

Lund University

Department of Economic History

Master Programme in Economic Growth, Innovation & Spatial Dynamics

Master Thesis

Supervisor: Martin Andersson

The Relations between China's Economic Growth and Sino-US Trade

Written

By

Xie Hao

Lund University, Sweden

May, 2008

Acknowledgements

Firstly, I will give the deepest gratitude to my supervisor, Doctor Martin Andersson, who generously gave me his kind help and instructions throughout all the stages of writing this master thesis. Without his help, I have to say that this thesis could not have reached its present form.

I want to express my special thanks to my parents for their loving considerations and great confidence in me all through these years. Also, I owe my sincere gratitude to my friends and classmates who gave me their help and time in helping me work out so many problems during the last one year.

Abstract

The general theory of international trade points out that the economic growth of a country will be significantly affected by global economic fluctuation if this country shows an increased dependence on foreign countries in the economic field. After the Chinese government adopted reform and opening up policy in 1978, many exciting changes could be seen in this country. Now, although China is still far from being a world economic leading country, no one can ignore that China has made tremendous achievements during the last thirty years. In this process, the United States has a positive influence on China's economic growth. In 2007, the United States became the most important China's trade partner and China also came to be the second largest trade partner of the United States. With the rapid growth of GDP, the status of foreign trade in China's economic growth is getting more important than before. China's ratio of dependence on foreign trade with the United States increased from 8.4% in 1998 to 11.9% in 2007. During this period, although absolute position of the United States in China's economic growth was increasing, the relative position was actually decreasing. Traditional concept thinks that the influence of exports on China's GDP growth is greater than imports, but the result of regression analysis shows that imports have a greater impact on China's GDP growth than often recognised: China's GDP will be increased by 0.455497869% if the volume of China's exports to US is increased by 1%; China's GDP will be increased by 0.825071613% if the volume of China's imports from US is increased by 1%. The commodity structure of Sino-US trade, which can partly explain the reason, indicates that most of China's imports from US are high tech products and capital-intensive products and a large number of China's exports to US were labor-intensive products or low tech products. I argue that positive influence of China's imports from US on China's GDP growth is probably much bigger than what we thought before.

Key Words

China, the United States, Economic Growth

Table of Contents

List of Figures

CHAPTER 1 INTRODUCTION	1
1.1 AIMS OF THE STUDY AND RESEARCH QUESTIONS	2
1.2 DELIMITATIONS	2
1.3 METHODOLOGY.....	3
1.4 OVERVIEW OF PREVIOUS RESEARCH	5
CHAPTER 2 THEORETICAL APPROACH	8
CHAPTER 3 HISTORICAL BACKGROUND	12
3.1 THE SINO-US TRADE RELATIONS BEFORE 1950S	12
3.2 THE SINO-US TRADE RELATIONS FROM 1950S TO 1960S	14
3.3 THE SINO-US TRADE RELATIONS FROM 1970S TO 1980S	16
3.4 THE SINO-US TRADE RELATIONS FROM 1990S TILL NOW.....	19
CHAPTER 4 ANALYSIS	23
4.1 THE ANALYSIS OF TOTAL TRADE VOLUME BETWEEN CHINA AND THE UNITED STATES.....	23
4.2 THE ANALYSIS OF THE DEGREE OF CHINA'S FOREIGN TRADE DEPENDENCY ON THE UNITED STATES.....	30
4.3 THE ANALYSIS OF THE INFLUENCE OF SINO-US TRADE ON CHINA'S GDP GROWTH.....	41
4.4 THE ANALYSIS OF THE COMMODITY STRUCTURE OF SINO-US TRADE	66
CHAPTER 5 CONCLUSIONS.....	75
BIBLIOGRAPHY	80
APPENDIX.....	83
APPENDIX A.....	83
APPENDIX B.....	87

CHAPTER 1 INTRODUCTION

Since China adopted its reform and opening up policy in 1978, a lot of great changes have been seen in this country. This country started to try its best to develop economy about thirty years ago and has made tremendous achievements. Without doubt, China's present status can be regarded as an economic power which has the ability to change world economic structure in some extent. The relationship between China's economy and the world economy is closer than before, and China is inevitably influenced by world economy, especially by major developed countries. The United States, which is the world's top economic power, has a big influence on the China's economic growth. Thus, it is necessary for us to analyze the relations between China's economic growth and Sino-US trade.

Moreover, the general theory of international trade thinks that the economic growth of a country will be significantly affected by global economy if this country shows an increased dependence on foreign countries in the economic field. Through reviewing economic history about China and the United States, we could find that, after they decided to establish the formal diplomatic relations in 1972, the bilateral trade and economic relations between them maintained a rapid development. Now, the United States has become one of the most important trading partners of China. How to understand the relations between China's rapid economic growth and Sino-US trade would be an interesting topic. Therefore, in this paper, I am going to analyze this kind of economic phenomenon between them.

In this paper, I choose a time series model from 1998 to 2007. The statistic data can reflect contemporary economic relations between China and the United States. From my point of view, some necessary historical information will help us to understand the economic relations between China and the United States. So, in this paper, before analyzing the relations between China's economic growth and Sino-US trade, I will

introduce historical stuff between them.

1.1 Aims of the Study and Research Questions

The main purpose of this paper is to analyze the relations between China's economic growth and Sino-US trade. In fact, we can analyze this influence from many aspects, but in this paper I will focus on analyzing the volume of Sino-US trade, the degree of China's foreign trade dependency on the United States, the influence of Sino-US trade on China's GDP growth and the commodity structure of Sino-US trade. I believe that they are very important factors for us to find out economic relations between them. Probably, it is not easy for me to find enough good data to analyze this kind of relations due to its complexity, but I think we still can obtain some useful information for this topic if the analysis of this paper can be concentrated on several questions

The following questions will be presented in this master thesis:

1. Does the United States play an important role in China's economic growth? And, why?
2. If foreign trade is a significant factor for China's economic growth, how can we evaluate the degree of China's foreign trade dependency on the United States? And, what is the result?
3. How can we evaluate the influence of Sino-US Trade on China's GDP growth? In the Sino-US trade, which part is more important for promoting China's GDP growth, import or export? And, why?

This master thesis tends to answer these questions through research and analysis.

1.2 Delimitations

Just like what I mentioned above, the scope of the master thesis will be focused on these three questions when I analyze relations between China's economic growth and Sino-US trade. For making the structure of this master thesis clear, I will divide this paper into 5 chapters.

The aim of the first chapter will introduce research problems, aims of study, the structure of the master thesis, what kind of methodology will be used and the overview of previous research. The second chapter will introduce theoretical approach. The third chapter is going to introduce the historical background of trade relations between China and the United States. In this chapter some historical information of the Sino-US relations including the political field and the economic field will be presented. In the fourth chapter, I will deeply analyze the relations between China's economic growth and Sino-US trade from 1998 to 2007 from four different aspects, including the analysis of total trade volume between China and the United States, the analysis of the degree of China's foreign trade dependency on the United States, the analysis of the influence of Sino-US trade on China's GDP growth and the analysis of the commodity structure of Sino-US trade. Finally, the last chapter will be the conclusion.

1.3 Methodology

Methodology normally can be regarded as the systematic study when people want to do some research works, for example, analyzing or using methods, theories, concepts and basic principles in different fields with a particular discipline. We can say that the methodology can be used to identify the correct answers when we are analyzing different issues. For instance, when some people states that their answer is correct, methodologists would want to know the reason why their reason is correct and how. We can see that epistemologists want to know what the knowledge is. However, the methodologists are more concerned about the process of getting knowledge and how people acquire knowledge. One of the reasons why we can find a section on methodology in most academic papers is scholars can use a clear way to do research works.

If people want to research some special phenomenon or issue, sometimes they have to get enough related information or some special knowledge for it. Thus, in this case,

people will choose qualitative methodology to do the research work. Qualitative research “usually emphasizes words rather than quantification in the collection and analysis of data”¹. The aim of qualitative research is to try to deeply understand human behaviour and what is controlling his behaviour. In simple terms, the qualitative research wants to know why and how people make some decisions and arranges data systematically in classes or groups which can be used to report results. Catherine Marshall, Gretchen B. Rossman claimed that there are three challenges for qualitative researchers: “(a) developing a conceptual framework for the study that is thorough, concise, and elegant; (b) planning a design that is systematic and manageable, yet flexible; and (c) integrating these into a coherent document that convinces the proposal readers that the study should be done, can be done and will be done”².

John W. Creswell gave us the definition of quantitative research. He stated that the quantitative research “is one in which the investigator primarily uses postpositivist claims for developing knowledge, employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data”³. Compared with the qualitative research, quantitative research uses the systematic scientific way to collect numerical data or some kind of data which can be transformed to numbers, for instance, population census. The aim of the quantitative research is to study natural phenomenon by using some mathematic ways, theories or models, and so on. The most important part of the quantitative research is the process of measurement because it can help us to find basic quantitative relations between empirical results and mathematic data. All in all, the quantitative research can be used in many fields and it gives us a different way to research the world. In this paper, I will try to use many ways to get statistic data, tables and graphs which are related the

¹ A Bryman, *Social research methods*, 2nd edn, Oxford University Press, New York, 2004, p 266.

² C Marshall & GB Rossman, *Designing Qualitative Research*, 4th edn, SAGE Publications, Thousand Oaks, California, 2006, p 10.

³ JW Creswell, *Research Design: qualitative, quantitative, and mixed methods approaches*, 2nd edn, SAGE Publications, Thousand Oaks, California, 2002, p. 18.

research questions, and then some research techniques will be adopted to analyze these quantitative data.

Actually, the qualitative research should not be viewed as the opposite methodology of quantitative research. We can not use them to study or research the same problem. Contrarily, they can be used to resolve different problems with different means. In this master thesis, I am trying to use both of them to explain or analyze different questions.

I will collect some necessary and useful data based on the questions of the paper from official statistic report, for example, US and Chinese trade statistics, reports of the World Bank, IMF, etc. Besides these data, some official documents, reports and international agreements also will be used in this paper. All of them are regarded as the main resource of this paper. Articles, books, journals, and some internet information will be used as the secondary sources. A problem for this master thesis is a lot of sources are written by Chinese. It will be a challenge for me to translate the sources to English.

1.4 Overview of Previous Research

Joshua J. Lewer and Hendrik Van den Berg point out that free trade obviously have positive influence on economic growth and they tried to tell us how large the growth effects were. They state that the average quantitative result is that “for every percent point increase in the growth of trade, the rate of economic growth defined as either an increase in real GDP or real per capita GDP rises by slightly more than one-fifth of a percentage point”⁴.

Dong Migang compares the development track of China's foreign trade with the track

⁴ JJ Lewer & HVd Berg, ‘How Large Is International Trade's Effect on Economic Growth?’, *Journal of Economic Surveys*, Vol. 17, Issue 3, 2003, pp. 363-396.

of China's economic growth. He also researches the trend of China's foreign trade dependency after 1978 when the Chinese government adopted reform and opening up policy. He makes a regression analysis of the relations between China's foreign trade and its economic growth. He states that "there is a two-way causal relationship between China's foreign trade and China's economic growth"⁵.

Yao Lifang argues that both the method of net export analysis and the method of gross export analysis have inevitable shortcomings when we want to use these methods to analyze the influence of foreign trade on China's economic growth. She thinks that the method of import decomposition analysis is more suitable for analyze this kind of influence. She also mentions that "there is not any generally accepted method which can be used to measure the impact of foreign trade on China's GDP growth"⁶.

Schneider Patricia Higinio researches the impact of high-technology trade, IPRs and FDI on innovation and economic growth in a country. He points out that foreign technology has a big influence on per capita GDP growth. He states that "a country's stock of physical capital is very relevant in explaining per capita GDP growth"⁷, and "foreign technology (measured as the growth of per capita high-technology imports) has a stronger impact on per capita GDP growth than domestic technology"⁸.

Shen Guobing and Gu Anthony Yanxiang try to identify groups of manufactured goods, which are exported to the United States from China and hve strong comparative advantages, though analyzing the data of Standard International Trade

⁵ D Migang, 'An analysis of the relations between China's Foreign Trade and Economic Growth', *Journal of Northwest University*, Vol. 30, No. 4, November, 2000, pp. 81-85.

⁶ Y Lifang, 'An analysis on the contribute of foreign trade to China's economic growth', *Statistical Research*, No. 9, 2001, pp. 20-22.

⁷ SP Higinio, 'International trade, economic growth and intellectual property rights: A panel data study of developed and developing countries', *Journal of Development Economics*, Vol. 76, Issue 2, 2005, pp. 529-547.

⁸ Ibid.

Classification (SITC). They state that “the trade between the USA and China is not competitive but complementary, and that the US trade deficit with China is generally a result of Chinese comparative advantages in these goods groups”⁹. They believe that “China should not rely only on the exports of labor-intensive products and on the processing trade to promote the growth of its trade and GDP”¹⁰, and “China should “move toward producing technology-intensive and capital-intensive products”¹¹.

Schott Peter K wants to help address the implications of the rapid growth of China's exports for developed economies. He compares a lot of products, which are imported from China to the United States, with the products, which are exported by the OECD and suggests that “developed economies compete with developing economies like China by raising the quality of their exports”¹². It means that “such competition offers hope to workers in developed economies who fear their standards of living will fall as a result of globalization”¹³.

⁹ S Guobing & GA Yanxiang, ‘Revealed Comparative Advantage, Intra-industry Trade and the US Manufacturing Trade Deficit with China’, *China & World Economy*, Vol. 15, Issue 6, 2007, pp. 87-103.

¹⁰ Ibid.

¹¹ Ibid.

¹² SP K, ‘The relative sophistication of Chinese exports’, *Economic Policy*, Vol. 23, Issue 53, 2008, pp. 5-49.

¹³ Ibid.

CHAPTER 2 THEORETICAL APPROACH

Adam Smith thought that the international trade could expand the market scope, could promote marketing division, and could increase productivity. He pointed out that the production of surplus products did not need transfer sources from other sections and reduce economic activities of other countries. Because a country did not need to pay opportunity cost for the benefits brought by exports and some products which were necessary for the country, the international trade would promote its economic growth. According to K Tribe, “throughout the nineteenth century, Smith’s name was associated with free trade because of the principle of natural liberty and because the ‘division of labour is limited by the extent of market’”¹⁴. David Ricardo regarded capital accumulation as basic driving force of economic growth. He believed that the international trade could guarantee the process of capital accumulation and promote economic growth, because it was able to help a country to get cheaper commodities and raw materials which could stop the trend of diminishing returns of land and the tendency of wage increases and falling profits in this country. In his theory, “the gains from trade can be realized because each country trades according to its comparative advantage”¹⁵. John Stuart Mill thought that the international trade could help a country to get necessary material goods, which could not be produced in this country, to maintain a sustained economic operation. He argued that “a displacement of the terms of trade from equilibrium value would invoke an excess world demand for one good and corresponding world excess supply of the other”¹⁶. He also mentioned that the international division of labour could promote the innovation and improvement of domestic production process, and increase labor productivity, and stimulate and guide the growth of new industries.

¹⁴ K Tribe, ‘Reading trade in the wealth of nations’, *History of European Ideas*, Vol. 32, Issue 1, 2006, pp. 58-79.

¹⁵ M Andrea, ‘The true meaning of David Ricardo's four magic numbers’, *Journal of International Economics*, Vol. 62, Issue 2, 2004, pp. 433-443.

¹⁶ TM Humphrey, ‘When geometry emerged: Some neglected early contributions to offer-curve analysis’, *Economic Quarterly (Federal Reserve Bank of Richmond)*, Vol. 81, Issue 2, 1995, pp. 39-74.

D. H. Robertson and R Nurkse pointed out that the international trade was the engine of economic growth. Imports could help a country to obtain the benefits of international division, to save factors of production and to improve work efficiency. In this country, the economic growth in one section could be transferred to other sections by above dynamic transformation process. They believed that this could lead to a comprehensive domestic economic growth and the rapid economic growth of central country could be transferred to other countries by the international trade. Moreover, Nurkse gave us three growth patterns for undeveloped countries: “1. exports of primary products, 2. exports of manufactured consumer goods, and 3. expansion of output for domestic markets”¹⁷.

After the 1980s, P. Romer, R. Lucas and Maurice Scott, who were representatives of the new theory of economic growth, also mentioned that the international trade could promote economic growth. P. Romer stated that the international trade could accelerate the accumulation of knowledge in the scope of the world and raise the output level of the world. R. Lucas pointed out that, in order to narrow the gap of economic growth between developed countries and developing countries, the developing countries should use the way of international trade to absorb new technologies and human capital. Maurice Scott emphasized that the developing countries could use new technologies and human capital of developed countries to reduce errors of economic development and formulate a special way to promote their economic growth.

The traditional international trade theory is the development of new classical economic theory within an international scope. It advocates mutually beneficial trade which is on the basis of international division of labor. From the perspective of welfare economics, the Pareto optimal of the world economy can be achieved by this

¹⁷ WG Huff, ‘Patterns in the Economic Development of Singapore’, *The Journal of Developing Areas*, Vol. 21, Issue 3, 1987, pp. 305-326.

kind of free trade within an international scope. The traditional international trade theory can be used to explain international trade phenomenon between sovereign states and colonies, or between developed countries and developing countries. But this theory “only take into consideration two production factors, such as capital and labour,”¹⁸ and can not explain some new phenomenons about the international trade after the Second World War. For example, we could see a rapid increase of the volume of trade between developed countries, and the volume of trade of similar products also increased greatly, and multinational corporations enhanced their role in the international trade, etc.

Paul R. Krugman, Elhanan Helpman and some other economists created a new analytical framework for the international trade. It absorbed some reasonable factors from the traditional international trade theory and established the new trade theory. It rejects the basic premises of theory of comparative advantage and states that there are two basic fundamental characteristics in the international commodity markets: One is imperfect competition; another one is increasing returns to scale. The new trade theory tries to use reasonable ways to explain these new economic phenomenons and puts forward the theory of strategic trade policy which demonstrates the reasonableness of government intervention.

Both traditional international trade theory and modern international trade theory state that both sides which participate in the international trade will get some benefits from free trade. China is a developing country and the United States is the most powerful developed country in the world. These general principles of the international trade theories can be used to analyze the trade relations between China and the United States because they have obvious differences of comparative advantage or, in other words, the differences of factor endowment, for example, abundant labor force in China, plentiful capital and high technology in the United States. Thus, in this case,

¹⁸ W Qi & X Xiao, ‘Two Major Relative Comparative Advantages of China in International Trade’, *China Population, Resources and Environment*, Vol. 17, Issue 5, 2007, pp. 33-37.

we can find realistic basis which can be easily explained or analyzed by these theories of international trade.

Although we know the Sino-US trade can bring many benefits for China, we do not know how much the Sino-US trade can influence China's economic growth. So, firstly, in order to help reader to understand the Sino-US trade relations more deeply, I will introduce some historical stuffs or information about this topic both in economic field and political field. Secondly, I will analyze total trade volume between China and the United States from 1998 to 2007 because the research will give us the answer for the following question: whether the United States plays an important role in China's economic growth during the last ten years. Then, I will analyze the degree of China's foreign trade dependency on the United States from 1998 to 2007, because this indicator will tell us the degree of market linkages between China and the United States in this period. After that, I will use some statistical methods to calculate how much the influence of Sino-US trade on China's GDP growth is, including the influence of China's imports from US on China's GDP growth and the influence of China's exports from US on China's GDP growth. These results will tell us which one has greater influence on China's GDP growth. Then, I will research the reasons why we can get this kind of results and what is behind this phenomenon through analyzing the commodity structure of Sino-US trade. Finally, I will draw some conclusions based on the analysis.

