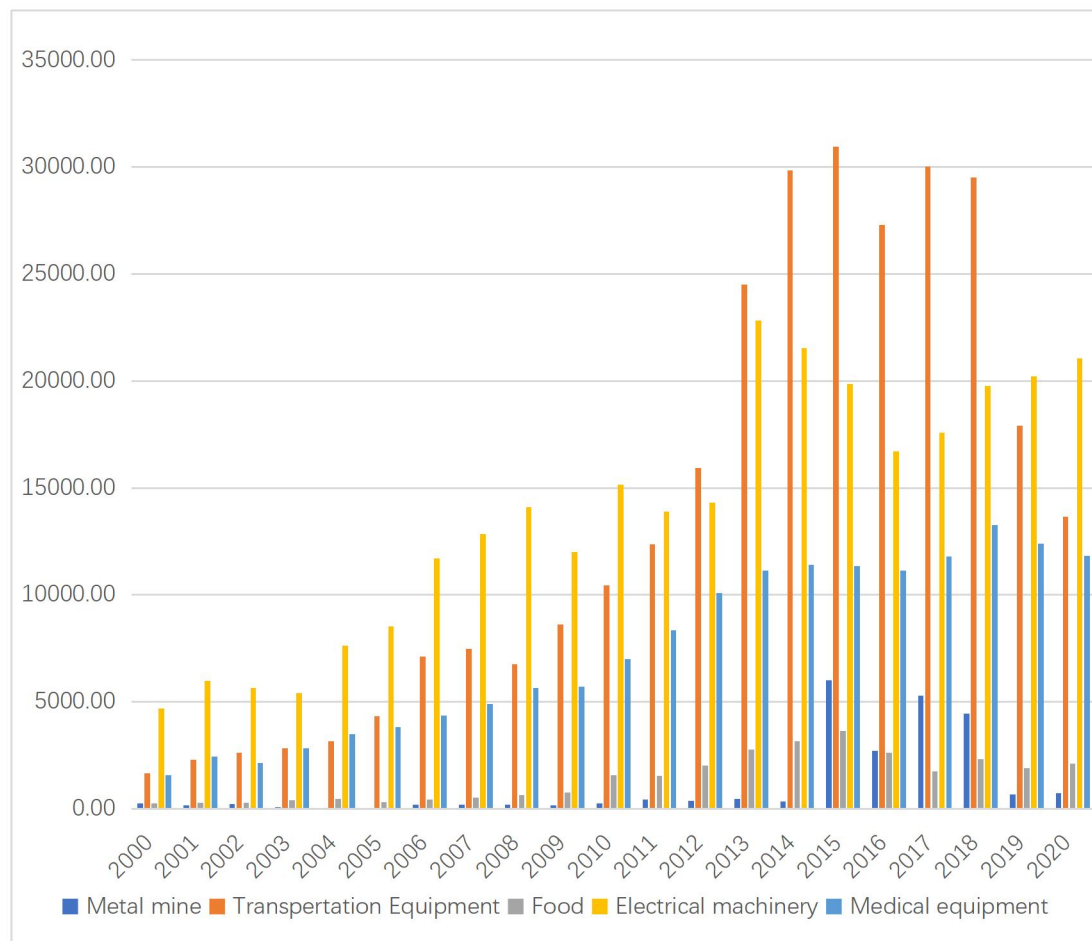
As the world's second-largest economy and one of the countries with the most complete industrial system, China's export commodity structure is different, but industry dominates. Since 2002, the export value of machinery and electronic equipment has gradually increased. It also plays a significant role in driving China's economic development. Whether in import or export, China can promote the high-quality development of trade by continuously optimizing the trade structure, opening up new markets, and developing industries with major advantages.

## 6. China's import and export trading partners

### 6.1 China-The United states

Figure 5, Figure 6 and Table 1 shown in this part are the trade import and export volume between China and the United States and are analyzed below the chart

**Figure5: China and The United States import trade (Million Dollars)**

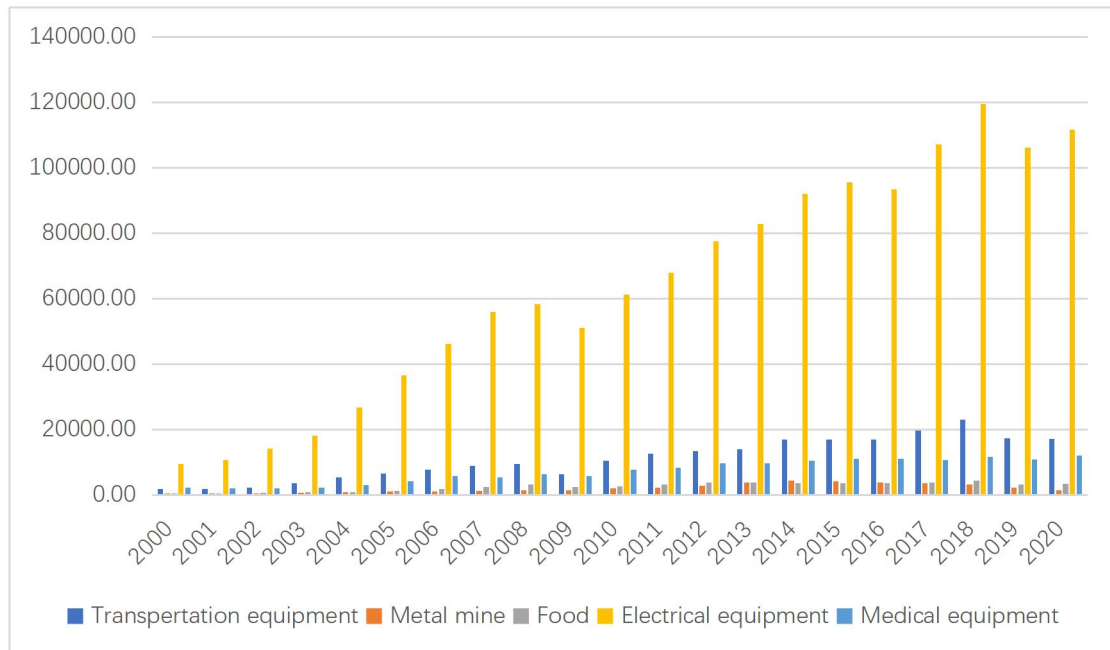


**Source**<https://www.ceicdata.com/en/plan>

As can be seen from Figure 5, from 2000 to 2011, China's demand for motors was relatively large. Although the value of imports remained on an upward trend in the following two years, the total value of imports has been surpassed by transport equipment. The import of transportation equipment fluctuated steadily from 2014 to

2018, and fell sharply from 2019 to 2020 due to the epidemic's impact. The import of medical devices generally increases and fluctuates steadily due to the epidemic. Trading volumes in food and precious metals have remained low due to subdued demand and little volatility.

**Figure 6: China and The United States export trade (million dollars)**



**Source:** <https://www.ceicdata.com/en/plan>

In terms of exports to the United States, because China is mainly based on OME (Original Equipment Manufacturer) commodities, the export value of electrical machinery accounts for a large proportion, showing an overall growth trend, and reaching a maximum of 199,986.89 million US dollars in 2017. The rest of the commodities are relatively flat.