CHAPTER 3 HISTORICAL BACKGROUND

If we want to analyze the relations between China's economic growth and Sino-US trade, it will be better for us to know some historical information about this problem. The relationship between China and the United States is very complicated. Therefore, the chapter three will introduce the historical background or information about this topic both in economic field and political field. In order to make the information clear, I will divide this chapter into 4 parts.

3.1 The Sino-US Trade Relations before 1950s

Before the United States declares independence in 1776, the North American colony of UK started to do indirect trade with the Qing Dynasty, the last Imperial dynasty of China, through the British East India Company which monopolized the eastern trade. On the one hand, the British East India Company sold special local products of the North American colony to China; on the other hand, it shipped Chinese tea and porcelains to the North American colony.

After the United States gained its independence in 1783, Americans tried to look for new business opportunities all over the world. But, the United Kingdom controlled the Atlantic trade during that period and did not want to see the result that the United States could be a new rival in the future. Thus, the United Kingdom used many ways to limit the activities of American merchants and their ships in its colonies. In this case, these American merchants had to find new markets to do business to satisfy their demand. Finally, they shifted attention to China.

In 1784, Robert Morris, a banker of the United States, rented a ship and named it the *Empress of China* a ship. On February 22, 1784, the *Empress of China* left New York and sailed to China "with a cargo of Spanish dollars, ginseng, furs, lead, wine and other trifling articles"¹⁹. Actually, "not even its most enthusiastic backers could have

¹⁹ CC Stelle, 'American Trade in Opium to China, Prior to 1820', *The Pacific Historical Review*,

predicted that this voyage would open up a new Pacific frontier which would lead to ultimately to the United States becoming a transcontinental power”²⁰. After six months, the *Empress of China*, the first American merchant ship which carried animal skins, camel cloth, cotton, pepper and ginseng, arrived at Macao which was controlled by Portuguese. After one week, this ship finally arrived at Guangzhou. During that period, the government of Qing Dynasty had some kind of trade relations with several European countries. These American merchants spent several months in China on looking for business opportunities. They not only sold their goods carried from the United States, but also bought a lot of Chinese tea and other Chinese products. On December 28, 1784, the *Empress of China* left China and, on May 1785, it arrived at the United States. This event indicated that the American merchants established a new trading route to China, and the historical significance of this event was that it was the first time for the American merchants to do business with China directly.

In 1786, the government of the United States appointed Samuel Shaw the first consulate in Guangzhou. Samuel Shaw was also the first consulate of the United States in the Far East. He was responsible for business works and helped American merchants to deal with some problems with the government of Qing Dynasty. Since then, the Sino-US trade relations was developing rapidly. In the 1830s, the American merchants established six hong²¹. After the Opium War, the United States continued to export cotton fabric, opium and consumer products to China, and to import tea and raw silk from China. In the end of 19th century, the volume of trade of the United States in China was only after the United Kingdom.

In the Second World War, the United States became China's largest supplier of strategic goods. Without doubt, the close trade relationship between them was one of

Vol. 9, No. 4, Dec., 1940, pp. 425-444.

²⁰ HAC Forbes, 'Reviewed work(s): *The Empress of China* by Philip Chadwick Foster Smith', *The New England Quarterly*, Vol. 57, No. 4, Dec., 1984, pp. 602-605.

²¹ Hong is a special place where American merchants can do business with Chinese merchants.

the most important factors which helped China to obtain the victory of Anti-Japanese War.

3.2 The Sino-US Trade Relations from 1950s to 1960s

For containing the extension of communism, the government of the United States tried to use political, economic and military means to support Chiang Kai-shek, the President of the Republic of China, in Chinese civil war from 1945 to 1949. After the People's Republic of China was established by Mao Zedong on October 1, 1949, in Beijing, the Chinese government and the American government could not use a friendly way to deal with their relations both in political and economic fields due to the behavior of the United States in the Chinese civil war. We can say that the support of the United States for the Republic of China damaged the relations between China and the United States. In fact, "from 1949 until the late 1960s, PRC leaders were vehemently anti-American"²² and most Chinese people believed that "the view of world as divided into two camps, socialist and capitalist, with the United States as the leading imperialist power"²³.

On February 14, 1950, China and the Soviet Union signed *Sino-Soviet Treaty of Friendship, Alliance and Mutual Assistance* which could not be seen as good news for the United States. Soon after the Korean War broke out on June 25, 1950, the government of the United States decided to intervene. In order to protect its own national interest, China had to get involved into this war and send Chinese People's Volunteer Army (CPVA) to Korea, although the Chinese civil war just ended nine months ago and China needed time to revive the economy.

²² PH Chang, 'U. S.-China Relations: From Hostility to Euphoria to Realism', *Annals of the American Academy of Political and Social Science*, Vol. 476, China in Transition, Nov., 1984, pp. 156-170.

²³ DL Shambaugh, 'Anti-Americanism in China', *Annals of the American Academy of Political and Social Science*, Vol. 497, Anti-Americanism: Origins and Context, May, 1988, pp. 142-156.

In June 1950, the President of the United States, Harry S. Truman, sent the Seventh Fleet of American navy and the Thirteenth Fleet of American Air Force to the Taiwan Strait for protecting Taiwan which was seen as the core national interest by China. From the view of Chinese government, Taiwan could be united by its military power if the United States did not send troops to this area.

The government of the United States announced that all property owned by the Chinese government would be frozen and it did not allow any ship which was registered in the United States to do business with China. Almost at the same time, the Chinese government also stated that all the property owned by the United States would be confiscated.

In December 1954, the government United States and Taiwan which was dominated by Chiang Kai-shek signed a *Mutual Defense Treaty*, which still has negative influence on contemporary Sino-US relations. In 1958, the government of the United States sent troops to the Taiwan Strait again due to the dangerous situation between the mainland of China and Taiwan. During the 1950s, "American officials watched the improvement in China's capabilities closely and assumed its malevolent intentions and desire to challenge the international status quo"²⁴. Both China and the United States had to regard each other as a dangerous enemy in this period.

In the next ten years, many things happened in China. For instance, a lot of Chinese people died from 1958 to 1961 because of natural disaster and wrong economic policies; the Chinese government could not avoid a complete Sino-Soviet rupture. It was the most difficult period for the Chinese Communist Party after it gained the power and established the People's Republic of China in 1949. In the 1960s, due to Soviet expansionism and the Vietnam War, some factors which could make for a better relationship between China and the United States emerged. However,

²⁴ R Foot, *The Practice of Power: US relations with China Since 1949*, Oxford: Clarendon Press, 1995, p. 14.

fundamental change of their relations could not be seen.

To sum up, China and the United States had a very bad relationship from the 1950s to 1970s. In this kind of political environment, both of them did not have the will to develop their economic relations. Actually, the trade between these two countries was banned by their government. Thus, in this period, we can not see any impact of economic factors of the United States on China's economic growth.

3.3 The Sino-US Trade Relations from 1970s to 1980s

From the 1970s, the international situation began to change. China and the United States tried to seek ways to improve bilateral relations. For example, with the help of the *Ping Pong Diplomacy*, the government of the United States started to allow its citizens to go to China. History has proven that “the Kissinger and Nixon visits of 1971 and 1972 constituted the initial breakthrough, transforming the Sino-US relationship from confrontation to collaboration and reestablishing high level official contacts for the first time since 1949”²⁵. After that, China and the United States signed a far-seeing document, the *Shanghai Communique*, which stated that “both sides view bilateral trade as another area from which mutual benefit can be derived, and agreed that economic relations based on equality and mutual benefit are in the interest of the peoples of the two countries. They agree to facilitate the progressive development of trade between their two countries”²⁶. Thus, one of the important results of the *Shanghai Communique* was that both China and the United States agreed to develop their bilateral trade.

On December 15, 1978, Beijing and the Washington issued *Joint Communique of the*

²⁵ H Harding, *A Fragile Relationship: The United States and China Since 1972*, Bookings Institution Press, Washington DC, 1992, p. 5.

²⁶ *Joint Communique of the United States of America and the People's Republic of China*, February 28, 1972, retrieved 25 April 2008, <http://usinfo.state.gov/eap/Archive_Index/joint_communique_1972.html>.

*United States of America and the People's Republic of China*²⁷ which announced that “the United States of America and the People's Republic of China have agreed to recognize each other and to establish diplomatic relations as of January 1, 1979”²⁸.

Finally, after more than 20 years of economic blockade, China and the United States started to trade with each other. According to Jiawen Yang, an associate professor of the George Washington University, “total trade between two countries expanded from nothing to \$2.4 billion in 1979, the year when the two countries formally established diplomatic relations”²⁹. In July 1979, China and the United States signed the Agreement on Trade Relations between them, which enabled them to give each other Most Favored Nation status.

Table 1:

Year	1972	1973	1974	1975	1976	1977	1978
The Volume of Trade(Billion \$)	0.01	0.26	0.47	0.47	0.31	0.29	0.99

Source: *Yearbook of China's Economy, 1982*³⁰

Based on the table 1, one character of the Sino-US trade was quite small and unstable. For example, before 1979, the volume of Sino-US trade was only 0.01 billion dollars in 1972; 1978 was the year of the highest volume of transactions, but the volume was not over 1 billion dollars. The total trade volume was only 2.8 million dollars during this period. Sometimes, the fluctuations of political relations between them also have impact on their trade relations. For instance, in the beginning of the 1970s, one of

²⁷ *Joint Communique of the United States of America and the People's Republic of China*, January 1, 1979, (The communique was released on December 15, 1978, in Washington and Beijing), retrieved 25 April 2008,

<http://usinfo.state.gov/eap/Archive_Index/joint_communique_1979.html>.

²⁸ Ibid.

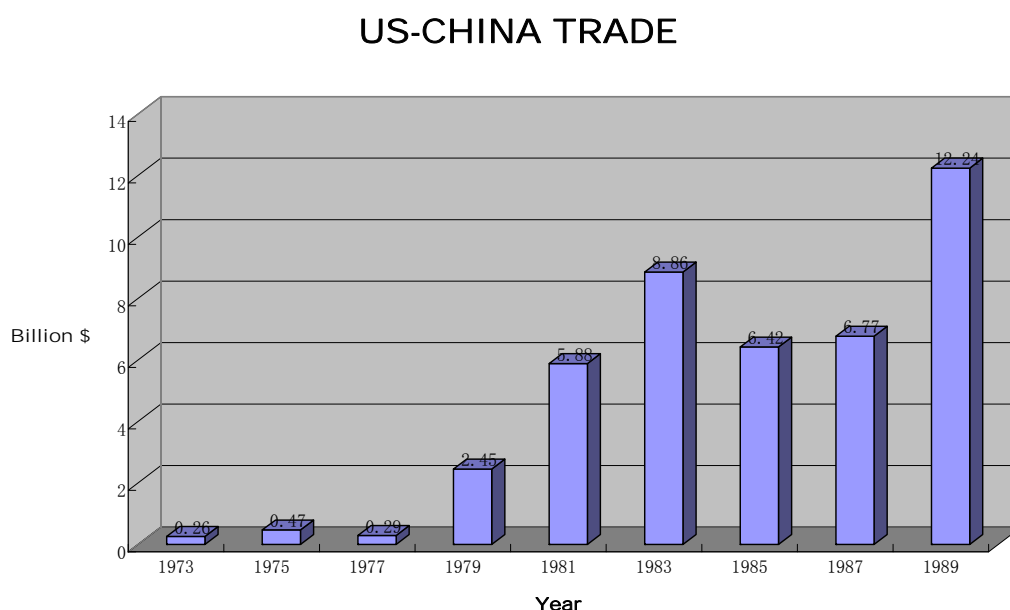
²⁹ J Yang, ‘Sino-U.S. Trade Relations’, *The GW Center for The Study of Globalization*, January, 2004, retrieved 25 April 2008,

<<http://gstudynet.org/docs/Sino%20US%20Trade%20Relations.pdf>>.

³⁰ The data can be collected from ‘Yearbook of China's Economy’, Editorial Committee of Yearbook of China's Economy, Economic Management Publishing House, 1982.

important reasons why China and the United States wanted to thaw and improve their political and economic relations was the threat of the Soviet Union; due to the Taiwan issue, the political relations between them was getting worse around 1975, and, from the data of table 1, we can clearly find that this political problem could be reflected on their trade relations.

Chart 1



Source: *Yearbook of China's Economy, 1982-1991*³¹

From the Chart 1, we can see that the volume of trade between two sides was very low before 1979. The data tell us that one important turning point of the trade relations between China and the United States would be 1979 because they established diplomatic relations and signed the Agreement on Trade Relations in this year. These activities have effectively promoted the bilateral trade relations between them. The amount of trade and size between China and the United States has been expanding rapidly during these 20 years. Although we can see some fluctuations in

³¹ The data can be collected from 'Yearbook of China's Economy', Editorial Committee of Yearbook of China's Economy, Economic Management Publishing House, 1982-1991.

trade between China and the United States around 1983, the trend was on the increased in this period. The total trade volume increased from 0.26 billion dollars in 1973 to 12.24 billion dollars in 1989. In other words, the Sino-US trade volume increased about 47 times from 1973 to 1989 and increased about 5 times from 1979 to 1989.

According to Wang Chaomei's research, the goods structure of the Sino-US trades was getting more diversity from 1972 to 1989. In the 1970s, the main China's exports to the United States were textiles, native products, minerals and handicrafts. In the 1980s, the scope of the Chin's exports to the United States extended to mechanical and electrical products and their proportion continues to increase. In the 1970s, the main exports of the United States to China were grains and cottons. In the following ten years, the United States exported more high-tech products, transport equipment, machinery, complete sets of equipment to China³².

3.4 The Sino-US Trade Relations from 1990s till now

The relationship between China and the United States was influenced by Tiananmen incident in 1989. After that, the government of the United States applied economic sanctions against China and froze their military cooperation. In 1992, the government of the United States announced that it would sell 150 F-16 to Taiwan and stated that this decision was based on the *Taiwan Relations Act*³³, even though the Chinese government expressed strong opposition. On June 3, 1993, the Clinton administration claimed that it would not extend the Most Favored Nation (MFN) status to China if the Chinese government could not achieve sufficient progress in human rights.

³² C Wang, 'Sino-US Trade Relations: Review and Outlook of Fifty Years', *Journal of Shangqiu Teachers College*, Vol. 16, No. 5, Oct 2000, pp 78-80.

³³ *Taiwan Relations Act*, the United States, April 10, 1979, retrieved 27 April 2007, <http://usinfo.state.gov/eap/Archive_Index/Taiwan_Relations_Act.html>.

China lost the membership of the General Agreement of Tariffs and Trade (GATT) after Mao Zedong established the People's Republic of China in 1950, although China was one of its original memberships. From 1986, in order to get the seat back, the Chinese government started to negotiate with GATT/WTO member countries. In the process of negotiation, the government of the United States put forward a number of requirements which could not be accepted by the Chinese government. Thus, "Beijing angrily singled out the U.S. as the main obstacle to China's achieving GATT status"³⁴ and this process lasted around 15 years. Finally, on November 15, 1999, China and the United States signed the bilateral WTO agreement which would "help accelerate the process of China's accession to WTO and the development of China-US economic cooperation and trade relations"³⁵. On December 11, 2001, China became a formal membership of WTO, and, "according to WTO regulations, the United States.....will partly cancel their quotas on textile and clothing imports from China"³⁶.

According to the Chart 2, we can see that bilateral trade between China and the United States still rose rapidly after the 1980s. The total trade was \$20 billion at the beginning of the 1990s; and, in 2007, it rose to \$386.7 billion. Although these figures could reflect the fast development of trade relationship between them, its process was full of conflicts and accusations. For example, Wayne M. Morrison, a specialist in International Trade and Finance, in his recent report for congress mentioned that "China overtook Japan to become the third largest U.S. export market, and overtook Canada to become the largest source of U.S. imports"³⁷ in 2007, but, "U.S.-China

³⁴ RP Cronin, 'The United States and Asia in 1994', *Asian Survey*, Vol. 35, No. 1, A Survey of Asia in 1994: Part I (Jan., 1995) pp. 111-125.

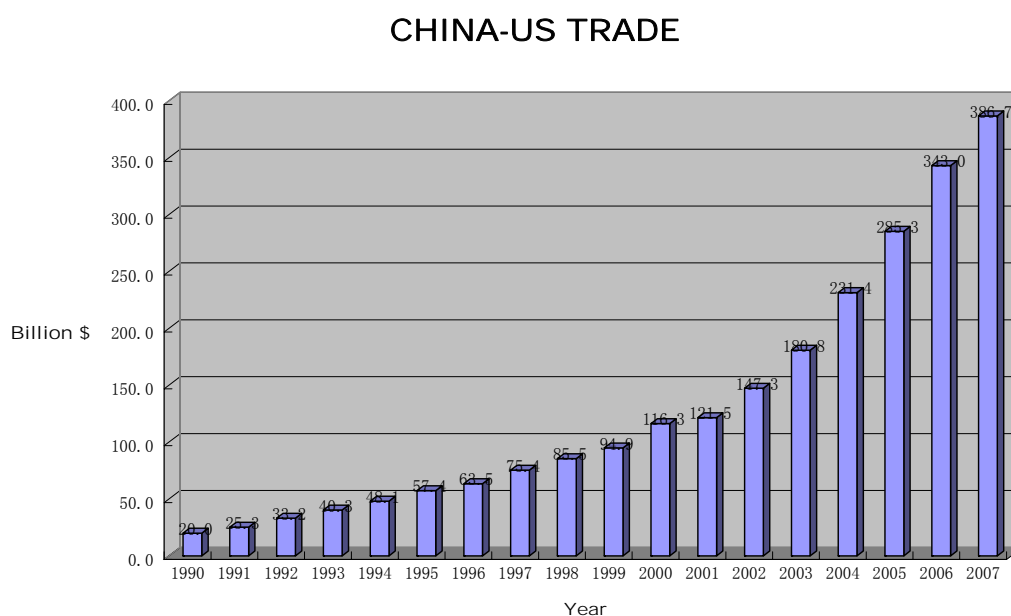
³⁵ China, U.S. Release Press Communique on China's WTO Entry, *People's Daily*, November 16, 1999, retrieved 28 April, 2008, <<http://english.peopledaily.com.cn/english/199911/16/eng19991116W114.html>>.

³⁶ China's Entry into WTO: A New Milestone, *People's Daily*, December 12, 2001, retrieved 28 April, 2008, <http://english.peopledaily.com.cn/200112/12/eng20011212_86490.shtml>.

³⁷ WM Morrison, 'China-U.S. trade issues', *CRS Report for Congress*, March 7, 2008, retrieved 29 April, 2008, <<http://ftp.fas.org/sgp/crs/row/RL33536.pdf>>.

economic relations have become strained over a number of issues, including large and growing U.S. trade deficits with China (which hit \$256 billion in 2007), China's failure to fully implement its World Trade Organization (WTO) commitments (especially in regards to protection of intellectual property rights), its refusal to adopt a floating currency system, its use of industrial policies and other practices deemed unfair and/or harmful to various U.S. economic sectors, and failure to ensure that its exports to the United States meet U.S. health and safety standards”³⁸.

Chart 2



Source: The Office of Trade and Industry Information (OTII), Manufacturing and Services, International Trade Administration, U.S. Department of Commerce³⁹.

However, if we compare the Chart 1 and the Chart 2, an interesting thing can be found

³⁸ WM Morrison, ‘China-U.S. trade issues’, *CRS Report for Congress*, March 7, 2008, retrieved 29 April, 2008, <http://ftp.fas.org/sfp/crs/row/RL33536.pdf>.

³⁹ The data can be found on the following website Presented by the Office of Trade and Industry Information (OTII), Manufacturing and Services, International Trade Administration, U.S. Department of Commerce, <http://tse.export.gov>.

from these figures: before 1980s, the total trade volume between China and the United States could be influenced by political conflicts. From 1990s, this kind of phenomenon could not be seen and their total trade volume maintained stable and fast growth despite political or economic conflicts.