**Table 1: China-US Import and Export Statistics**

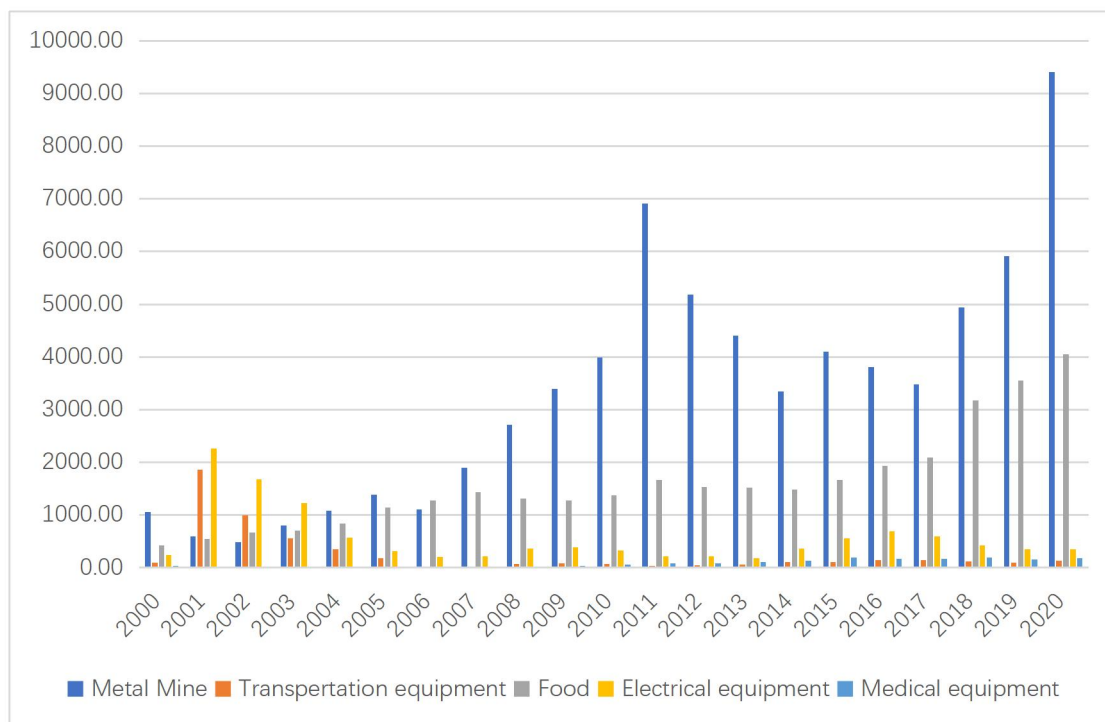
YEAR	EXPORT(USDmn)	IMPORT(USDmn)
2000	<b>52156.43</b>	<b>22374.57</b>
2001	<b>54355.08</b>	<b>26217.38</b>
2002	<b>70050.09</b>	<b>27261.10</b>
2003	<b>92626.30</b>	<b>33944.17</b>
2004	<b>125148.96</b>	<b>44747.87</b>
2005	<b>163180.46</b>	<b>48741.36</b>
2006	<b>203801.05</b>	<b>59314.27</b>
2007	<b>233168.79</b>	<b>69547.96</b>
2008	<b>252843.53</b>	<b>81585.56</b>
2009	<b>221295.02</b>	<b>77755.10</b>
2010	<b>283780.32</b>	<b>102734.18</b>
<b>2011</b>	<b>325010.99</b>	<b>123124.01</b>
2012	<b>352438.22</b>	<b>133765.82</b>
2013	<b>369063.86</b>	<b>153394.86</b>
2014	<b>397099.25</b>	<b>160064.51</b>
2015	<b>409979.24</b>	<b>148693.06</b>
2016	<b>385677.76</b>	<b>135120.13</b>
2017	<b>430328.15</b>	<b>154441.86</b>
2018	<b>479278.75</b>	<b>156015.76</b>
2019	<b>419322.65</b>	<b>123792.11</b>
2020	<b>452492.88</b>	<b>136339.52</b>

*Source:* <https://wits.worldbank.org/>

As seen from the Table 1 from 2000 to 2008, the total import trade increased steadily to **81585.56** million US dollars. In 2009, the import value dropped to **77755.10** million US dollars, and there was a significant downward trend between 2014-2016 and 2018-2019 respectively. 2020 rebounded to **\$136339.52** million. In terms of total exports, there is a relatively stable upward trend, and the total value of exports is greater than the total value of imports, indicating that the United States has a relatively large trade demand for China.