CHAPTER 4 ANALYSIS

Since the Chinese government adopted reform and opening-up policy in 1978, trade has become an important way for China and the United States to communicate with each other and the economic influence of the United States can not be ignored in the process of China's economic growth. In this chapter, I am going to analyze the relations between China's economic growth and Sino-US trade from 1998 to 2007. The reason why I choose this period to analyze is: firstly, the Asian financial crisis occurring in 1997 and it seriously affected China's normal trade with other countries in the next year. In order to safeguard regional security and stability, the Chinese government had to make a painful decision, undertaking not to devalue the RMB, which forced China to face tremendous pressure. At the same time, for fighting off the pressure to devalue the RMB, the Chinese government changed its economic policy to expand domestic demand and stimulate economic growth. Secondly, after 1997, deflation became an obvious phenomenon in China and brought many economic problems for China's economic growth. Because China adopted deflation policy after the Asian Financial Crisis, the speed of economy development decreased slowly in the next few years. Thus, in the chapter, I am going to choose a time series model from 1998 to 2007. During this period, both China and the United States had to face some different problems about the economic development. The statistic data can reflect contemporary economic relations between them and the recent impact of the Sino-US trade on China's economic growth.

4.1 The Analysis of Total Trade Volume between China and the United States

After the 1980s, foreign trade played an important role in China's economic growth. The statistics of table 2 show that, in 1998, the trade volume of US exports to China was \$14.3 billion and the trade volume of US imports from China was \$71.2, and the total China's trade with the United States was \$85.5 billion. After 10 years, in 2007, the trade volume of US exports to China was \$65.2 billion and China exported \$321.5

billion of goods to the United States, and the total China's trade with the United States was \$386.7 billion. The trade volume between them was increasing very rapidly. During the last ten years, the only negative growth of US exports to China happened in 1999, but, one year later, in 2000, the US exports to China increased by 24.4%. Another point is the US balance with China, which has brought many problems to their trade relations. In 1998, the number of US balance with China was \$-56.9 billion, however, after ten years, the number was extended to -\$256.3 billion. According data of the table 2, we can calculate the annual percent increase for China's trade with the United States. For example, from 1998 to 2007, the annual percent increase of US exports to China was 18.22%; the annual percent increase of US imports from China was 18.01%; the annual percent increase of total trade between China and the United States was 19.66%; and the annual percent increase of US balance was 18.11%.

Table 2***China's Trade with the United States from 1978 to 2007 (\$ billion)***

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
US Exports	14.3	13.1	16.3	19.2	22.1	28.4	34.7	41.8	55.2	65.2
% change	10.9	-8	24.4	18.3	15.1	28.5	22.2	20.6	32.1	18.1
US Imports	71.2	81.8	100.0	102.3	125.2	152.4	196.7	243.5	287.8	321.5
% change	13.8	14.9	22.3	2.2	22.4	21.7	29.1	23.8	18.2	11.7
Total	85.5	94.9	116.3	121.5	147.3	180.8	231.4	285.3	343	386.7
% change	13.4	11	22.6	21.4	21.2	22.8	28	23.3	20.2	12.7
US Balance	-56.9	-68.7	-83.7	-83	-103.1	-124	-162	-201.6	-232.5	-256.3
% change	14.5	20.7	21.8	-0.9	24.2	20.3	30.6	24.4	15.3	10.2

Sources: US International Trade Commission, US Department of Commerce, and US Census Bureau⁴⁰

The table 3 shows the data of China's trade with the world from 1998 to 2007. In

⁴⁰ Most of data of the table 2 is collected from the website of *The US-China Business Council*, and the data is same as the data of the Office of Trade and Industry Information (OTII), Manufacturing and Services, International Trade Administration, U.S. Department of Commerce, and more details can be found on Appendix A, retrieved 29 April, 2008, <<http://www.uschina.org/statistics/tradetable.html>>.

1998, the trade volume of China's exports to the world was \$183.8 billion, and China spent \$140.2 billion on import goods, and the total China's trade with the world was \$324 billion. After ten years, in 2007, China exported \$1218 billion goods to the worlds, and imported \$955.8 billion goods from the other countries. Moreover, after a rapid growth during the last ten years, the total China's trade with the world increased to \$2173.8 billion in 2007. According to the data of table 3, we can calculate the annual percent increase of China's trade with the world. For instance, from 1998 to 2007, the annual percent increase of China's exports to the world was 21.49%; the annual percent increase of China's imports from the world was 21.61%; the annual percent increase of total China's trade with the world was 21.50%.

Table 3 China's Trade with the World from 1978 to 2007 (\$ billion)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Exports	183.8	194.9	249.2	266.2	325.6	438.2	593.3	762	969.1	1,218.00
% change	0.5	6.1	27.8	6.8	22.4	34.6	35.4	28.4	27.2	25.7
Imports	140.2	165.7	225.1	243.6	295.2	412.8	561.2	660	791.6	955.8
% change	-1.5	18.2	35.8	8.2	21.2	39.8	36	17.6	20	20.8
Total	324	360.6	474.3	509.8	620.8	851	1,154.60	1,421.90	1,760.70	2,173.80
% change	-0.4	11.3	31.5	7.5	21.8	37.1	35.7	23.2	23.8	23.5
Balance	43.5	29.2	24.1	22.5	30.4	25.5	32.1	102	177.5	262.2

Sources: US International Trade Commission, US Department of Commerce, and US Census Bureau

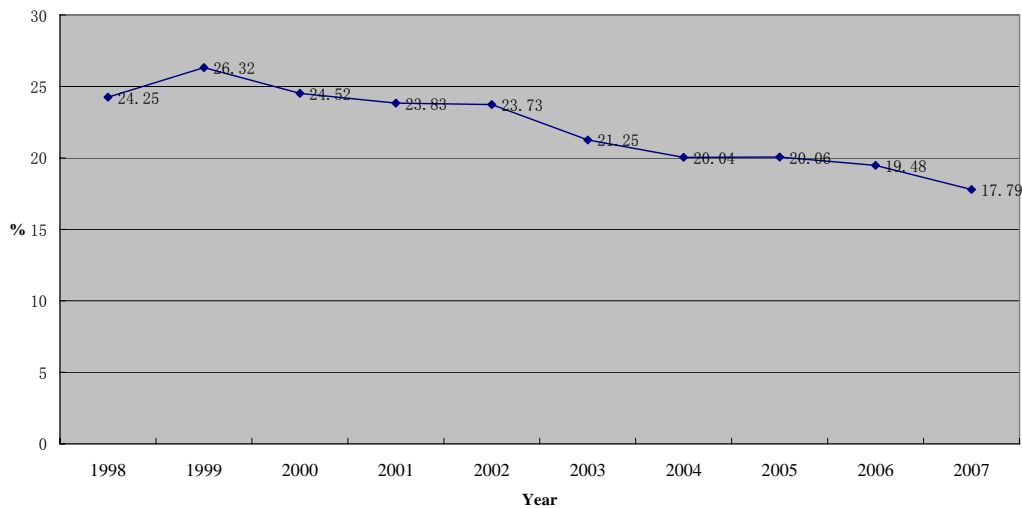
If we compare the table 2 and table 3, we can find that every category of annual percent increase of China's trade with the United States, including exports, imports and their total trade, is lower than that of China's trade with the world. From 1998 to 2007, the annual percent increase of China's exports to the United States was 18.01%, but the annual percent increase of China's exports to the world was 21.49%; the annual percent increase of China's imports from the United States was 18.22%, but the annual percent increase of China's imports from the world was 21.61%. The annual percent increase of total trade between China and the United States was 19.66%, but the annual percent increase of total China's trade with the world was

21.50%.

I combine the data of table 2 and table 3 together and get the chart 3 which also reflects this kind of phenomenon. In the chart 3, we can find that the proportion of China's trade with US to China's trade with the world reached a peak, 26.32%, in 1999 during the last ten years. However, since 1999, the proportion has experienced a downward trend. In 2007, the proportion of China's trade with US to China's trade with the world reached the minimum value, 17.79%. According to the table 2, the table 3 and the Chart 3, can we make the conclusion that the U.S. status in China's trade development is not as important as before? In the following, I will discuss more details about U.S. status during the last ten years.

Chart 3

China's Trade with US / China's Trade with the World



Sources: US International Trade Commission, US Department of Commerce, and US Census Bureau

Table 4: Top Ten Countries with which the U.S. Trades in 1998

Country Name	Total in Billions of U.S. \$
Canada	329.00
Japan	179.87
Mexico	173.72
Federal Republic of Germany	76.47
China	85.41
United Kingdom	73.86
Korea, Republic of	40.47
Taiwan	51.28
France	41.81
Singapore	34.03

Note: The values given are for Imports and Exports added together. These Countries represent 71.71% of U.S. Imports, and 63.82% of U.S. Exports in goods.

Source: FTDWebMaster, Foreign Trade Division, U.S. Census Bureau, Washington, D.C. 20233⁴¹

Table 5: Top Ten Countries with which the U.S. Trades in 2007

Country Name	Total in Billions of U.S.\$
Canada	561.55
China	386.75
Mexico	347.34
Japan	208.13
Federal Republic of Germany	144.02
United Kingdom	107.19
Korea, South	82.27
Taiwan	64.66
Saudi Arabia	46.03
France	69.00

Note: The values given are for Imports and Exports added together. These Countries represent 64.87% of U.S. Imports, and 58.67% of U.S. Exports in goods.

Source: FTDWebMaster, Foreign Trade Division, U.S. Census Bureau, Washington, D.C. 20233⁴²

⁴¹ The data can be found on the website of U.S. Census Bureau, created: 11 October 2007, retrieved 30 April, 2008,

<<http://www.census.gov/foreign-trade/top/dst/1998/12/balance.html>>.

⁴² The data can be found on the website of U.S. Census Bureau, created: 11 October 2007,

The table 4 and the Table 5 show us top ten countries with which the U.S. trades in 1998 and 2007. From data of the table 4, in 1998, we could find that Canada was the most important trade partner of the United States and the total trade between them was \$329.00 billion. Japan was in the second and its total trade volume was \$179.87 billion. China ranked No.5 in the top ten countries with which the U.S. trades in 1998 and the total trade volume is \$85.41 billion⁴³. After 10 years, in 2007, the rank has been changed (see table 5). In this year, the total trade volume between the United States and Canada was \$561.55 billion; the total trade volume between the United States and Japan was only \$208.13 billion, which was very close its data in 1998. A significant change is that the total trade volume between the United States and China increased from \$85.41 billion in 1998 to \$386.75 billion in 2007. Although Canada still was the most important trade partner of the United States, Japan has lost its place to China as the second largest trade partner of the United States. Based on the data of Foreign Trade Division of U.S. Census Bureau, the total trade volume between China and the United States has increased by 4.53 times during the last ten years. Thus, from this point of view, the United States does play an important role on the China's trade development from 1998 to 2007, even though we probably can get another different impression about it from the Chart 3. However, the data only can prove that China is a very important trade partner of the United States. We need to find out evidences from China to prove if the United States was one of the most important partners of China and how it changed though out these years.

According to the data of table 6, Japan was the most important trade partner of China and the total trade volume between was \$57.90 billion in 1998. The United States was in the second place and its total trade volume with China was \$54.94 billion (because

retrieved 30 April, 2008,

<<http://www.census.gov/foreign-trade/top/dst/2007/12/balance.html>>.

⁴³ This data is little different with the data of table 2 in 1998, which is collected from the Office of Trade and Industry Information (OTII), Manufacturing and Services, International Trade Administration, U.S. Department of Commerce, but it does not have any influence on the result of the table 4.

the Chinese government and the US government adopt statistical methods, the results in the same year are different, but, from my point of view, it does not change the status and influence of each country on their economic development). After ten years, the table 7 shows us that Japan's place has been replaced by the United States which became the most important trade partner of China. In that year, the total trade volume between Japan and China was \$236 billion and China's total trade with the United States was \$302.1 billion. We also should notice that Russia was the last one of China's top ten trade partners in 1998 and its total trade with China was only \$5.48, but, in 2007, China's total trade with the Netherlands, the last one of China's top ten trade partners, was \$46.3 billion. It probably can prove that China's foreign trade has made big progress during the last ten years from one aspect. In this process, the United States has become the most important China's trade partner and China has also come to be the second largest trade partner of the United States. In this case, we can say that the United States played an important role in China's economic development from 1998 to 2007.

Table 6: China's Top Ten Trade Partners in 1998

Country Name	Total in Billions of U.S.\$
Japan	57.90
United States	54.94
Hong Kong	45.41
South Korea	21.24
Taiwan	20.50
Germany	14.35
Singapore	8.15
United Kingdom	6.58
Netherlands	6.00
Russia	5.48

Source: PRC General Administration of Customs, China's Customs Statistics⁴⁴

⁴⁴ Due to different statistical methods adopted by Chinese government and US government, most of data collected from China's Customs statistics is different with the data of US International Trade Commission, US Department of Commerce, and US Census Bureau. The data of table 6 can be found in 'China Operations' 99 – China's Foreign Trade', *The report of the US-China Business Council*, March 4, 1999, retrieved 30 April, 2008,

Table 7: China's Top Ten Trade Partners in 2007

Country Name	Total in Billions of U.S.\$
United States	302.1
Japan	236
Hong Kong	197.2
South Korea	159.9
Taiwan	124.5
Germany	94.1
Russia	48.2
Singapore	47.2
Malaysia	46.4
The Netherlands	46.3

*Source: PRC General Administration of Customs, China's Customs Statistics*⁴⁵

4.2 The Analysis of the Degree of China's Foreign Trade Dependency on the United States

Through the analysis of total trade volume between China and the United States, we know that the United States has become a significant component of China's economic growth. China's trade with the United States kept fast development from 1998 to 2007. On the one hand, this rapid increase of China's trade with the United States and China's trade favorable balance brought many benefits for China's economic development. On the other hand, they also caused a lot of trade conflicts. For example, the government of the United States continues to apply increased pressure on the Chinese government in an attempt to cause fluctuations of the RMB exchange rate. The rapid increase of China's foreign trade also bring a problem: how can we evaluate the degree of China's foreign trade dependency on the United States?

One of important conceptions to evaluate this situation in the economic field is the

<<http://www.chinaus.net/BARRIERS.htm>>.

⁴⁵ The data of table 7 also has to face the same problem like the table 6. The data can be found on the website of the US-China Business Council, retrieved 30 April, 2008,

<<http://www.uschina.org/statistics/tradetable.html>>.

ratio of dependence on foreign trade. Actually, many scholars have different views about the concept of the ratio of dependence on foreign trade. We can find several ways to calculate the ratio, but, in this paper, due to the limitation of data collection, I choose a traditional way to calculate the ratio of dependence on foreign trade. In this way, the ratio of dependence on foreign trade can be seen as the proportion of volume of import and export in gross domestic product (GDP)

Table 8: China's GDP and the Ratio of Dependence on Foreign Trade with the World from 1998 to 2007 (The World Bank)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GDP (US\$, billion)	1019.5	1083.3	1198.5	1324.8	1453.5	1641.0	1931.6	2243.9	2644.7	N/A
Exports of goods and services (% of GDP)	20	20	23	23	25	30	34	37	40	N/A
Imports of goods and services (% of GDP)	16	18	21	20	23	27	31	32	32	N/A
Total Trade of goods and services (% of GDP)	36	38	44	43	48	57	65	69	72	N/A

*Source: The World Bank Group*⁴⁶

The table 8 show us China's GDP and the ratio of dependence on foreign trade with the world from 1998 to 2006. In 1998, the China's GDP was \$1019.5 billion. And, in 2006, the China's GDP increased to \$2644.7 billion. China's ratio of dependence on foreign trade with the world increased from 36% in 1998 to 72% in 2006, and we can calculate that the average ratio was 52.44%. The Chart 4 tells us the trend of China's ratio of dependence on foreign trade with the world was keeping increase from 1998 to 2006 and the only fluctuation happened in 2001. Based on the data of table 8, we

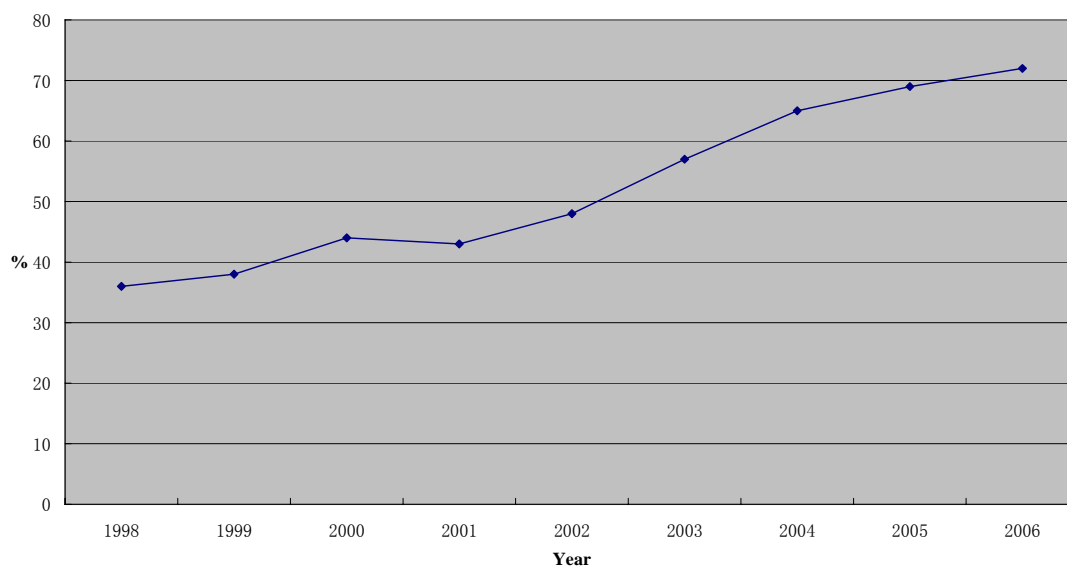
⁴⁶ All of the data is collected from the website of the World Bank Group. Due to some unknown reasons, the World Bank does not supply us with data about China's GDP in 2007, retrieved 2 May, 2008,

<<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/0,,menuPK:476823~pagePK:64165236~piPK:64165141~theSitePK:469372,00.html>>.

can say that, with the rapid growth of GDP, the status of foreign trade in China's economic growth is getting more and more important.

Chart 4

China's Ratio of Dependence on Foreign Trade with the World



Source: The World Bank Group

If we compare the U.S. ratio of dependence on foreign trade with the world with China's ratio of dependence on foreign trade with the world in the same period, we can find that the ratio of the United States was more stable and much lower than the ratio of China (See table 9). For example, in 1998, the GDP of the United States was \$8694.6 billion and the ratio of dependence on foreign trade with the world was only 24%. In 2005, the GDP of the United States increased to \$13163.9 billion, and the ratio was 27% which was quite similar with the data in 1998. From 1998 to 2005, the average ratio was only 24.9%. But, China's ratio of dependence on foreign trade with the world increased from 36% in 1998 to 69% in 2005 and the average ratio was 52.44% which was much higher than the ratio of the United States. The comparison between them can tell us that the foreign trade has more influence on China than on the United States.

Table 9: U.S. GDP and the Ratio of Dependence on Foreign Trade with the World from 1998 to 2007 (The World Bank)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GDP (US\$, billion)	8694.6	9216.2	9764.8	10075.8	10417.6	10908	11657.3	12397.9	13163.9	N/A
Imports of goods and services (% of GDP)	13	14	15	14	14	14	15	16	N/A	N/A
Exports of goods and services (% of GDP)	11	11	11	10	10	10	10	11	N/A	N/A
Total Trade of goods and services (% of GDP)	24	25	26	24	24	24	25	27	N/A	N/A

*Source: The World Bank Group*⁴⁷

Here, I also want to write something about the data. The data of the World Bank does not give us enough data from 1998 to 2007. Actually we can find more complete data on different databases. For example, MarketLine Business Information Centre can supply complete economic data about this discuss for us (see table 10 & table 11). The reason why I analyze the data of the World Bank Group first in this part is they are more authoritative than the other sources. But, we can use data of other sources to support the conclusion made by the data of the World Bank Group.