## 6.2 China-Russia

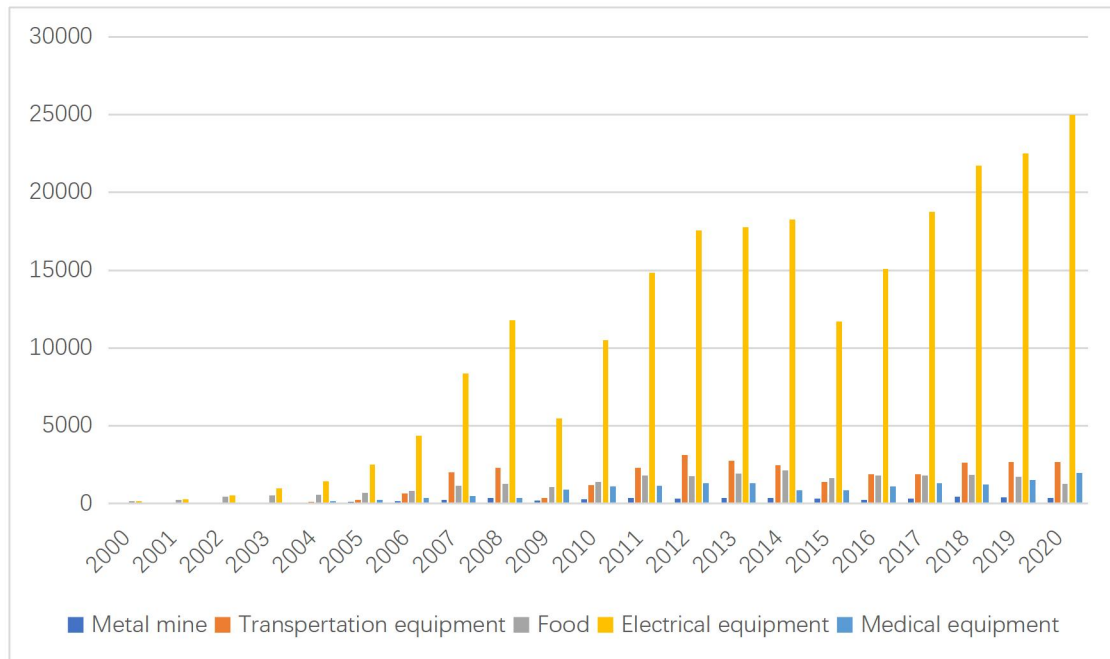
**Figure 7: China and Russia Import in million dollars, (2000-2020)**



**Source:** <https://wits.worldbank.org/> and <https://www.ceicdata.com/en/plan>

Among the five types of goods that China imported from Russia, electrical machinery had a relatively high trade value between 2000 and 2009. In 2010, the import value was surpassed by metal ore commodities which increased or decreased in the next nine years. It is relatively flat, with a sharp increase in 2020, and the remaining three commodities have not changed significantly due to the low demand in China.

**Figure 8: China and Russia export – million dollars, (2000-2020)**



**Source:**<https://wits.worldbank.org/>

China's exports to Russia are mainly electrical machinery. It can be seen from the figure 8 that China's exports of electrical machinery to Russia generally show an upward trend and reach the highest level in 2020

**Table 2: China-Russia Import and Export Statistics**

<b>YEAR</b>	<b>EXPORT</b>	<b>IMPORT</b>
<b>2000</b>	2233.35	5769.89
<b>2001</b>	2710.47	7958.79
<b>2002</b>	3520.74	8406.69
<b>2003</b>	6029.93	9728.07
<b>2004</b>	9098.12	12127.41
<b>2005</b>	13211.28	15889.94
<b>2006</b>	15832.49	17554.33
<b>2007</b>	28529.90	19688.58
<b>2008</b>	33075.85	23832.76
<b>2009</b>	17513.77	21282.95
<b>2010</b>	29612.07	25913.99
<b>2011</b>	38903.02	40362.60
<b>2012</b>	44056.55	44138.28
<b>2013</b>	49591.17	39667.83
<b>2014</b>	53676.94	41593.51
<b>2015</b>	34756.88	33258.66
<b>2016</b>	37339.60	32260.15
<b>2017</b>	42830.60	41390.29
<b>2018</b>	47965.27	59141.09
<b>2019</b>	49748.49	61190.63
<b>2020</b>	50504.39	57844.47

*Source:*<https://wits.worldbank.org/>

As can be seen from the above table 2, the overall trade volume between China and Russia shows fluctuations and an upward trend. In terms of import volume, the Sino-Russian trade volume was the highest in 2019, reaching US\$61,190.63 million. China's exports to Russia were the highest in 2014, reaching \$53.676 billion. It began to decline in the next three years and rose to \$50,504.39 million from 2016 to 2020. In terms of trade, China and Russia have more imports than exports. It can be seen that China has a great market demand for Russia