Based on the data of MarketLine Business Information Centre, China's ratio of dependence on foreign trade with the world increased from 36.4% in 1998 to 75.3% in 2007, and the average ratio was 54.6% which was quite similar with the data of the World Bank Group. The ratio of the United States was 23.2% in 1998 and it only increased to 28.8%. The average ratio of the United States was 25.0% which was also quite similar with the data of the World Bank Group and was much lower than the China's average ratio. Thus, in this case, we can get the same conclusion that the

⁴⁷ The data of table 9 also has the same problem as the data of table 8. The World Bank does not supply enough data for 2006 and 2007. The data can be found on the following website of the World Bank, retrieved 2 May, 2008, <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/0,,menuPK:476823~pagePK:64165236~piPK:64165141~theSitePK:469372,00.html>.

foreign trade has more influence on China's economy than on U.S. economy, although the data of MarketLine Business Information Centre have a little difference with the data of the World Bank Group.

Table 10: China's GDP and the Ratio of Dependence on Foreign Trade with the World from 1998 to 2007 (MarketLine Business Information Centre)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GDP, Current Prices, US Dollars [Billion]	1026.6	1087.8	1197.6	1322.8	1453.5	1643.1	1933.1	2250.2	2647.0	3097.4
GDP, Current Prices, US Dollars [Growth Rate]	-6.2	0.5	14.8	-3.1	11.1	17.5	15.0	9.6	7.8	2.4
Exports as % of GDP	20.2	20.3	23.3	22.6	25.1	29.5	33.9	37.1	40.1	41.0
Imports as % of GDP	16.2	18.1	21.8	21.4	23.5	28.5	32.7	33.0	33.7	34.3
Total Trade as % of GDP	36.4	38.4	45.1	44.0	48.6	48.0	66.6	70.1	73.8	75.3

*Source: MarketLine Business Information Centre*⁴⁸

Table 11: U.S. GDP and the Ratio of Dependence on Foreign Trade with the World from 1998 to 2007 (MarketLine Business Information Centre)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GDP, US Dollars [Billion]	8748.1	9269.3	9817.7	10128.6	10470.1	10961.1	11685.9	12433.7	13194.2	13948.7
Exports as % of GDP	10.5	10.3	10.8	9.8	9.2	9.2	9.8	10.1	10.8	11.4
Imports as % of GDP	12.7	13.4	14.9	13.7	13.5	13.9	15.3	16.2	16.9	17.4
Total Trade as % of GDP	23.2	23.7	25.7	23.5	22.7	23.1	25.1	26.3	27.7	28.8

Source: MarketLine Business Information Centre

Now we know China's ratio of dependence on foreign trade with the world. In the following, I will discuss China's ratio of dependence on foreign trade with the United States. Through the research, we would know the degree of China's economic dependence on the U.S. economy. In his part, I still have to face a problem about the

⁴⁸ MarketLine Business Information Centre compiles business information services to create Company, Industry and Country Profiles. *Country Profiles* includes a description of the country's economic performance and GDP, an assessment of the potential for development and detailed market and industry analysis of the country's business environment. The data can be found on the following website, retrieved 2 May, 2008,

<<http://www.marketlineinfo.com>>.

data, because the World Bank Group does not supply China's GDP in 2007. But, the good thing is, on February 28, 2008, National Bureau of Statistics of China published *Statistical Communiqué of the People's Republic of China on the 2007* which stated that, in 2007, "the gross domestic product (GDP) of the year was 24,661.9 billion yuan, up by 11.4 percent over the previous year"⁴⁹. Here, I also have to face a problem about this data, because yuan is Chinese currency and the National Bureau of Statistics of China does not supply China's GDP measured in U.S. dollars for us. However, on the website of International Monetary Fund, we can find that IMF staffs have estimated China's GDP in 2007 with both Chinese currency and U.S. dollars. One important thing is the data of China's GDP in 2007, 24,663.7 billion yuan, estimated by them is very similar with the data published by the National Bureau of Statistics of China. And, another important thing is the data of IMF about China's GDP is almost completely the same as the data of the World Bank. Thus, I decide to adopt IMF's data, China's GDP from 1998 to 2007, to analyze China's ratio of dependence on foreign trade with the United States.

Based on the data of table 12, China's ratio of dependence on foreign trade with the United States increased from 8.4% in 1998 to 11.9% in 2007. During the period, the ratio reached the bottom in 1999, 8.3%, and achieved the top in 2006, 13%. If we compare the ratio of exports to GDP and the ratio of imports to GDP, we can find that the ratios of exports to GDP had more influence on the total trade to GDP and the ratios of imports to GDP were relatively stable except the data of 1999 and 2000. We can see this problem more clearly from Chart 5 which probably indicates that the effect of the United States as an export market of China is much greater than it as an import market of China in the process of China's economic growth during this period. In 2006, we can see a turning point because the ratio of exports to GDP, the ratio of

⁴⁹ 'Statistical Communiqué of the People's Republic of China on the 2007', *National Bureau of Statistics of China*, 28 February, 2008, retrieved 3 May, 2008, <http://www.stats.gov.cn/was40/gjtjj_en_detail.jsp?searchword=gdp&channelid=9528&record=4>.

imports to GDP and the ratio of total trade to GDP started to decrease significantly after that year. In 2007, the ratio of exports to GDP decreased by 1% to 9.9%, and the ratio of imports to GDP decreased by 0.1% to 2.0%, and the ratio of total trade to GDP decreased by 1.1% to 11.9%.

From 1998 to 2007, China's ratio of dependence on foreign trade with the United State followed an almost continuous rise, except in 1999 and in 2007. From the change absolute value of China's ratio of dependence on foreign trade with the United States, probably, we can say that the status of United States was getting more and more important than before for China's economic development. However, if we compare these two kinds of China's ratios of dependence on foreign trade (with the world and with the United States), what conclusion can be drawn from this comparison?

Table 12: China's Ratio of Dependence on Foreign Trade with the United States from 1998 to 2007

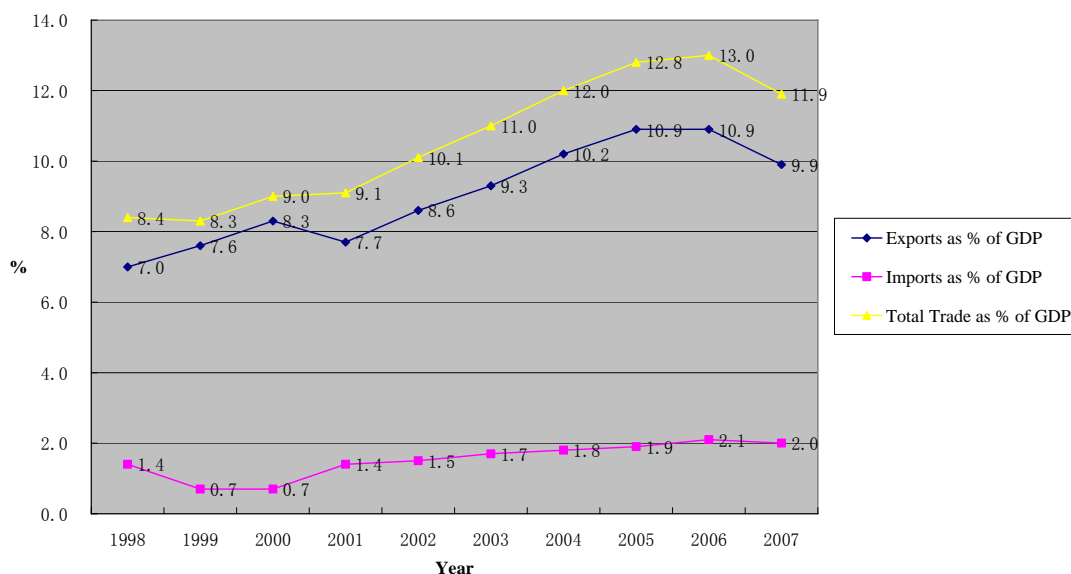
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
China's GDP (US\$ Billion)	1019.5	1083.3	1198.5	1324.8	1453.8	1641.0	1931.6	2243.7	2644.6	3250.8
China's Exports to US (US\$ Billion)	71.2	81.8	100.0	102.3	125.2	152.4	196.7	243.5	287.8	321.5
China's Imports From US (US\$ Billion)	14.3	13.1	16.3	19.2	22.1	28.4	34.7	41.8	55.2	65.2
Exports as % of GDP	7.0	7.6	8.3	7.7	8.6	9.3	10.2	10.9	10.9	9.9
Imports as % of GDP	1.4	0.7	0.7	1.4	1.5	1.7	1.8	1.9	2.1	2.0
Total Trade as % of GDP	8.4	8.3	9.0	9.1	10.1	11.0	12.0	12.8	13.0	11.9

Source: International Monetary Fund⁵⁰ & US International Trade Commission, US Department of Commerce, and US Census Bureau

⁵⁰ The data of table 11 about China's GDP can be found on the following website of International Monetary Fund, retrieved 3 May, 2008, <<http://www.imf.org/external/data.htm>>.

Chart 5

China's Ratio of Dependence on Foreign Trade with the United States



Source: International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau

In the first part of this chapter, we know that the trade volume between China and the United States was increasing very rapidly from 1998 to 2007 (See table 2). The table 13 also shows that China's ratio of dependence on foreign trade with the United States increased from 8.4% in 1998 to 11.9% in 2007 and the average ratio was 10.6%. We also can know the China's ratio of dependence on foreign trade with the world from the table 14 which shows that it increased from 36% in 1998 to 72% in 2006, and the average ratio was 52%. In order to answer the above question, I believe the average annual growth rate will be useful.

Based on the data of table 13 and table 14, we can find that the average annual growth rate of China's ratio of dependence on foreign trade with the United States was 4.3% from 1998 to 2007, but the average annual growth rate of China's ratio of dependence on foreign trade with the world was 7.4% from 1998 to 2006. We do not have the data of 2007 in the table 14. However, we can assume that the data of 2007 can be in the

average level. In this case, if we compare the two kinds of China's ratios of dependence on foreign trade (with the world and with the United States), we can make the conclusion that absolute position of the United States in China's economic growth was increasing but the relative position was decreasing. In other words, the absolute value of the degree of China's foreign trade dependency on the United States increased obviously, however, the relative value of the degree of China's foreign trade dependency on the United States actually decreased.

The Chart 6 shows that the slope of curve of China's trade with the United States is much lower than the slope of curve of China's trade with other countries or China's trade with the world. The Chart 7 shows a continuing decline in the trend for the relative position of China's trade with the United States in the development of China's foreign trade. For example, the ratio of China's trade with the United States was about 26% in 1998 and it decreased to 18% in 2007. Both Chart 6 and Chart 7 can clearly reflect this phenomenon that the relative position of the United States in China's foreign trade kept decreasing, although the total trade between China and the United States was increasing rapidly during this period. From my point of view, the reason of this phenomenon could be that China rapidly developed its trade relations with other countries or had more trade partner than before during the last ten years.

In addition, I also want to point out that the table 13 and table 14 tell us important information that the average annual growth rate of imports as percent of GDP with the United States was 9.5% which was higher than the average annual growth rate of imports as percent of GDP with the world, 7.7%. Under this situation, I think we can deduce that the development of China's imports from the United States was faster than the average level of the development of China's imports from other countries. But, China's import dependency ratio to the United States was much lower than export dependency ratio. The average China's import dependency ratio to the United States was only 1.5% and the average China's export dependency ratio to the United States was 9.0%. In this case, can we get the conclusion that China's economic

growth is more relying on exports to the United States than on imports to the United States? I will discuss this problem in the next part of this chapter.

Table 13: Some Data about China's Ratio of Dependence on Foreign Trade with the United States from 1998 to 2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
Exports as % of GDP	7.0	7.6	8.3	7.7	8.6	9.3	10.2	10.9	10.9	9.9	9.0
Growth Rate of Exports as % of GDP	6.1	8.6	9.2	7.2	11.7	8.1	9.7	6.9	0.0	-9.2	5.8
Imports as % of GDP	1.4	0.7	0.7	1.4	1.5	1.7	1.8	1.9	2.1	2.0	1.5
Growth Rate of Imports as % of GDP	7.7	-50.0	0.0	100.0	7.1	13.3	5.9	5.6	10.5	-4.8	9.5
Total Trade as % of GDP	8.4	8.3	9.0	9.1	10.1	11.0	12.0	12.8	13.0	11.9	10.6
Growth Rate of Total Trade as % of GDP	6.3	-1.2	8.4	1.1	11.0	8.9	9.1	6.7	1.6	-8.5	4.3

Source: International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau

Table 14: Some Data about China's Ratio of Dependence on Foreign Trade with the World from 1998 to 2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
Exports as % of GDP	20	20	23	23	25	30	34	37	40	N/A	28
Growth Rate of Exports as % of GDP	-9.1	0.0	15.0	0.0	8.7	20.0	13.3	8.9	8.1	N/A	7.2
Imports as % of GDP	16	18	21	20	23	27	31	32	32	N/A	24
Growth Rate of Imports as % of GDP	-5.9	12.5	16.7	-4.8	15.0	17.4	14.8	3.2	0.0	N/A	7.7
Total Trade as % of GDP	36	38	44	43	48	57	65	69	72	N/A	52
Growth Rate of Total Trade as % of GDP	-7.7	5.6	15.8	-2.3	11.6	18.8	14.0	6.2	4.3	N/A	7.4

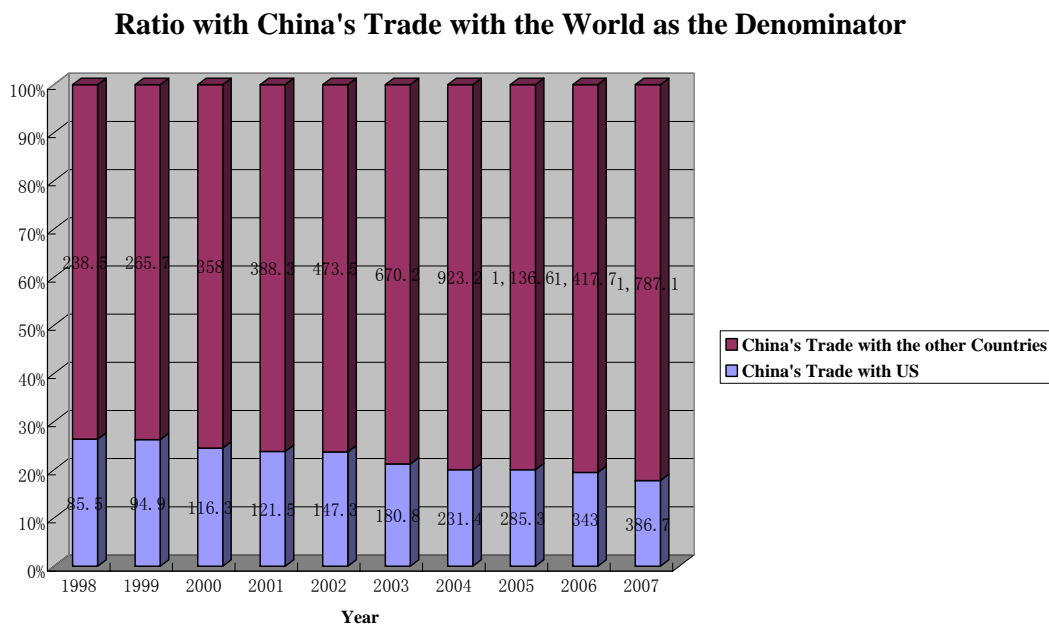
Source: The World Bank Group & US International Trade Commission, US Department of Commerce, and US Census Bureau

Chart 6



Source: US International Trade Commission, US Department of Commerce, and US Census Bureau

Chart 7



Source: US International Trade Commission, US Department of Commerce, and US Census Bureau

4.3 The Analysis of the Influence of Sino-US Trade on China's GDP Growth

In the last part of this chapter, I analyze the degree of China's foreign trade dependency on the United States from 1998 to 2007. In this part, I am going to discuss the influence of Sino-US trade on China's GDP growth. In order to deeply analyze this kind of influence, I adopt the annual data of total trade, exports and imports between China and the United States. And then, I get the following table 15.

Table 15: China's GDP and China's Trade with the United States from 1998 to 2007
(\$ billion)

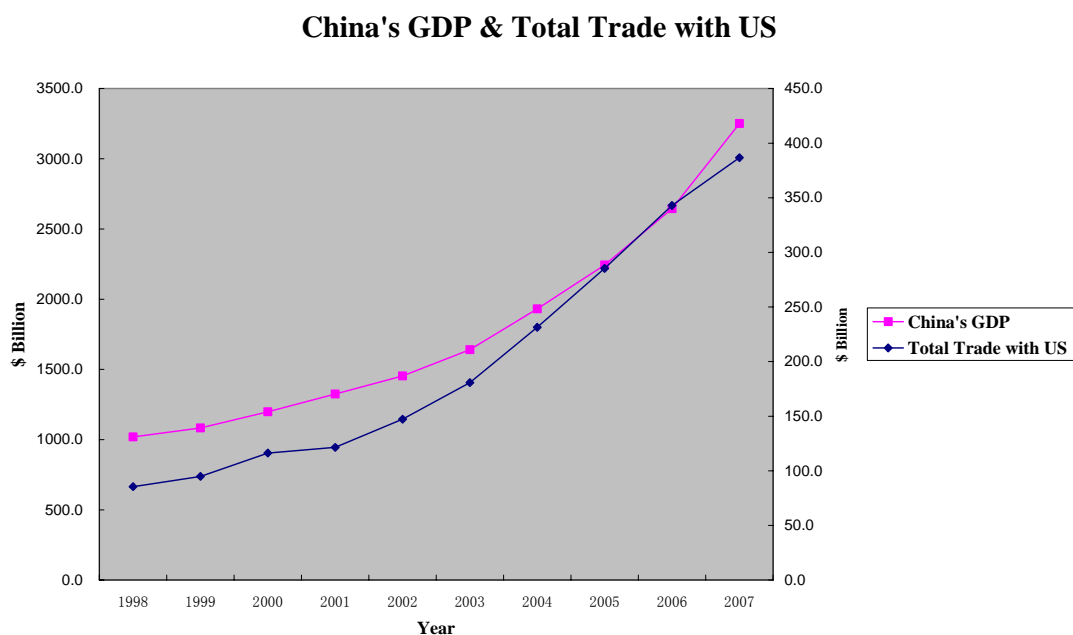
	China's GDP	Total Trade with US	China's Exports to US	China's Imports from US
1998	1019.5	85.5	71.2	14.3
1999	1083.3	94.9	81.8	13.1
2000	1198.5	116.3	100.0	16.3
2001	1324.8	121.5	102.3	19.2
2002	1453.8	147.3	125.2	22.1
2003	1641.0	180.8	152.4	28.4
2004	1931.6	231.4	196.7	34.7
2005	2243.7	285.3	243.5	41.8
2006	2644.6	343.0	287.8	55.2
2007	3250.8	386.7	321.5	65.2

Sources: International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau

After that, firstly, I use these data to make three broken-line graphs in MS Excel (see chart 8, chart 9 and chart 10). In these charts, I use the year as the X-axis and use the value of China's GDP as the Y-axis. In the chart 8, I choose the value of total trade with US as the minor Y-axis. In the chart 9, I pick the value of China's exports to US as the minor Y-axis. And, in the chart 10, I use the value of China's imports as the minor Y-axis. After observing chart 8, chart 9 and chart 10, I notice that all of China's GDP, total trade with US, China's exports to US and China's imports from US have shown an upward trend, and their changes and trends are quite similar. Thus, we can

find some kind of relations between the growth of China's GDP and the volume of total trade with US or the volume of China's exports to US or the volume of China's imports to US.