### 6.3 China's comparative advantage index

*Table 3: China's comparative advantage index*

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b><i>Medical products</i></b>																					
China	0.94	0.97	0.92	0.84	0.69	0.63	0.59	0.63	0.72	0.93	0.87	0.80	0.75	0.72	0.73	0.76	0.83	0.85	0.89	0.87	1.13
Ruassia	0.07	0.09	0.04	0.03	0.06	0.07	0.08	0.08	0.09	0.14	0.10	0.09	0.12	0.17	0.16	0.25	0.27	0.25	0.23	0.27	0.35
The United states	2.31	2.66	2.69	2.78	2.80	2.85	2.82	2.63	2.68	3.28	2.98	2.78	2.78	2.78	2.74	2.92	3.05	2.90	2.84	2.95	3.26
<b><i>Metal minerals</i></b>																					
China	0.69	0.64	0.63	0.64	0.65	0.39	0.45	0.41	0.62	0.23	0.26	0.37	0.32	0.33	0.43	0.37	0.29	0.31	0.38	0.33	0.27
Ruassia	3.43	2.83	2.90	2.71	2.58	1.41	1.68	1.85	2.05	1.05	1.05	1.23	1.34	1.30	1.59	1.88	1.54	1.54	1.61	1.65	2.10
The United states	0.69	0.68	0.75	0.78	0.78	0.58	0.73	0.83	1.42	0.63	0.71	0.96	0.84	0.84	0.98	0.82	0.62	0.64	0.78	0.70	0.78
<b><i>transportation Equipment</i></b>																					
China	0.32	0.29	0.26	0.29	0.31	0.33	0.36	0.40	0.46	0.52	0.56	0.59	0.53	0.46	0.44	0.42	0.36	0.39	0.42	0.40	0.42
Ruassia	0.99	1.06	1.04	0.90	0.59	0.59	0.53	0.52	0.33	0.67	0.58	0.52	0.53	0.51	0.49	0.63	0.75	0.65	0.55	0.52	0.95
The United states	1.16	1.20	1.26	1.23	0.91	0.95	1.43	1.44	1.37	0.84	0.88	0.92	0.98	0.98	0.94	0.87	1.50	1.47	1.48	1.49	1.33
<b><i>Electrical machinery</i></b>																					
China	0.79	0.87	0.96	1.09	1.15	1.22	1.26	1.26	1.34	1.41	1.41	1.43	1.40	1.42	1.33	1.26	1.24	1.28	1.32	1.29	1.30
Ruassia	0.15	0.16	0.19	0.18	0.15	0.11	0.10	0.10	0.10	0.10	0.08	0.07	0.11	0.12	0.12	0.15	0.17	0.16	0.12	0.14	0.13
The United states	1.26	1.25	1.24	1.24	1.08	1.10	1.27	1.23	1.21	0.99	1.00	1.02	1.02	1.02	0.99	0.95	0.92	1.09	1.07	1.05	0.99
<b><i>Food</i></b>																					
China	0.75	0.69	0.62	0.57	0.48	0.46	0.44	0.40	0.34	0.36	0.36	0.37	0.34	0.34	0.32	0.32	0.35	0.33	0.34	0.32	0.27



Ruassia	0.19	0.21	0.28	0.28	0.21	0.25	0.26	0.37	0.26	0.40	0.26	0.30	0.43	0.40	0.49	0.58	0.68	0.67	0.70	0.71	0.93
The United states	1.05	1.06	1.06	1.15	1.11	1.08	1.10	1.19	1.28	1.21	1.22	1.22	1.21	1.19	1.18	1.10	1.11	1.08	1.06	1.02	1.12

*Source: <https://www.ceicdata.com/en/plan>*

Because the RCA index is analyzed from trade export data, it analyzes comparative advantage from an export perspective. As can be seen from the Table 3 , in the past two decades, the RCA index of the United States in medical products has remained above 2.5, indicating that the United States has strong international competitiveness. China, on the other hand, has been hovering above 0.8 and below 1.25 all year round, with moderate international competitiveness and a large gap compared with the United States. While Russia is the competitiveness of this field is far lower than that of China and the United States. In terms of metal ores, Russia has great international competitiveness but is in a downward trend year by year. Regarding transportation equipment, China does not have much international competitiveness and is weak in the comparison between Russia and the United States. In terms of electrical machinery, China's international competitiveness has increased year by year, and in 2006 it surpassed the United States to have strong international competitiveness. In terms of food, the international competitiveness of China and Russia is relatively weak. At the same time, the United States has moderate international competitiveness. In general, China has certain international competitiveness in electrical machinery and most of China's RCA indices in other fields are increasing over time, with a relatively stable trend

## 7. Development and Analysis of China's High-tech Industries

### 7.1 Analysis on the Trade Import and Export Quota of China's Main High-tech Industries

After more than 20 years of rapid development in China, China's high-tech industry has formed a certain industrial scale. China's high-tech industry mainly revolves around manufacturing, such as manufacturing, and electronic communication equipment manufacturing has also achieved trade in high-tech industries. China's export quota is greater than the expenditure quota. It has also become the main pillar of China's high-tech industry exports, followed by optical technology, aerospace industry, material technology, and biotechnology.

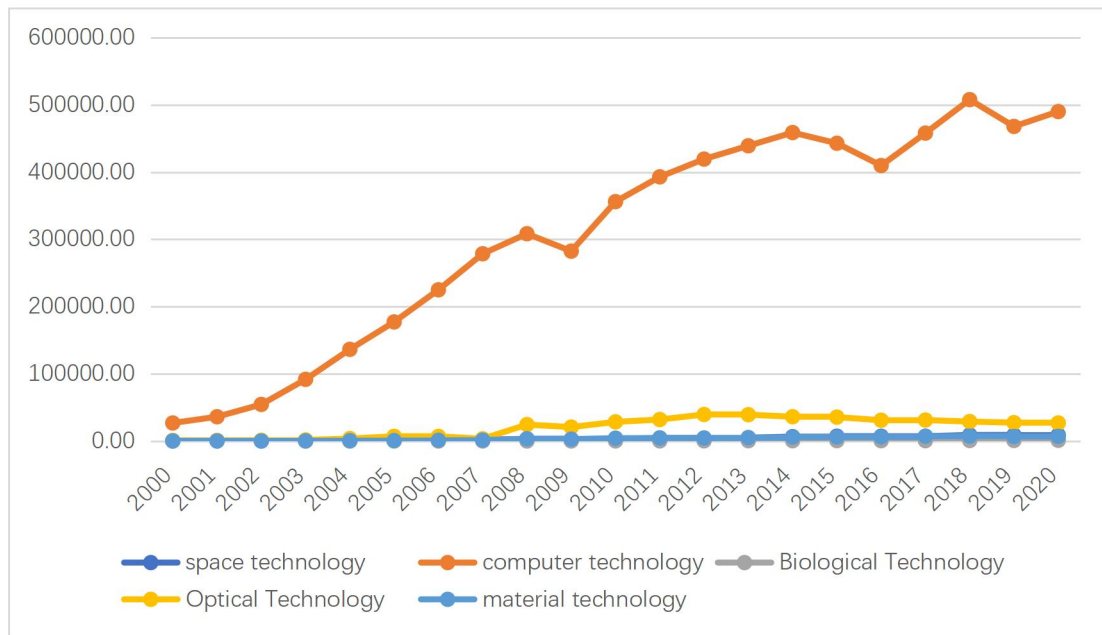
The following table 4 respectively count the total import and export trade volume of China's major high-tech industries from 2000 to 2020:

**Table 4: Export trade volume of major high-tech industries in China**

YEAR	Exports of high-tech industries(USDmn)				
	space technology	computer technology	Biological Technology	Optical Technology	material technology
2000	692.77	27007.24	127.56	984.08	316.58
2001	790.25	36250.03	165.86	1110.36	295.90
2002	739.09	54579.02	165.19	1268.26	228.36
2003	763.71	91859.08	190.04	1803.71	412.60
2004	1000.62	136498.79	218.23	3798.32	668.85
2005	1410.25	177232.99	268.62	7174.85	865.92
2006	2436.79	224975.89	256.18	7076.12	1273.46
2007	2667.38	278588.81	264.68	3498.83	1531.59
2008	3225.67	308382.76	262.93	24592.52	3622.08
2009	2700.34	282477.60	298.31	20909.12	2964.62
2010	3492.75	356069.13	355.41	28630.36	4424.45
2011	4599.08	392942.80	413.57	32113.82	4715.97
2012	4439.72	419313.04	471.77	39627.13	4607.52
2013	5116.12	439117.84	607.40	39337.31	5156.95
2014	6620.11	458758.88	652.54	36297.50	6104.60
2015	7324.72	442866.75	688.05	35734.48	6236.70
2016	7227.47	409736.25	638.83	31084.83	6337.35
2017	7224.54	457989.38	701.51	31336.98	7268.06
2018	9142.90	507710.26	932.23	29088.77	7504.04
2019	8841.49	467922.61	981.00	27476.55	6915.94
2020	8963.97	490001.27	1202.35	27026.45	7106.66