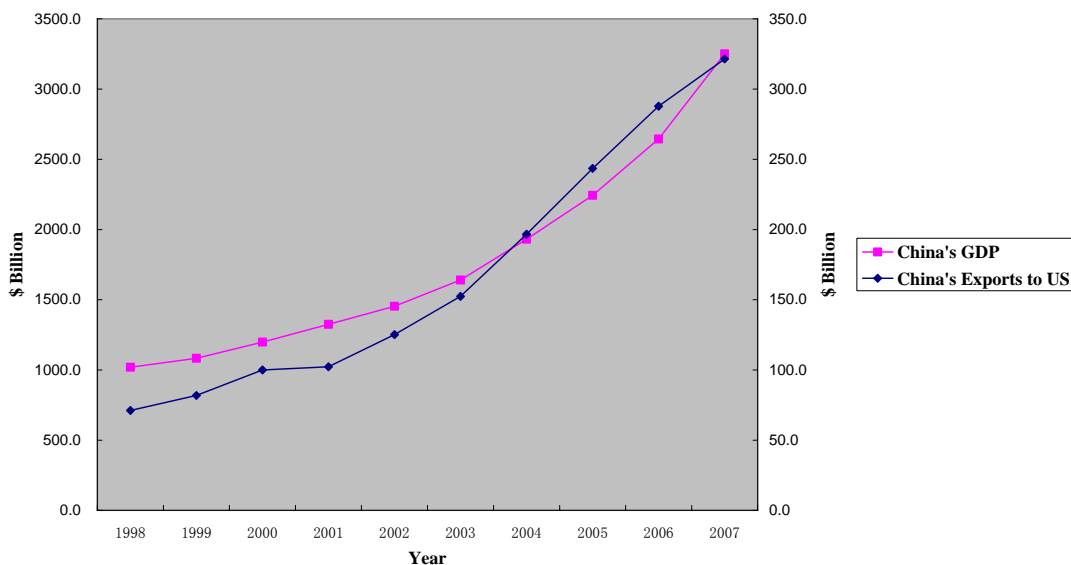
Chart 8



Sources: International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau

Chart 9

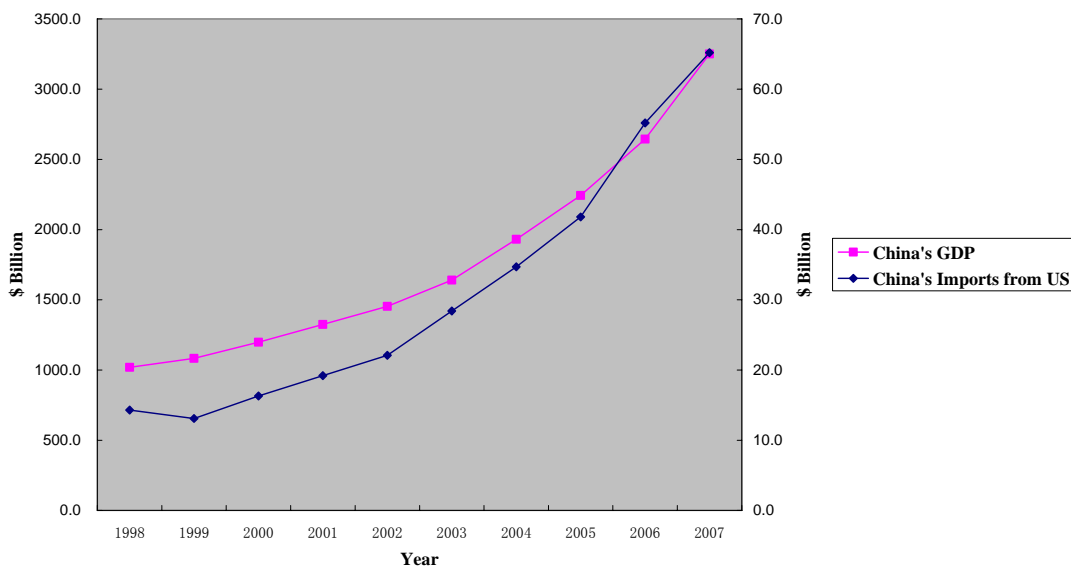
China's GDP & China's Exports to US



Sources: International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau

Chart 10

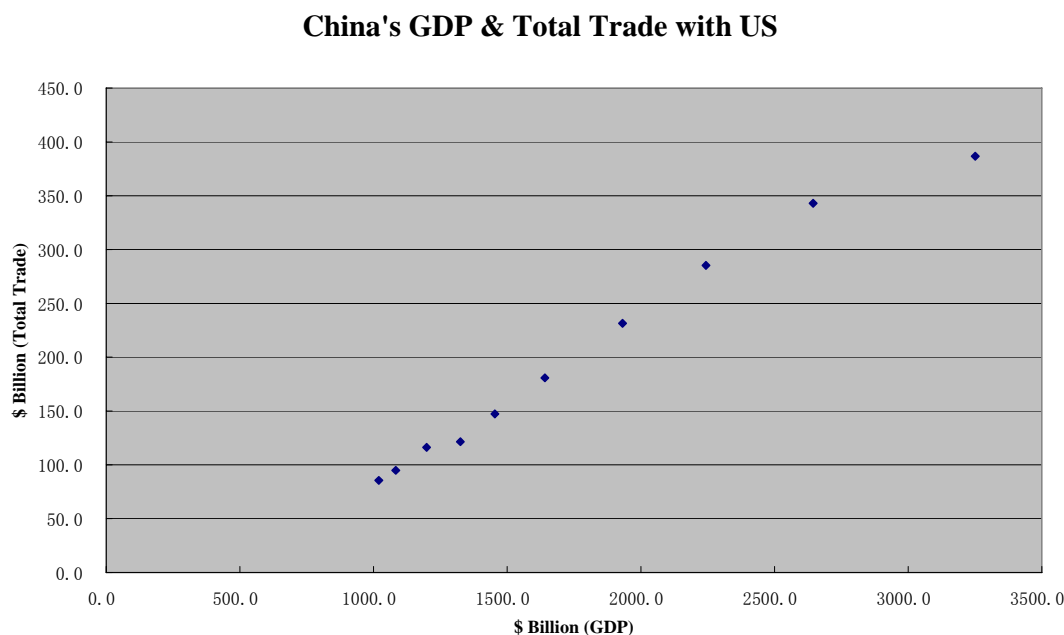
China's GDP & China's Imports from US



Sources: International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau

Secondly, in order to test if the growth of China's GDP has linear relationship with the volume of total trade with US or the volume of China's imports from US or China's exports to US, I use the same data to make three scatter plots in MS Excel (see chart 11, chart 12 and chart 13). In these three charts, I use the value of China's GDP as the X-axis. In the chart 11, I choose the value of total trade with US as the Y-axis. In the chart 12, I pick the value of China's exports to US as the Y-axis. And, in the chart 13, I use the value of China's imports to US as the Y-axis. After observing these three charts, we can see that the arrangements of these points in chart 11, chart 12 and chart 13 are tending to become straight lines except several points. This result can tell us that the growth of China's GDP has linear relationship with the volume of total trade with US, the volume of China's export to US and the volume of China's imports to US.

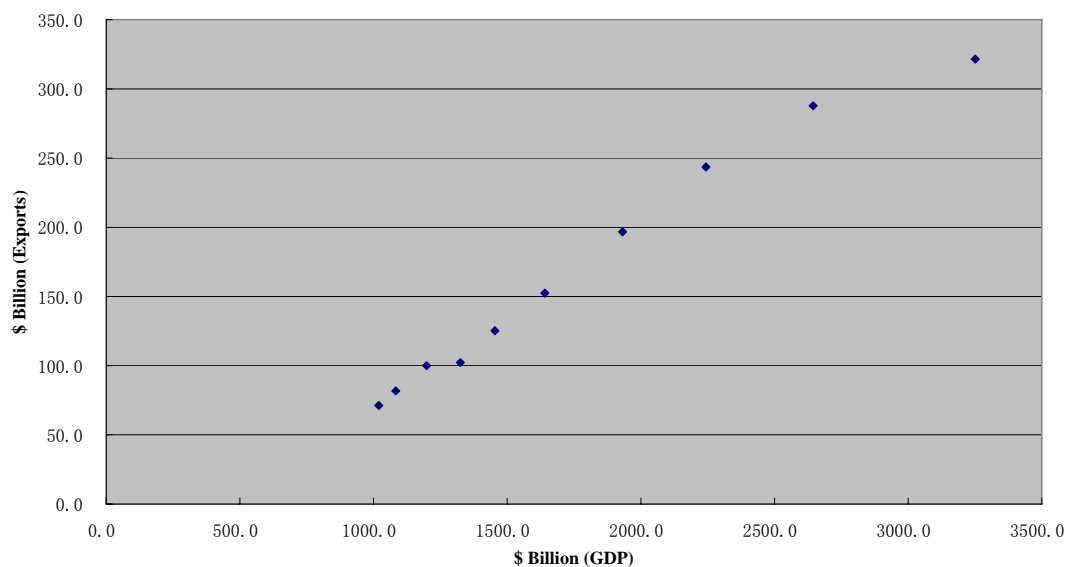
Chart 11



Sources: *International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau*

Chart 12

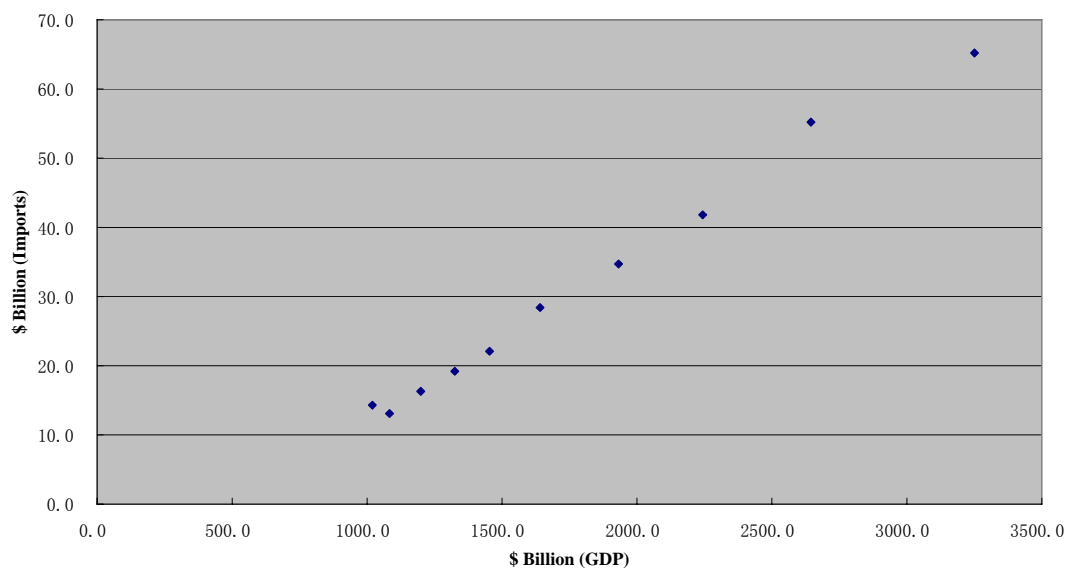
China's GDP & China's Exports to US



Sources: International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau

Chart 13

China's GDP & China's Imports from US



Sources: International Monetary Fund & US International Trade Commission, US Department of Commerce, and US Census Bureau

Now, after analyzing these broken-line graphs and scatter plots, we can think that growth of China's GDP does have linear relationship with the volume of total trade with US, the volume of China's export to US and the volume of China's imports to US, and we even can describe the general shape of these data. But, the problem is that we do not how close relationship they have between each other. In this case, we need to know the correlation coefficient between the growth of China's GDP and the volume of total trade with US or the volume of China's exports to US or the volume of China's imports to US.

The Correlation Coefficient can tell us the strength and direction of linear relations between two random variables. And, the Correlation Coefficient Formula is:

$$r = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\frac{\sum (x - \bar{x})^2}{n}} \sqrt{\frac{\sum (y - \bar{y})^2}{n}}}$$

Note: *n* represents the number of items; *x* is independent variable and *y* is dependent variable

I use MS Excel to calculate the Correlation Coefficient of China's GDP and total trade with US and get the following table 16 which shows that the Correlation Coefficient between them is 0.992043563. And, it is very necessary to carry out the correlation test. I assume that there is no linear relationship between China's GDP and total trade with US:

$$H_0: \rho = 0, H_1: \rho \neq 0$$

$$T = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Note: *I use two-tailed tests and set a statistical significance level at 0.05*

After calculating relative data by MS Excel, I get the result which can prove that the value of T is much bigger than the value of $t_{\alpha/2}$, and I also use Excel's *TDIST Function* to get the P-value, 1.7366E-08, which is significantly less than 0.05. Both of these results do not satisfy the original assumption. Thus, we can make the conclusion that there is a high positive correlation between China's GDP and Total trade with US.

Table 16: Correlation Coefficient of China's GDP and Total Trade with US (1998-2007)

	China's GDP	Total Trade with US
China's GDP	1	
Total Trade with US	0.992043563	1

I also use the same way to calculate the Correlation Coefficient of China's GDP and China's exports to US and the Correlation Coefficient of China's GDP and China's imports from US (see table 17 and table 18). The Correlation Coefficient of China's GDP and China's exports to US is 0.989796808. After carrying out the correlation text, I know that the value of T is much bigger than the value of $t_{\alpha/2}$ and the P-value, 4.68376E-08, is obviously less than 0.05. The Correlation Coefficient of China's GDP and China's imports from US is 0.996708761. The results of MS Excel show that the value of T is still bigger than the value of $t_{\alpha/2}$ and this P-value is 5.11328E-10 which is also significantly less than 0.05. Therefore, this correlative analysis indicates that the high positive correlation can be observed not only between China's GDP and China's exports to US but also between China's GDP and China's imports from US. Here, I need to point out that the Correlation Coefficient of China's GDP and China's imports from US, 0.996708761, is the highest among these three different Correlation Coefficients.

Table 17: Correlation Coefficient of China's GDP and China's Exports to US (1998-2007)

	China's GDP	China's Exports to US
China's GDP	1	
China's Exports to US	0.989796808	1

Table 18: Correlation Coefficient of China's GDP and China's Imports from US (1998-2007)

	China's GDP	China's Imports from US
China's GDP	1	
China's Imports from US	0.996708761	1

The analysis of Correlation Coefficient of China's GDP, China's imports from US and China's exports to US has proven that there are three different kinds of high positive correlations among them. Thus, it is possible for us to use the method of Ordinary Least Square (OLS) to make regression analysis. Firstly, I assume that the influence of other factors on China's economic growth is stable. Secondly, I regard China's GDP as a dependent variable and see total trade with US as an independent variable. Then, I try to create a simple linear regression model:

$$y_c = a + bx$$

$$\begin{cases} b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2} = \frac{\overline{xy} - \bar{x} \cdot \bar{y}}{\sigma^2} \\ a = \frac{\sum y}{n} - b \frac{\sum x}{n} = \bar{y} - b\bar{x} \end{cases}$$

Note: $\overline{xy} = \frac{\sum xy}{n}$

The process of calculation is complicated, but the good thing is that we still can use MS Excel to resolve this problem (see table 19).

Table 19: Regression Analysis of China's GDP and Total Trade with US (1998-2007)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.992043563
R Square	0.984150431
Adjusted R Square	0.982169235
Standard Error	98.3635241
Observations	10

ANOVA

	df	SS	MS	F	Significance
					F
Regression	1	4806203.801	4806203.801	496.7455928	1.7366E-08
Residual	8	77403.06299	9675.382874		
Total	9	4883606.864			

	Coefficients	Standard	t Stat	P-value	Lower 95%	Upper 95%	Lower	Upper
		Error					95.0%	95.0%
Intercept	424.7255501	68.26830044	6.221416783	0.000253451	267.2985671	582.1525331	267.2985671	582.1525331
X Variable 1	6.796981231	0.30496434	22.28779022	1.7366E-08	6.093732203	7.500230259	6.093732203	7.500230259

According to the data of table 19, we know that R Square is 0.984150431 which suggests that goodness of fit of the linear model is good. The value of F is 496.7455928 and it is big enough and result of the test for linear relation indicates that regression effect of simple the linear regression model is significant. Moreover, both the result of t-test for significance of the regression coefficient, 22.28779022, and P-value, 1.7366E-08, which is much less than 0.05, can us that the influence of independent variable on the dependent variable is significant. In other words, the total trade with US really has significant influence on China's GDP. Therefore, we can get the following simple linear regression model which reflects predictable relations between China's GDP and total trade with US:

$$y_c = 424.7255501 + 6.796981231x$$

or

$$\text{China's GDP} = 424.7255501 + 6.796981231 \text{Total Trade with US}$$

We can use the same way, the method of Ordinary Least Square (OLS), to make regression analysis and calculate other two kinds of simple linear regression models. I still assume that the influence of other factors on China's economic growth is stable. And, I regard China's GDP as a dependent variable and see China's exports to US as an independent variable, or I regard China's GDP as a dependent variable and see China's imports from US as an independent variable. Then I get the following two tables (table 20 and table 21).

Table 20: Regression Analysis of China's GDP and China's Exports to US (1998-2007)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.989796808
R Square	0.979697722
Adjusted R Square	0.977159937
Standard Error	111.326291
Observations	10

ANOVA

	df	SS	MS	F	Significance F
Regression	1	4784458.52	4784458.52	386.0444504	4.68376E-08
Residual	8	99148.34449	12393.54306		
Total	9	4883606.864			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	410.1247295	78.06654073	5.25352764	0.000770529	230.1029639	590.1464951	230.1029639	590.1464951
X Variable 1	8.137394618	0.414158635	19.6480139	4.68376E-08	7.182343094	9.092446142	7.182343094	9.092446142

Table 21: Regression Analysis of China's GDP and China's Imports from US (1998-2007)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.996708761
R Square	0.993428354
Adjusted R Square	0.992606898
Standard Error	63.33772033
Observations	10

ANOVA

	df	SS	MS	Significance F	
				F	F
Regression	1	4851513.529	4851513.529	1209.351063	5.11328E-10
Residual	8	32093.33453	4011.666817		
Total	9	4883606.864			

	Coefficients	Standard Error		t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
		Error							
Intercept	515.6801452	41.48732401	12.42982423	1.63884E-06	420.0102046	611.3500859	420.0102046	611.3500859	
X Variable 1	40.71801014	1.170874508	34.7757252	5.11328E-10	38.01796869	43.4180516	38.01796869	43.4180516	

The value of R Square in the table 20 is 0.979697722 and the value of R Square in the table 21 is 0.993428354. Both of them indicate that goodness of fit of the linear models is quite good. The value of F in the table 20 is 386.0444504 and the value of F in the table 21 is 1209.351063. These results can prove that regression effect of simple the linear regression models are significant. And, both in the table 20 and in the table 21, the results of t-test for significance of the regression coefficient and P-value also tell us that the influence of independent variable on the dependent variable is significant. In this case, we can get the following simple linear regression models

$$\text{China's GDP} = 410.1247295 + 8.137394618 \text{China's Exports to US}$$

$$\text{China's GDP} = 515.6801452 + 40.71801014 \text{China's Imports from US}$$

If we analyze these simple linear regression models only from the perspective of mathematics, these models indicate that China's GDP will be increased by an average \$6.796981231 billion if the volume of total trade with US is increased by \$1 billion; China's GDP will be increased by an average \$8.137394618 billion if the volume of China's exports to US is increased by \$1 billion; China's GDP will be increased by an average \$40.71801014 billion if the volume of China's imports from US is increased by \$1 billion. These information tell us that the correlation between China's GDP and China's imports from US is stronger than the correlation between China's GDP and China's exports to US or between China's GDP and total trade with US, and its regression coefficient is 40.71801014 which is 32.58061522 higher than the regression coefficient of China's GDP and China's exports to US.

However, someone can argue that 1998 to 2007 is not a good time series because it only has ten observations. So, it is necessary for us to choose a long time series to test whether we still can get the same result that the correlation between China's GDP and China's imports from US is stronger than the correlation between China's GDP and China's exports to US. In this case, I decide to adopt the time series straddling the 1978 and 2007 periods to do this test (see table 22).

Table 22: China's GDP and China's Trade with the United States from 1978 to 2007

(\$ billion)

	China's GDP	China's Imports from US	China's Exports to US
1978	147.3	0.8	0.4
1979	175.6	1.7	0.7
1980	188.2	3.8	1.2
1981	193.0	3.6	2.1
1982	202.1	2.9	2.5
1983	227.4	2.2	2.5
1984	256.1	3.0	3.4
1985	304.9	3.8	4.2
1986	295.7	3.1	5.2
1987	268.2	3.5	6.9
1988	307.2	5.0	9.2
1989	342.3	5.8	12.8
1990	354.6	4.8	16.3
1991	376.6	6.3	20.3
1992	418.2	7.5	27.5
1993	440.5	8.8	33.7
1994	559.2	9.3	41.3
1995	728.0	11.7	48.5
1996	856.1	12.0	54.4
1997	952.7	12.8	65.8
1998	1019.5	14.3	75.1
1999	1083.3	13.1	87.8
2000	1198.5	16.3	107.6
2001	1324.8	19.2	109.4
2002	1453.8	22.1	133.5
2003	1641.0	28.4	163.3
2004	1931.6	34.7	210.5
2005	2243.9	41.8	259.8
2006	2644.7	55.2	305.8
2007	3250.8 ⁵¹	65.2	340.1

Source: The World Bank Group⁵² & United Nations Commodity Trade Statistics

⁵¹ Because the World Bank Group does not give us the data of China's GDP in 2007, I use the data of IMF here.

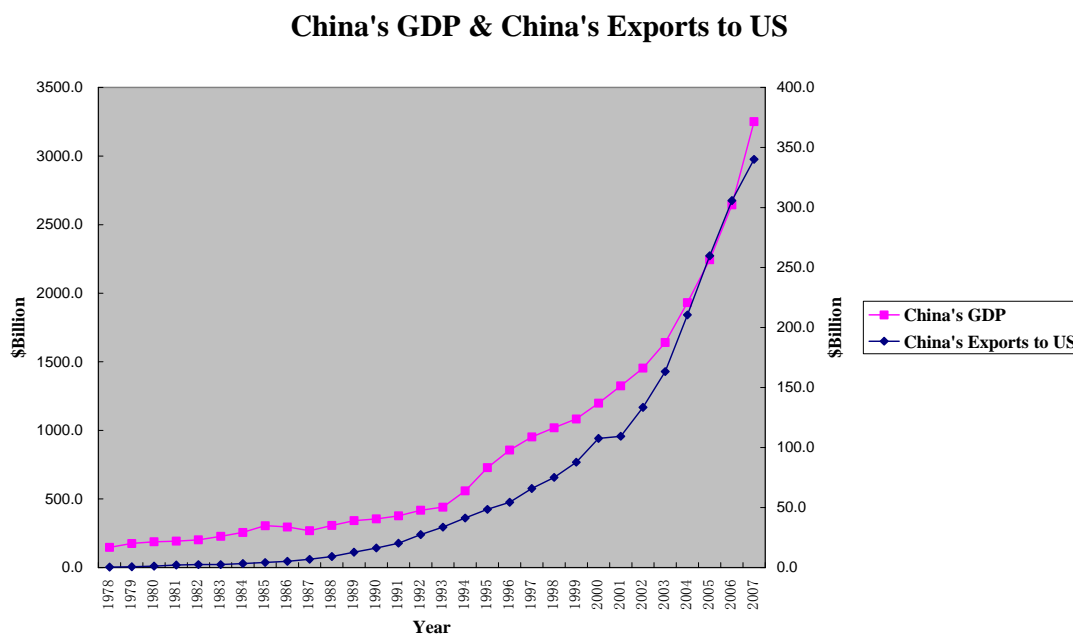
⁵² The data of China's GDP can be found on the website of the World Bank Group, retrieved 2 May, 2008,

<<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/0,,menuPK:476823~pagePK:64165236~piPK:64165141~theSitePK:469372,00.html>>.

Database⁵³

I use the same way to make two broken-line graphs in MS Excel (see chart 14 and chart 15). In both of these charts I use the year as the X-axis and use the value of China's GDP as the Y-axis. I pick the value of China's exports to US as the minor Y-axis in the chart 14, and, in the chart 15, I use the value of China's imports as the minor Y-axis. After observing the chart 14 and the chart 15, we still can find the upward trend of China's GDP is quite similar with the trend of China's exports to US and the trend of China's imports from US. So, we can find some kind of relations among them during this period, from 1978 to 2007.

Chart 14

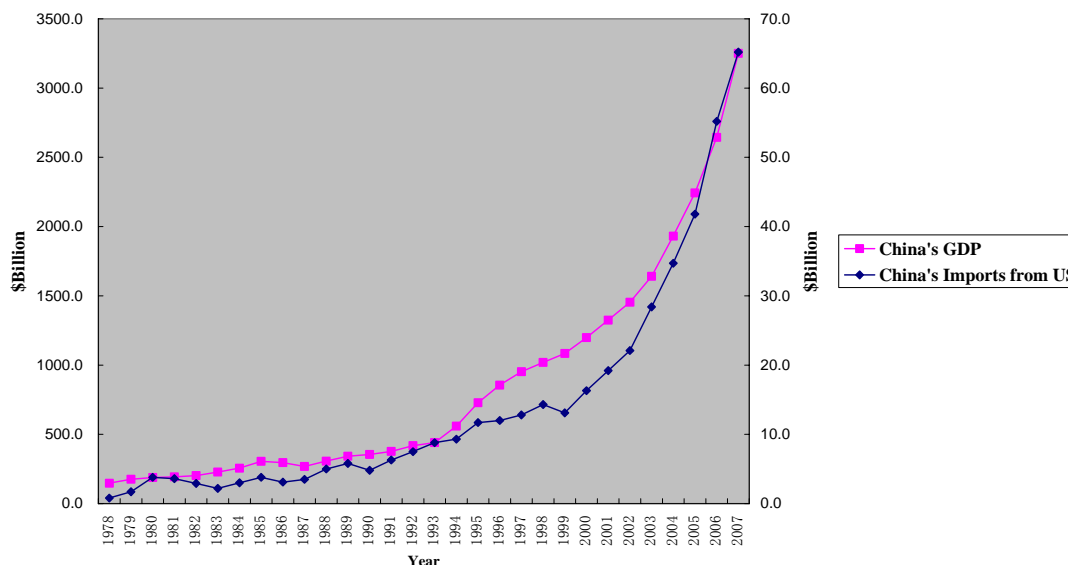


Source: The World Bank Group & United Nations Commodity Trade Statistics Database

⁵³ The data of China's imports from US and China's exports to US can be found on the website of United Nations Commodity Trade Statistics Database, <<http://comtrade.un.org>>.

Chart 15

China's GDP & China's Imports from US

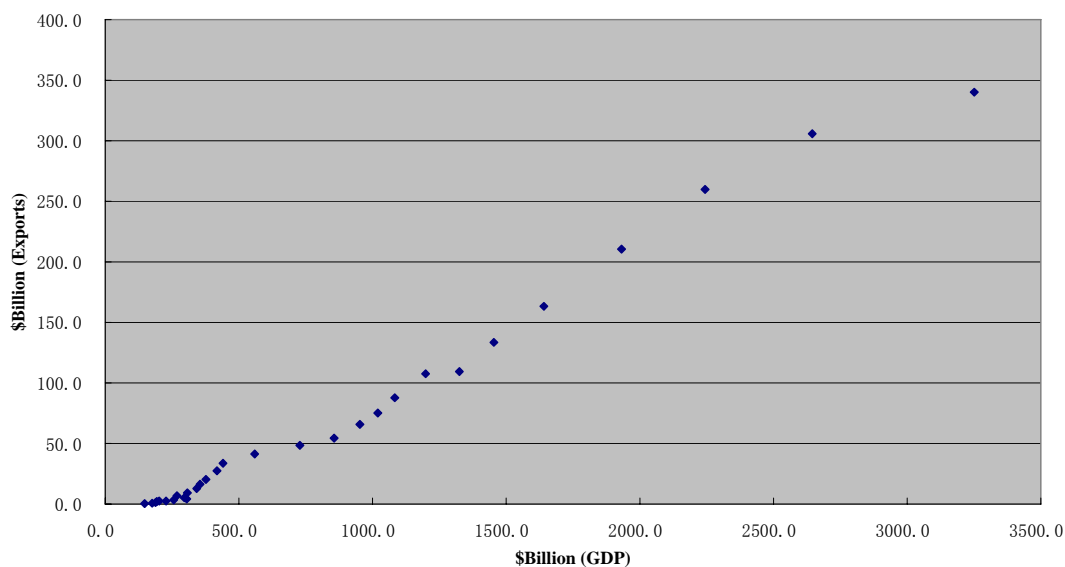


Source: The World Bank Group & United Nations Commodity Trade Statistics Database

Then, in order to test whether the growth of China's GDP has linear relations with the volume of China's exports to US and the volume of China's imports from US, I make two scatter plots in MS Excel with the same data (see chart 16 and chart 17). In these two charts, I use the volume of China's GDP as the X-axis. In the chart 16, I pick the volume of China's exports to US as the Y-axis, and, in the chart 17, I choose the volume of China's imports from US as the Y-axis. Compared to the data of Sino-US trade from 1998 to 2007, the data of Sino-US trade from 1978 to 2007 still shows us the similar result that the arrangements of these points in chart 16 and chart 17 are tending to become straight lines except some points. Thus, we can say that the growth of China's GDP has linear relationship with the volume of China's exports to US and the volume of China's imports to US in this period, although we extend the time series to thirty years.

Chart 16

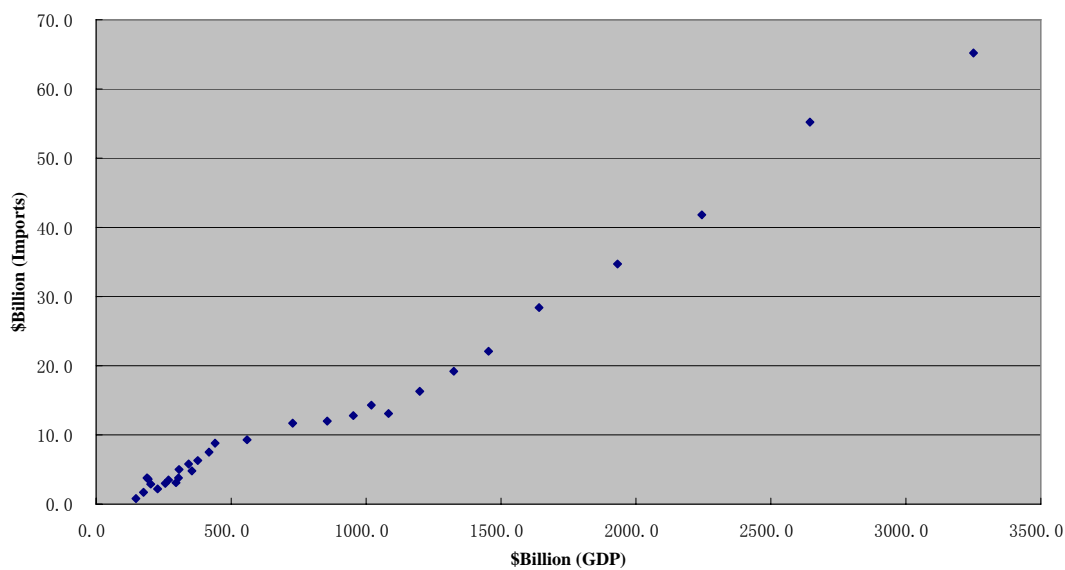
China's GDP & China's Exports to US



Source: The World Bank Group & United Nations Commodity Trade Statistics Database

Chart 17

China's GDP & China's Imports from US



Source: The World Bank Group & United Nations Commodity Trade Statistics Database

Now, we know that growth of China's GDP also have linear relationship with the volume of China's export to US and the volume of China's imports to US. Therefore, we can calculate correlation coefficient among them (see table 23 and table 24).

Table 23: Correlation Coefficient of China's GDP and China's Exports to US (1978-2007)

	China's GDP	China's Exports to US
China's GDP	1	
China's Exports to US	0.993129591	1

Table 24: Correlation Coefficient of China's GDP and China's Imports from US (1978-2007)

	China's GDP	China's Imports from US
China's GDP	1	
China's Imports from US	0.986524132	1

From 1978 to 2007, the Correlation Coefficient of China's GDP and China's exports to US is 0.993129591. After carrying out the correlation test, I know that the value of T is much bigger than the value of $t_{\alpha/2}$ and I use the Excel's *TDIST Function* to get the P-value, 1.22612E-27, which is obviously less than 0.05. During the same period, the Correlation Coefficient of China's GDP and China's imports from US is 0.986524132. Its value of T is also bigger than the value of $t_{\alpha/2}$ and this P-value is 1.46922E-23 which is significantly less than 0.05. Thus, the result of correlative analysis tell us that, from 1978 to 2007, the high positive correlation can be observed not only between China's GDP and China's exports to US but also between China's GDP and China's imports from US. We should notice that, during this period, the Correlation Coefficient of China's GDP and China's exports to US, 0.993129591, is higher than the Correlation Coefficient of China's GDP and China's imports from US.

In the next, I still use the method of Ordinary Least Square (OLS) to make regression analysis and calculate simple linear regression models. Firstly, I assume that the influence of other factors on China's economic growth is stable. Secondly, I regard

China's GDP as a dependent variable and view China's exports to US as an independent variable, or I regard China's GDP as a dependent variable and see China's imports from US as an independent variable. Therefore, I can get the following two tables (table 25 and table 26).

Table 25: Regression Analysis of China's GDP and China's Exports to US (1978-2007)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.993129591
R Square	0.986306384
Adjusted R Square	0.985817326
Standard Error	96.20455322
Observations	30

ANOVA

	df	SS	MS	F	Significance
					F
Regression	1	18665644.29	18665644.29	2016.748447	1.22612E-27
Residual	28	259148.8497	9255.316061		
Total	29	18924793.14			

	Coefficients	Standard	t Stat	P-value	Lower 95%	Upper 95%	Lower	Upper
		Error					95.0%	95.0%
Intercept	241.1484407	22.13662375	10.89364139	1.40768E-11	195.8036231	286.4932583	195.8036231	286.4932583
X Variable 1	8.435424658	0.187836975	44.90822248	1.22612E-27	8.050658062	8.820191253	8.050658062	8.820191253

Table 26: Regression Analysis of China's GDP and China's Imports from US (1978-2007)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.986524132
R Square	0.973229862
Adjusted R Square	0.972273786
Standard Error	134.5122569
Observations	30

ANOVA

	df	SS	MS	F	Significance
					F
Regression	1	18418173.82	18418173.82	1017.941566	1.46922E-23
Residual	28	506619.3229	18093.54725		
Total	29	18924793.14			

	Coefficients	Standard	t Stat	P-value	Lower 95%	Upper 95%	Lower	Upper
		Error					95.0%	95.0%
Intercept	146.7756491	32.91931477	4.458648367	0.000121602	79.34349047	214.2078077	79.34349047	214.2078077
X Variable 1	49.63929626	1.555837345	31.90519653	1.46922E-23	46.45230797	52.82628454	46.45230797	52.82628454

Both the value of R Square in the table 25, 0.986306384 and the value of R Square in the table 26, 0.986524132, show that goodness of fit of the linear models is very good. The value of F in the table 25 is 2016.748447 and the value of F in the table 26 is 1017.941566. These two results indicate that regression effect of simple the linear regression models are significant. Moreover, the results of t-test for significance of the regression coefficient and P-value in the table 25 and in the table 26 also show that the influence of independent variable on the dependent variable is significant. Therefore, we are able to get the following simple linear regression models:

$$\text{China's GDP} = 241.1484407 + 8.435424658 \text{China's Exports to US}$$

$$\text{China's GDP} = 146.7756491 + 49.63929626 \text{China's Imports from US}$$

From the perspective of mathematics, these two models tell us that China's GDP will

be increased by an average \$8.435424658 billion if the volume of China's exports to US is increased by \$1 billion; China's GDP will be increased by an average \$49.63929626 billion if the volume of China's imports from US is increased by \$1 billion. If we compare these simple linear regression models (1978-2007) with the former simple linear regression models (1998-2007), we can find that the results are quite similar. From 1978 to 2007, the correlation between China's GDP and China's imports from US is still much stronger than the correlation between China's GDP and China's exports to US. Its regression coefficient is 49.63929626 which is 41.203871602 higher than the regression coefficient of China's GDP and China's exports to US.

And, in order to make a deep comparison between the impact of China's imports from US and China's exports to US on China's GDP growth respectively, I log the data of table 22 and get the following table (see table 27).

Table 27:

	Ln(China's GDP)	Ln(China's Exports from US)	Ln(China's Import from US)
1978	4.992471323	-0.916290732	-0.223143551
1979	5.168208681	-0.356674944	0.530628251
1980	5.237505227	0.182321557	1.335001067
1981	5.262690189	0.741937345	1.280933845
1982	5.308762624	0.916290732	1.064710737
1983	5.426710581	0.916290732	0.78845736
1984	5.545567993	1.223775432	1.098612289
1985	5.719983854	1.435084525	1.335001067
1986	5.689345427	1.648658626	1.131402111
1987	5.591732971	1.931521412	1.252762968
1988	5.727499001	2.219203484	1.609437912
1989	5.835687546	2.549445171	1.757857918
1990	5.870990394	2.791165108	1.568615918
1991	5.931183616	3.010620886	1.840549633
1992	6.035959787	3.314186005	2.014903021
1993	6.087910445	3.517497837	2.174751721
1994	6.326507191	3.7208625	2.2300144
1995	6.590301048	3.881563798	2.459588842

1996	6.752387192	3.996364154	2.48490665
1997	6.859300059	4.186619838	2.549445171
1998	6.92706759	4.318820559	2.660259537
1999	6.987767217	4.475061501	2.57261223
2000	7.088826054	4.678420648	2.791165108
2001	7.189016784	4.69501089	2.954910279
2002	7.281936097	4.894101478	3.095577609
2003	7.403061091	5.095589	3.346389145
2004	7.566103954	5.349485653	3.546739687
2005	7.715970702	5.559912104	3.73289634
2006	7.880312916	5.722931293	4.010962953
2007	8.086656399	5.829239692	4.177459469

After that, I regard Ln(China's GDP) as a dependent variable and see Ln(China's exports to US as an independent variable. And I regard China's GDP as a dependent variable and see China's imports from US as an independent variable. Then, I perform regression analysis in Excel and get the following two tables (table 28 and table 29).