Source: <https://www.ceicdata.com/en/plan>

**Figure 9: Exports of high-tech industries, million dollars (2000-2020)**



Source: <https://www.ceicdata.com/en/plan>

Table 4 and Figure 9 show that the computer technology industry ranks highest in the total export trade of China's high-tech industries, from US\$27 billion in 2000 to US\$490 billion in 2020. It is an upward trend, and the total export trade in 2018 even reached 500 billion US dollars.

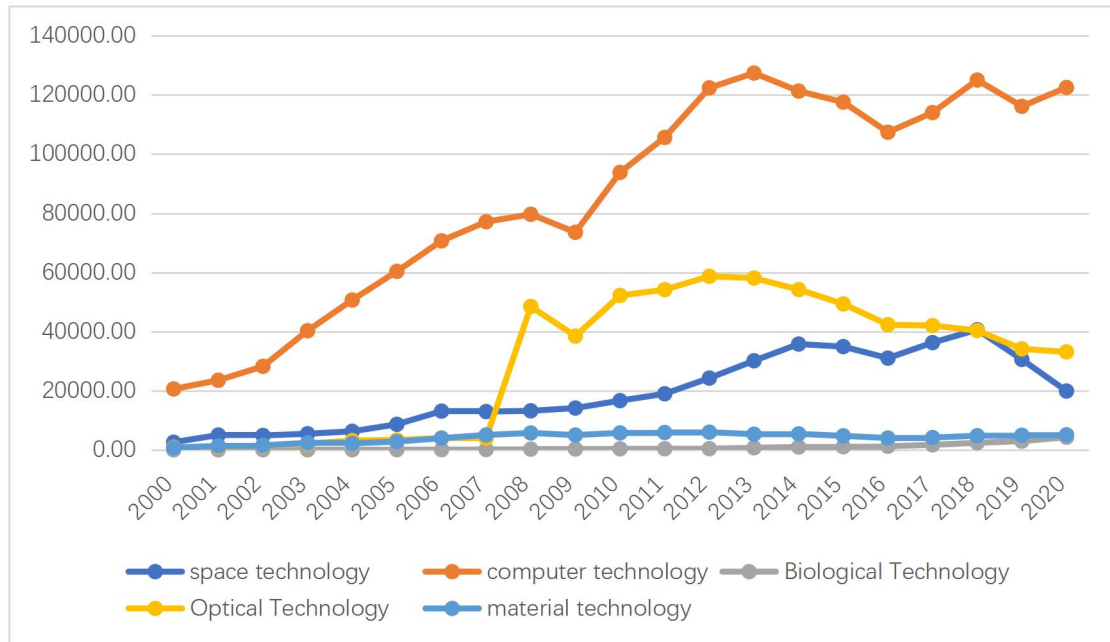
Followed by optical technology and material technology, it can be seen from Figure 9 that the overall trend is a steady upward trend, and finally, biotechnology and aviation technology, from \$316 and \$690,000 in 2000 to \$69,000 in 2020. Although the figures of US\$7.1 billion and US\$8.9 billion are very small in the line chart in Figure 9, it can be seen from the data in Table 4 that although the export quota is not high, the overall trend is rising steadily.