Table 28: Regression Analysis of Ln(China's GDP) and Ln(China's Exports to US) (1978-2007)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.960566274
R Square	0.922687568
Adjusted R Square	0.919926409
Standard Error	0.257528554
Observations	30

ANOVA

	df	SS	MS	Significance	
				F	F
Regression	1	22.1622649	22.1622649	334.166849	4.22905E-17
Residual	28	1.856986769	0.066320956		
Total	29	24.01925167			

	Coefficients	Standard		P-value	Lower 95%	Upper 95%	Lower	Upper
		Error	t Stat				95.0%	95.0%
Intercept	4.946538403	0.089387475	55.33816023	3.77145E-30	4.763436464	5.129640342	4.763436464	5.129640342
X Variable 1	0.455497869	0.024917512	18.2802311	4.22905E-17	0.404456661	0.506539077	0.404456661	0.506539077

Table 29: Regression Analysis of Ln(China's GDP) and Ln(China's Exports to US) (1978-2007)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.972720618
R Square	0.946185402
Adjusted R Square	0.944263452
Standard Error	0.214857626
Observations	30

ANOVA

	df	SS	MS	F	Significance
					F
Regression	1	22.72666529	22.72666529	492.3049144	2.61986E-19
Residual	28	1.292586382	0.046163799		
Total	29	24.01925167			

	Coefficients	Standard	t Stat	P-value	Lower 95%	Upper 95%	Lower	Upper
		Error					95.0%	95.0%
Intercept	4.598827897	0.087580897	52.50948618	1.61679E-29	4.419426565	4.778229229	4.419426565	4.778229229
X Variable 1	0.825071613	0.03718558	22.18794525	2.61986E-19	0.748900407	0.90124282	0.748900407	0.90124282

According to the data of table 29 and table 29, we can get the following models:

$$\ln(\text{China's GDP}) = 4.946538403 + 0.455497869 \ln(\text{China's Exports to US})$$

$$\ln(\text{China's GDP}) = 4.598827897 + 0.825071613 \ln(\text{China's Exports to US})$$

The two models indicate that China's GDP will be increased by 0.455497869% if the volume of China's exports to US is increased by 1%; China's GDP will be increased by 0.825071613% if the volume of China's imports from US is increased by 1%. Therefore, all the research of 10-year time series (1998-2007) and the research of 30-year time series (1978-2007) tell us the same result that, if we analyze these models only from the perspective of mathematics and do not consider other factors, the influence of China's imports from US on China's GDP growth is much bigger than the influence of China's exports to US on it.

Moreover, according to the data of table 22, we can calculate growth rate of China's GDP, growth rate of China's exports to US and China's imports from US (see table 30). Thus, we can get the following scatter plots based on the data of table 30 (see chart 18 and chart 19). In the chart 18, we can find that the growth rate of China's exports to US matches the growth rate of China's GDP in some extent after 1989, but it is not so obvious. In the chart 19, compared with the growth rate of China's exports to US, the growth rate of China's imports from US matches the growth rate of China's GDP quite well especially after 1985. From my point of view, one of the reasons why both growth rates of China's exports to US and China's imports from US do not match the growth rate of China's GDP could be commodity structure. In the historical part of this paper, I mentioned that in the beginning of Sino-US trade from the 1970s, main China's exports to the United States were textiles, native products, minerals, handicrafts or some low tech goods, and to China imported a lot of grains and cottons from the United States; and, after 1980, the United States started to export more high-tech products, transport equipment, machinery, complete sets of equipment to China. Both China's imports from US and China's exports to US probably could not effectively promote China's GDP growth. Thus, according to these mathematical models and this brief analysis, I think it is very necessary for us to do further research from the perspective of commodity structure of Sino-US trade in the next part of this paper.

Table 30: Growth Rates of China's GDP, China's Exports to US & China's Imports from US (1979-2007)

	Growth Rate of China's GDP	Growth Rate of China's Exports to US	Growth Rate of China's Imports from US
1979	0.192124915	0.75	1.125
1980	0.071753986	0.714285714	1.235294118
1981	0.025504782	0.75	-0.052631579
1982	0.047150259	0.19047619	-0.194444444
1983	0.125185552	0	-0.24137931
1984	0.126209323	0.36	0.363636364
1985	0.190550566	0.235294118	0.266666667
1986	-0.030173827	0.238095238	-0.184210526
1987	-0.092999662	0.326923077	0.129032258
1988	0.14541387	0.333333333	0.428571429
1989	0.114257813	0.391304348	0.16
1990	0.035933392	0.2734375	-0.172413793
1991	0.062041737	0.245398773	0.3125
1992	0.110462029	0.354679803	0.19047619
1993	0.053323769	0.225454545	0.173333333
1994	0.269466515	0.225519288	0.056818182
1995	0.3018598	0.17433414	0.258064516
1996	0.175961538	0.121649485	0.025641026
1997	0.112837285	0.209558824	0.066666667
1998	0.070116511	0.141337386	0.1171875
1999	0.062579696	0.169107856	-0.083916084
2000	0.106341734	0.225512528	0.244274809
2001	0.105381727	0.016728625	0.17791411
2002	0.097373188	0.220292505	0.151041667
2003	0.128765993	0.223220974	0.285067873
2004	0.177087142	0.289038579	0.221830986
2005	0.161679437	0.234204276	0.204610951
2006	0.178617585	0.177059276	0.320574163
2007	0.229175332	0.112164814	0.18115942

Chart 18

Growth Rate of China's GDP & Growth Rate of China's Exports to US

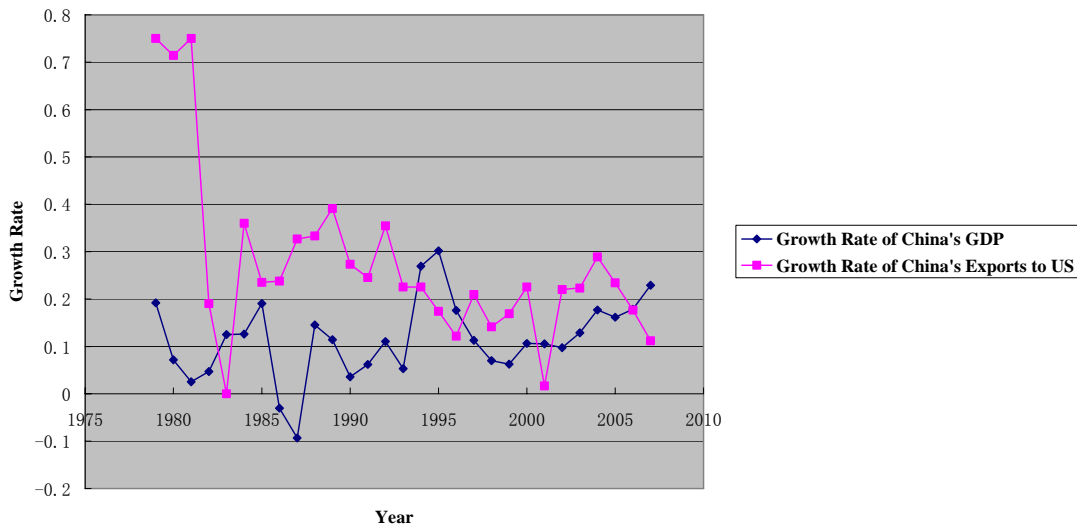
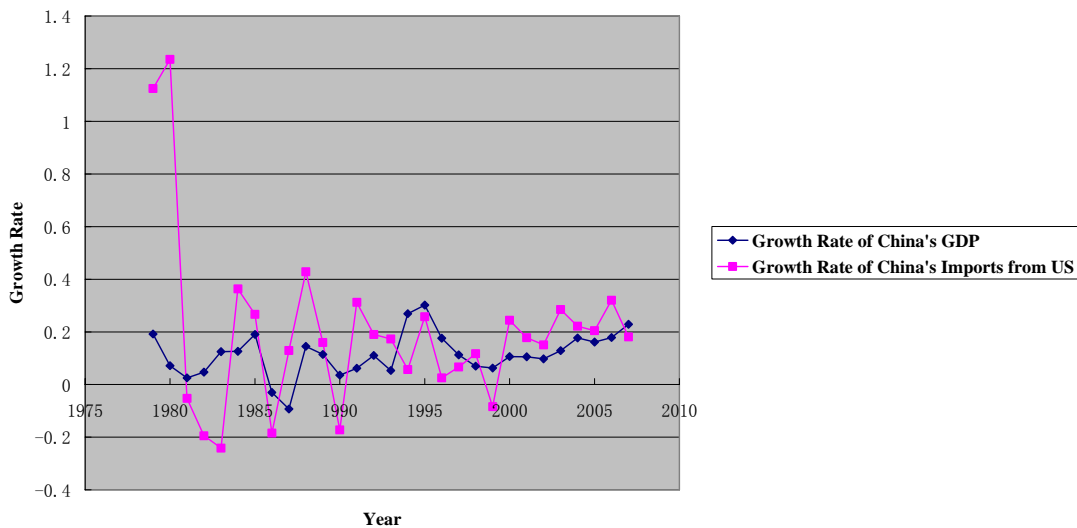


Chart 19

Growth Rate of China's GDP & Growth Rate of China's Imports from China



4.4 The Analysis of the Commodity Structure of Sino-US Trade

The regression analysis indicates that the Sino-US trade can promote China's GDP growth, and another result is that the influence of China's imports from US on this process is greater than the influence of China's exports to US. Actually, we do not know anything about the causality, merely correlations, and there are many omitted variables which we do not analyze here, but, the regression analysis in the last part of this chapter brings a question for us: why can we get this kind of results? From my point of view, these simple linear regression models do tell us some important information. Although the positive influence of China's imports from US on China's GDP growth is probably not so strong like the description of the simple linear regression model, the point is we need to find out what is behind this phenomenon. Thus, in the part, I will argue for the greater importance of imports relative exports and I am going to discuss it through the analysis of the commodity structure of Sino-US trade. In order to further explain the relations between the Sino-US trade and China's economic growth, I collect related data, which is classified by Standard International Trade Classification (SITC), from U.S. Census Bureau (see table 31, table 32, chart 20 and chart 21).

Table 31: Top China's Imports from US 2007 (\$ billion)

SITC#	Commodity Description	Volume
77	Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including nonelectrical counterparts of household type, n.e.s.)	8.7
79	Transport equipment, n.e.s.	7.3
28	Metalliferous ores and metal scrap	6.5
22	Oil seeds and oleaginous fruits	4.1
57	Plastics in primary forms	2.9
72	Machinery specialized for particular industries	2.7
74	General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.	2.7
87	Professional, scientific and controlling instruments and apparatus, n.e.s.	2.4
75	Office machines and automatic data processing machines	2.2
51	Organic chemicals	2.1

Source: Foreign Trade Division, U.S. Census Bureau⁵⁴

⁵⁴ These datas can be found on the following website of U.S. Census Bureau, and more details

Chart 20: 2007 China's Imports from US (\$)

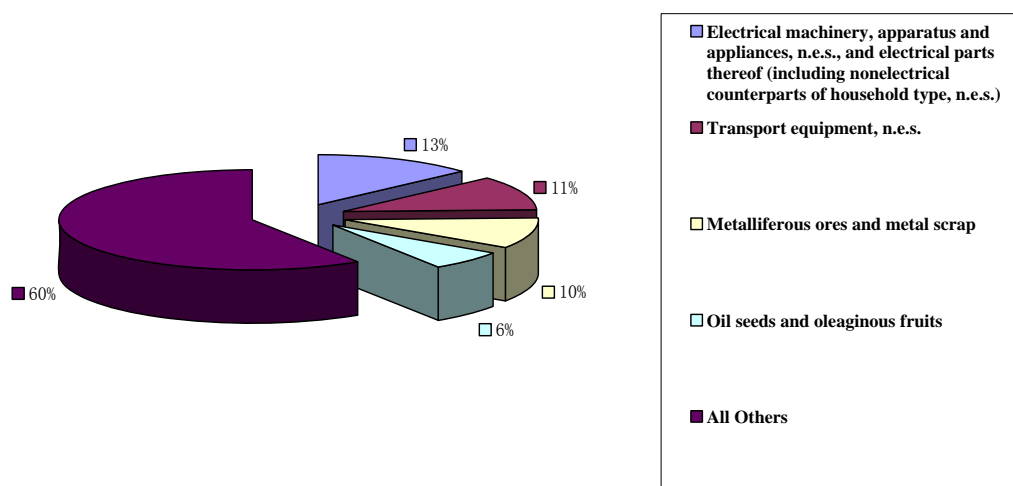


Table 32: Top China's Exports to US 2007 (\$ billion)

SITC#	Commodity Description	Volume
76	Telecommunications and sound recording and reproducing apparatus and equipment	51.8
75	Office machines and automatic data processing machines	47.5
89	Miscellaneous manufactured articles, n.e.s.	43.9
84	Articles of apparel and clothing accessories	27.1
77	Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including nonelectrical counterparts of household type, n.e.s.)	24
82	Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings	16.1
85	Footwear	14.1
69	Manufactures of metals, n.e.s.	13.9
74	General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.	11
65	Textile yarn, fabrics, made-up articles, n.e.s., and related products	7.1

Source: Foreign Trade Division, U.S. Census Bureau⁵⁵

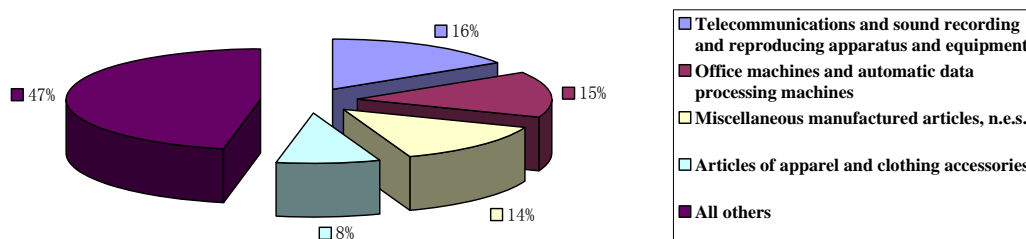
can be found on Appendix B, retrieved 3 May, 2008,

<<http://censtats.census.gov/sitc/sitc.shtml>>.

⁵⁵ The data can be found on the following website of U.S. Census Bureau, and more details can be found on Appendix B, retrieved 3 May, 2008,

<<http://censtats.census.gov/sitc/sitc.shtml>>.

Chart 21: 2007 China's Exports to US (\$)



The data of table 31 and the chart 20 tell us that, in 2007, the commodities of category 77 had the largest share of China's imports from US, 13%, and the volume was \$8.7 billion. The volume of top 4 China's imports from US occupied 40 percent of total volume of China's imports from US. The table 32 and chart 21 show that the commodities of category 76, telecommunications and sound recording and reproducing apparatus and equipment, had the largest share of China's exports to US, 16%. The volume of top 4 China's exports to US owned 53 percent of all China's exports to US. Comparing the table 31 with the table 32, we see that the commodities of category 77, 74 and 75 have become important parts of the Sino-US trade.

Table 33: Contents of the Commodities of Category 77 in 2007

SITC#	Commodity Description	China's Imports from US	China's Exports to US
771	Electric power machinery (other than rotating electric plant of power generating machinery) and parts thereof	0.2	3.4
772	Electrical apparatus for switching or protecting electrical circuits or for making connections to or in electrical circuits (excluding telephone etc.)	0.8	3.2
773	Equipment for distributing electricity, n.e.s.	0.2	2.5
774	Electro-diagnostic apparatus for medical, surgical, dental or veterinary sciences and radiological apparatus	0.5	0.3
775	Household type electrical and nonelectrical equipment, n.e.s.	0.1	6.1
776	Thermionic, cold cathode or photocathode valves and tubes; diodes, transistors and similar semiconductor devices; integrated circuits, etc.; parts	6.5	2.3
778	Electrical machinery and apparatus, n.e.s.	0.5	6.1

Source: Foreign Trade Division, U.S. Census Bureau

Compared with the data of table 32, the data of table 31 indicates that most of China's imports from US are high tech products and capital-intensive products, for instance, the commodities of category 77, 72, 87, 51. The table 33 shows the contents of the commodities of category 77 which was ranked No.1 in China's imports from US and was ranked No.5 in China's exports to US. If we compare China's exports to US and China's imports to US in this category, we can find that lots of China's exports to US were low tech products, for example, the commodities of category 775 and 778. In 2007, China exported \$6.1 billion household type electrical and nonelectrical equipments to the United States. And, it also sold \$6.1 billion electrical machinery and apparatus to American merchants. On the contrary, in the same year, most of China's imports from US in this category were high tech products or technology-intensive products, for instance, the commodities of category 776. In 2007, the United States exported \$6.5 billion thermionic, cold cathode or photocathode valves and tubes, or diodes, transistors and similar semiconductor devices, or integrated circuits to China.

After observing the data of the table 32, we can find that a lot of China's exports to US were labor-intensive products or low tech products, for example, the commodities of category 84, 82, 85, and 65. Actually, many products of the commodities of category 75 and 76 could not be regarded as high tech products. We should know that processing trade still play a very important role in the development of China's foreign trade. A lot of China's enterprises import raw materials and components from neighboring countries, and then they start to process and assemble these stuff. Finally, they can export these products to the United States or the other countries in the world. Even some parts of high tech products exported to the United States belong to the processing trade. To a certain extent, China's economic achievements were primarily based on labor-intensive industries and low-tech export products.

We should notice that the general theories of international trade can be used to analyze economic phenomenon under the conditions of normal operation of the national economy, and they do not discuss deeply about the influence of a country which is going into economic recession on another country in bilateral trade. So, when we discuss the impact of China's exports to US on its economic growth, we need to research the reason why the volume of China's exports to US could keep rapid increasing when the United States had to face the risk of economic recession.

The law of demand and elasticity theory in microeconomics gives us a useful tool to explain how it happened. The law of demand tells us that, under normal circumstances, there is an inverted and interdependent relation between quantity demand of commodities and their prices. If the commodity prices are rising, the quantity demand will decrease; if the commodity prices are decreasing, the quantity demand will rise. In some exceptional circumstances, when the commodity prices fall, the quantity demand will also decrease; Moreover, when the commodity prices rise, the quantity demand will increase too. This phenomenon can be seen as a Giffen good which describes a story: when a famine happened in Ireland in 1845, although the price of potatoes was rising rapidly, people greatly increased their demand for

potatoes. The reason why this kind of phenomenon happened was the public had to increase consumption of inferior goods when their real income decreased. Now, if a country's economy is in the process of recession, or expective income and expected expenditures are uncertain, the Giffen good can be regarded as substitutes for inferior goods and will not be viewed just as potatoes or food. Thus, when we discuss the influence of the economic situation of the United States on China's exports to it, we can find that its precondition is quite similar with the Giffen good. But, the difference is: the volume of China's exports to the United States was increasing rapidly, not because the price of China's products was rising, but because they a number of competitive advantages.

Although the volume of China's exports to US is quite big, the problem is that they do not create too much new value. Under this business model, China only can get little processing fees and most of value-added parts are obtained by the enterprises of the United States. Therefore, in this case, we can say that the positive influence of China's exports to the United States on China's economic growth is limited. On the contrary, most of China's imports from the United States are high tech products. Without doubt, they can effectively stimulate China's economic growth because most of them are very necessary for the development of China's enterprises. Here, I also want to mention that the government of the United States forbids American enterprises to exports some high tech products to China because it worries that the Chinese government will use them to develop its military power, even though these high tech products also can be used by civilian fields. The analysis of the commodity structure of Sino-US trade probably can explain the reason why the results of simple linear regression models show the influence of China's imports from US on this process is greater than the influence of China's exports to US.

In fact, a lot of scholars pay more attention to the positive influence of exports on China's economic growth, and some of them think that only exports can effectively promote China's economic growth. They underestimate and ignore the influence of

imports on China's economic growth. One of the reasons could be that they use the following formula to calculate GDP.

$$Y=C+I+G+(X-M)$$

Note: Y-GDP, C-Consumption spending by households, I-Investments by business and households, G-Government purchases of goods & services, (X-M)-Net export.