**Table 5: The total import trade of China's major high-tech industries**

YEAR	Imports of high-tech industries (USDmn)				
	space technology	computer technology	Biological Technology	Optical Technology	material technology
2000	2652.56	20647.37	58.69	986.29	789.85
2001	5091.33	23587.35	66.04	1218.71	1408.95
2002	4937.53	28288.88	108.12	1474.96	1599.42
2003	5511.01	40330.28	105.29	2189.89	2440.52
2004	6340.38	50702.70	107.21	3206.10	2292.21
2005	8702.53	60386.07	140.28	3429.67	2852.11
2006	13159.39	70698.58	153.55	4051.06	4028.01
2007	13004.29	77154.36	201.37	4040.60	5108.62
2008	13260.98	79674.27	322.66	48521.00	5776.56
2009	14198.65	73592.09	359.79	38516.15	5075.13
2010	16710.23	93816.26	426.04	52241.73	5791.79
2011	19014.63	105640.63	449.02	54202.86	5932.57
2012	24324.77	122390.20	479.73	58721.90	6046.97
2013	30177.80	127383.60	773.73	58121.33	5354.64
2014	35822.73	121301.67	1038.62	54224.84	5475.43
2015	34953.88	117566.74	1125.99	49372.45	4801.58
2016	31065.54	107393.72	1285.89	42356.97	4061.18
2017	36309.13	114030.86	1762.94	42066.97	4218.59
2018	40659.78	125033.15	2471.01	40378.42	4847.17
2019	30630.67	116155.54	3005.91	34180.31	5013.95
2020	19946.27	122514.36	4326.89	33169.70	5164.81

Source: <https://www.ceicdata.com/en/plan>

**Figure 10: Imports of high-tech industries(2000-2020)**



Source: <https://www.ceicdata.com/en/plan>

According to Table 5 and Figure 10, it can be seen that China's high-tech industry imports are mainly based on computer communication technology, optical technology

and aerospace technology. First, the computer technology industry showed an upward trend from 2000 to 2008. Due to the financial crisis in 2009, the global economy was in recession, and there was also a downward trend in 2009. From 2010 to 2020, the import trade quota gradually began to rise. Although the trend of the import trade quota was unstable, it changed. The magnitude is not large, and the demand is also from 20 billion US dollars in 2000 to 120 billion US dollars in 2020.

The second is the space technology industry. From 2.6 billion US dollars in 2000 to 19 billion US dollars in 2020, the overall demand is also rising. Due to the epidemic in 2020, the world is in a closed state. So in 2020, it began to show a downward change.

Then there is the optical technology industry. From the negligible import demand from 2000 to 2007 to the surge in demand of four billion US dollars in 2008, it shows that China is also trying to develop and make breakthroughs in new fields.

Finally, there is the industry of biotechnology and material technology. From Figure 10, it can be seen that although the change is not large, the trend is relatively stable.

According to the above analysis, the high-tech export structure is relatively simple, dominated by computers, and weak in aerospace and biotechnology. It still needs technical research to expand its international market share.

Compared with the total amount of exports, the demand in various fields of imports is relatively large. The main reason is that the technology is relatively dependent on foreign countries, but on the other hand, it can also make up for China's own huge market demand, optimize the structure of China's trade, and promote the national economy. Gross GDP growth, but still need to continue to develop in all aspects and enrich the export structure of high-tech industries.

## 8. Conclusion

The main purpose of this thesis is to study the important factors of China's economic growth in the past 20 years, mainly from the structural analysis of China's economy and foreign trade. The following conclusions can be drawn:

In the practical part, according to the economic development of China's foreign trade in the past 20 years, the changes in the import and export volume of China's foreign trade are analyzed. The data analysis of China's import and export trade with the United States and Russia is used. Through the macroeconomic analysis The indicators can be concluded: China has shown a steady increase in the demand and consumption of Chinese residents in the past 20 years, which also reflects the continuous increase of China's economic level. China's economic market is also constantly expanding.

From China's foreign trade structure, it can be seen that the relatively large number of trade commodities imported by China are non-agricultural primary products, first of which are machinery and transportation equipment products. The resources and energy used for production must be imported from abroad. The second is primary food products, which is basically an upward trend. The structure of China's export commodities is different. However, industry plays a major role, and the export value of machinery and electronic equipment has gradually begun to increase, which also plays a prominent role in driving China's economic development.

Through the analysis of the RCA index, we can see that China has a certain international competitiveness in medical products. However, there is still a significant gap with the United States, and the international competitiveness in electrical machinery is increasing. After 2006, the RCA index stabilized at above 1.25, indicating that China's exports of such commodities have strong international competitiveness. However, in food and metal mines, the competitiveness has been declining, and it is in a weak position. In contrast, the export of metal mines in Russia is highly competitive globally. Although it has declined slightly, it still maintains a relatively dominant position.

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