This formula can give us a feeling that the increase of export can promote GDP's growth and the increase of import can reduce GDP growth. According to the neo-classical economic growth model, the increase of Total Factor Productivity (TFP) can be viewed as technical progress in a broad sense, including industrial structure optimization, system innovation, enterprise management level and technical progress in a narrow sense, etc. All of these factors have close relations with the import. China can import different kinds of intermediate goods from the United States, which are able to increase the production efficiency of final goods in China, and it does not need to pay additional cost for these new intermediate goods. Some of the intermediate goods from the United States can stimulate Chinese enterprises to produce and develop similar goods and the production process will promote China's technical progress. This is the so-called technology spillover. In other words, through importing the intermediate goods, China can directly share the outcomes of R&D investment of the United States and promote its own economic growth. However, I need to point out that, some China's imports from the United States from last year probably play a role for China's GDP growth this year or next year because these productivity-enhancing input for industrial production or other kinds of production will take some time to materialize. For example, on 26 March, 2007, Intel announced that it would invest 25 billion in Dalian, a city of China, for establishing a wafer manufacturing factory and it would put into production in 2010. In this case, many high tech high-tech equipments will import from the United States before 2010, but many of them can contribute to China's GDP growth only after 2010.

Many high tech products imported from the United States raise China's processing capacity, and extend its scale of production, and improve its product quality. One of the results could be Chinese enterprises enhance the international competitiveness. The process will help China to transform economic growth pattern from the extensive one to the intensive one. But someone will argue that the increase of China's imports from US will spur an increase in unemployment due to the change of China's economic growth pattern. In fact, the influence of import on employment is related to labor supply and demand elasticity of importing country. Under a flexible economic structure, if high-efficiency industries have gained higher growth rates than low-efficiency industries, the economic growth caused by import and industrial upgrading can increase employment. Because the processing trade is still the main pattern of the Sino-US trade, the import of processing trade from the United States can fully use China's abundant labor resources and give people more opportunities to find job. In this case, the import from US can improve efficiency of resource allocation and can effectively promote China's economic growth.

Import has special relations with FDI and one of the important reasons why the import can promote a country's economic growth is their interaction effect. With the rapid development of China's economy, China needs to import more raw materials, intermediate goods and final goods from the United States. On the one hand, it will undoubtedly attract more FDI in China from the United States because, in order to get more profits, these investors can save transportation costs and avoid many kinds of trade barriers. On the other hand, FDI inflows can indirectly promote China's import trade with the United States and other countries. For example, to take advantage of China's low wages, some investors import necessary raw materials and intermediate goods from the United States and after processing stuffs they will sell them back to the United States. This behavior will increase the volume of China's imports from the United States. Thus, if the Sino-US trade can keep stable increase, the interaction between China's imports from US and American FDI can lead China's economic development to follow a spiral-ascending growth road.

Moreover, import trade and export trade have interaction effects which also can promote a country's economic growth. Firstly, the increase of China's imports from the United States means the increase in demand of US dollar, so it can alleviate the pressure of RMB appreciation and is conducive to improving China's exports to the United States. Secondly, the imports of raw materials and intermediate goods, including machinery and equipment, which are necessary for the production of exports, can help China to enhance the competitiveness of export products and can promote China's export growth. The high tech products imported from the United States play a big role in this process. Thirdly, the import trade can meet domestic potential demand for foreign products and change consumption patterns. In this case, some related production sectors will be changed and the result will lead to new investment and production. Fourthly, because the processing trade is still an important pattern of China's export trade to the United States, the increase of China's imports from the United States will directly cause increase of China's exports to it. In fact, this is the typical performance of processing trade.

CHAPTER 5 CONCLUSIONS

The Sino-US trade relations can be regarded as one of the most important trade relations in the world. Both China and the United States have to pay more attention to their trade relations if it wants to maintain stable economic growth. The main purpose of this paper is to analyze the relations between China's economic growth and Sino-US trade.

Through reviewing the economic history between China and the United States, we know that the United States started to do business with China in 1784 when the *Empress of China*, the first American merchant ship which carried animal skins, camel cloth, cotton, pepper and ginseng, arrived at China, and, after one hundred years, the volume of trade of the United States in China was only after the United Kingdom. Although the United States became China's largest supplier of strategic goods in the Second World War and helped China to win the war, both China and the United State cut off their trade relations soon after the Korean War broke out in 1950. Until the beginning of the 1970s when China and the United States tried to improve bilateral relations, they started to gradually restore political and trade relations. In the end of the 1970s, the total trade between them increased from nothing to \$2.4 billion. After the Chinese government adopted reform and opening up policy in 1978, many exciting changes could be seen in this country. Now, although China is still far from being a world economic leading country, no one can ignore China has made tremendous achievements during the last thirty years. In this process, the United States have a positive influence on the development of China's economy. The Sino-US trade could be influenced by political conflicts from the 1970s to the 1980s, but, after that period, this kind of phenomenon could not be seen and the Sino-US trade maintained stable and fast growth despite these conflicts.

The analysis of total trade volume between China and the United States tell us that the total China's trade with the United States was \$85.5 billion in 1998. After ten years,

the total China's trade with the United States increased to \$386.7 billion. During the same period, the total China's trade with the world increased from \$324 billion in 1998 to \$2173.8 billion in 2007. The annual percent increase of China's trade with the United States, 19.66%, is lower than that of China's trade with the world, 21.50%. Moreover, since 1999, the proportion of China's trade with US to China's trade with the world has experienced a downward trend: the proportion of China's trade with US to China's trade with the world decreased from 26.32% in 1999 to 17.79% in 2007. But, we can not make the conclusion that the U.S. status in China's economic growth is not as important as before because, in this process, the United States has become the most important China's trade partner and China has also come to be the second largest trade partner of the United States. In this regard, we can say that the United States played an important role in China's economic development from 1998 to 2007.

Through the analysis of the degree of China's foreign trade dependency on the United States, we can see that, during the last ten years, the average China's ratio of dependence on foreign trade with the world was 52.44% which was much higher than the ratio of the United States. This comparison shows that the foreign trade has more influence on China than on the United States. With the rapid growth of GDP, the status of foreign trade in China's economic growth is getting more important than before. In this period, China's ratio of dependence on foreign trade with the United States increased from 8.4% in 1998 to 11.9% in 2007.

From the change absolute value of China's ratio of dependence on foreign trade with the United States, probably, we can think that the status of United States was getting more and more important. However, if we compare these two kinds of China's ratios of dependence on foreign trade (with the world and with the United States), we can find that absolute position of the United States in China's economic growth was increasing but its relative position was decreasing from 1998 to 2007. In other words, the absolute value of the degree of China's foreign trade dependency on the United States increased obviously, and the relative value of the degree of China's foreign

trade dependency on the United States actually decreased, although the total trade between China and the United States was increasing rapidly during this period. The important information is the average annual growth rate of imports as percent of GDP with the United States was 9.5% which was higher than the average annual growth rate of imports as percent of GDP with the world, 7.7%. However, the calculation based on statistical data indicated that the effect of the United States as an export market of China was much greater than it as an import market of China in the process of China's economic growth. So, it is necessary for us to discuss whether China's economic growth is really more relying on exports to the United States than on imports to it.

In the part of the analysis of the influence of Sino-US trade on China's GDP growth, after analyzing the broken-line graphs and scatter plots, we know that, from 1998 to 2007, the growth of China's GDP has linear relations with the volume of total trade with US, or the volume of China's export to US, or the volume of China's imports to US. Moreover, the correlative analysis indicates that the high positive correlation can be observed among them. We should notice that the Correlation Coefficient of China's GDP and China's imports from US, 0.996708761, is the highest among these three different kinds of Correlation Coefficients. The simple linear regression models show that China's GDP will be increased by an average \$6.796981231 billion if the volume of total trade with US is increased by \$1 billion; China's GDP will be increased by an average \$8.137394618 billion if the volume of China's exports to US is increased by \$1 billion; China's GDP will be increased by an average \$40.71801014 billion if the volume of China's imports from US is increased by \$1 billion. These information indicate that, during this period, the correlation between China's GDP and China's imports from US is stronger than the correlation between China's GDP and China's exports to US and its regression coefficient is 40.71801014 which is 32.580615522 higher than the regression coefficient of China's GDP and China's exports to US. But, some people can argue that 1998 to 2007 is not a good time series because it only has ten observations. So I choose a long time series from

1978 to 2007 to test the result again. Both the research of 10-year time series (1998-2007) and the research of 30-year time series (1978-2007) indicate that, if we analyze these simple linear regression models only from the perspective of mathematics, compared with China's exports to US, China's imports from US have a much bigger positive influence on China's GDP growth. Another two mathematical models indicate that China's GDP will be increased by 0.455497869% if the volume of China's exports to US is increased by 1%; China's GDP will be increased by 0.825071613% if the volume of China's imports from US is increased by 1%.

According to the analysis of the commodity structure of Sino-US trade, we can find the reason why this kind of phenomenon happened in the Sino-US bilateral trade. After observing the data classified by Standard International Trade Classification (SITC), we see that most of China's imports from US are high tech products and capital-intensive products and a large number of China's exports to US were labor-intensive products or low tech products. Because processing trade still play a very important role in the development of China's foreign trade, a lot of Chinese enterprises only can get little processing fees and most of value-added parts are obtained by American enterprises. Thus, under this situation, the positive influence of China's exports to the United States on China's economic growth is limited. On the contrary, most of China's imports from the United States are high tech products and they can effectively stimulate China's economic growth, even though the government of the United States forbids American enterprises to exports some kinds of high tech products to China. One of the reasons why many scholars pay more attention to the positive influence of exports on China's economic growth and ignore the positive influence of imports on China's economic growth could be they use formula, $Y=C+I+G+(X-M)$, to calculate GDP. The formula can give us a feeling that the increase of export will promote GDP's growth and the increase of import will reduce GDP growth. However, after our exploratory study, briefly described above, we know that the positive influence of China's imports from US on China's GDP growth is probably much bigger than what we thought before. It also can help us to understand

the reason why these simple linear regression models from a mathematical perspective show that China's imports from US have a much bigger positive influence on China's GDP growth than China's exports to US on it.

All in all, China's economic growth has a high positive correlation with the Sino-US trade. Here, I do not want to say that the positive influence of China's exports to US on China's GDP growth is much smaller than the positive influence of China's imports from US on it, but the point is the analysis of this paper indicates that the Sino-US trade can promote China's economic growth and China's imports from US probably have a much bigger positive influence on China's GDP growth than what we thought before due to China's trade model and the commodity structure of Sino-US trade. In this case, I think the Chinese government, which has sufficient foreign exchange reserves and a large favourable balance of trade with the United States, should moderately expand the scale of China's imports from US and should fully play the role of the positive influence of China's imports from US on China's economic growth. Furthermore, it should optimize the product structures of its exports to US and, to some extent, should change the model of the processing trade, and so on. Due to the limitation of this paper, I will not discuss details about these ideas. But, these do seem to be a very fruitful area for future research.

BIBLIOGRAPHY

Andrea M, 'The true meaning of David Ricardo's four magic numbers', *Journal of International Economics*, Vol. 62, Issue 2, 2004, pp. 433-443.

Bryman, A, *Social research methods*, 2nd edn, Oxford University Press, New York, 2004.

Chang, PH, 'U. S.-China Relations: From Hostility to Euphoria to Realism', *Annals of the American Academy of Political and Social Science*, Vol. 476, China in Transition, Nov., 1984, pp. 156-170.

'China Operations' 99 – China's Foreign Trade', *The report of the US-China Business Council*, March 4, 1999, retrieved 30 April, 2008,
<<http://www.chinaus.net/BARRIERS.htm>>.

'China's Entry into WTO: A New Milestone', *People's Daily*, December 12, 2001, retrieved 28 April, 2008,
<http://english.peopledaily.com.cn/200112/12/eng20011212_86490.shtml>.

'China, U.S. Release Press Communique on China's WTO Entry', *People's Daily*, November 16, 1999, retrieved 28 April, 2008,
<<http://english.peopledaily.com.cn/english/199911/16/eng19991116W114.html>>.

Creswell, JW, *Research Design: qualitative, quantitative, and mixed methods approaches*, 2nd edn, SAGE Publications, Thousand Oaks, California, 2002.

Cronin, RP, 'The United States and Asia in 1994' , *Asian Survey*, Vol. 35, No. 1, A Survey of Asia in 1994: Part I (Jan., 1995), pp. 111-125.

Forbes, HAC, 'Reviewed work(s): *The Empress of China* by Philip Chadwick Foster Smith', *The New England Quarterly*, Vol. 57, No. 4, Dec., 1984, pp. 602-605.

Foot, R, *The Practice of Power: US relations with China Since 1949*, Oxford: Clarendon Press, 1995.

Guobing, S & GA Yanxiang, 'Revealed Comparative Advantage, Intra-industry Trade and the US Manufacturing Trade Deficit with China', *China & World Economy*, Vol. 15, Issue 6, 2007, pp. 87-103.

Harding, H, *A Fragile Relationship: The United States and China Since 1972*, Bookings Institution Press, Washington DC, 1992.

Higino, SP, 'International trade, economic growth and intellectual property rights: A panel data study of developed and developing countries', *Journal of Development Economics*, Vol. 76, Issue 2, 2005, pp. 529-547.

Huff, WG, 'Patterns in the Economic Development of Singapore', *The Journal of Developing Areas*, Vol. 21, Issue 3, 1987, pp. 305-326.

Humphrey, TM, 'When geometry emerged: Some neglected early contributions to offer-curve analysis', *Economic Quarterly (Federal Reserve Bank of Richmond)*, Vol. 81, Issue 2, 1995, pp. 39-74.

Joint Communique of the United States of America and the People's Republic of China, February 28, 1972, retrieved 25 April 2008, <http://usinfo.state.gov/eap/Archive_Index/joint_communique_1972.html>.

Joint Communique of the United States of America and the People's Republic of China, January 1, 1979, (The communique was released on December 15, 1978, in Washington and Beijing), retrieved 25 April 2008, <http://usinfo.state.gov/eap/Archive_Index/joint_communique_1979.html>.

K, SP, 'The relative sophistication of Chinese exports', *Economic Policy*, Vol. 23, Issue 53, 2008, pp. 5-49.

Lewer, JJ & HVd Berg, 'How Large Is International Trade's Effect on Economic Growth?', *Journal of Economic Surveys*, Vol. 17, Issue 3, 2003, pp. 363-396.

Lifang, Y, 'An analysis on the contribute of foreign trade to China's economic growth', *Statistical Research*, No. 9, 2001, pp. 20-22.

Marshall, C & GB Rossman, *Designing Qualitative Research*, 4nd edn, SAGE Publications, Thousand Oaks, California, 2006.

Migang, D, 'An analysis of the relations between China's Foreign Trade and Economic Growth', *Journal of Northwest University*, Vol. 30, No. 4, November, 2000, pp. 81-85.

Morrison, WM, 'China-U.S. trade issues', *CRS Report for Congress*, March 7, 2008, retrieved 29 April, 2008, <<http://ftp.fas.org/sgp/crs/row/RL33536.pdf>>.

Qi, W & X Xiao, 'Two Major Relative Comparative Advantages of China in International Trade', *China Population, Resources and Environment*, Vol. 17, Issue 5, 2007, pp. 33-37.

Shambaugh, DL, 'Anti-Americanism in China', *Annals of the American Academy of Political and Social Science*, Vol. 497, Anti-Americanism: Origins and Context, May, 1988, pp. 142-156.

'Statistical Communiqué of the People's Republic of China on the 2007', *National Bureau of Statistics of China*, 28 February, 2008, retrieved 3 May, 2008, <http://www.stats.gov.cn/was40/gjtjj_en_detail.jsp?searchword=gdp&channelid=9528&record=4>.

CC Stelle, 'American Trade in Opium to China, Prior to 1820', *The Pacific Historical Review*, Vol. 9, No. 4, Dec., 1940, pp. 425-444.

Taiwan Relations Act, the United States, April 10, 1979, retrieved 27 April 2007, <http://usinfo.state.gov/eap/Archive_Index/Taiwan_Relations_Act.html>.

Tribe, K, 'Reading trade in the wealth of nations', *History of European Ideas*, Vol. 32, Issue 1, 2006, pp. 58-79.

Wang, C, 'Sino-US Trade Relations: Review and Outlook of Fifty Years', *Journal of Shangqiu Teachers College*, Vol. 16, No. 5, Oct 2000, pp 78-80.

Yang, J, 'Sino-U.S. Trade Relations', *The GW Center for The Study of Globalization*, January, 2004, retrieved 25 April 2008, <<http://gstudynet.org/docs/Sino%20US%20Trade%20Relations.pdf>>.

'Yearbook of China's Economy', Editorial Committee of Yearbook of China's Economy, Economic Management Publishing House, 1982.

APPENDIX

Appendix A:

Trade in Goods (Imports, Exports and Trade Balance) with China

NOTE: All figures are in millions of U.S. dollars.

Month	Exports	Imports	Balance
Jan-07	4,364.20	25,635.00	-21,270.90
Feb-07	4,630.70	23,064.50	-18,433.80
Mar-07	5,479.40	22,725.40	-17,246.10
Apr-07	4,849.40	24,222.90	-19,373.50
May-07	5,322.70	25,338.40	-20,015.70
Jun-07	5,900.10	27,061.10	-21,161.00
Jul-07	4,779.20	28,583.40	-23,804.20
Aug-07	5,904.60	28,431.40	-22,526.80
Sep-07	5,610.50	29,375.30	-23,764.80
Oct-07	5,683.10	31,611.20	-25,928.10
Nov-07	5,816.30	29,768.80	-23,952.60
Dec-07	6,898.20	25,690.20	-18,792.00
TOTAL 2007	65,238.30	321,507.80	-256,269.50
Jan-06	3,479.40	21,382.50	-17,903.10
Feb-06	4,098.40	17,905.40	-13,807.00
Mar-06	4,958.90	20,531.30	-15,572.40
Apr-06	4,328.40	21,459.10	-17,130.70
May-06	4,500.90	22,317.60	-17,816.70
Jun-06	4,348.00	23,989.70	-19,641.70
Jul-06	5,060.00	24,632.00	-19,572.00
Aug-06	4,758.20	26,713.30	-21,955.20
Sep-06	4,644.60	27,570.60	-22,926.00
Oct-06	4,991.30	29,388.60	-24,397.30
Nov-06	4,809.10	27,775.10	-22,966.00
Dec-06	5,208.60	24,109.20	-18,900.60
TOTAL 2006	55,185.70	287,774.40	-232,588.60
Jan-05	2,609.30	17,885.80	-15,276.50
Feb-05	3,108.10	16,937.60	-13,829.50
Mar-05	3,336.40	16,184.90	-12,848.60
Apr-05	3,371.80	18,148.50	-14,776.60
May-05	3,236.80	19,053.20	-15,816.40
Jun-05	3,430.90	20,976.70	-17,545.80
Jul-05	3,631.60	21,272.70	-17,641.10
Aug-05	3,888.70	22,421.30	-18,532.60
Sep-05	3,209.10	23,294.50	-20,085.40

Oct-05	3,947.60	24,382.90	-20,435.30
Nov-05	3,890.00	22,426.10	-18,536.10
Dec-05	4,265.00	20,486.00	-16,221.00
TOTAL 2005	41,925.30	243,470.10	-201,544.80
Jan-04	2,629.00	14,089.00	-11,460.00
Feb-04	2,979.40	11,267.10	-8,287.80
Mar-04	3,374.60	13,800.10	-10,425.50
Apr-04	2,734.60	14,744.80	-12,010.20
May-04	2,874.20	15,067.10	-12,193.00
Jun-04	2,790.80	16,887.80	-14,097.00
Jul-04	2,667.90	17,562.10	-14,894.20
Aug-04	2,674.90	18,067.90	-15,393.00
Sep-04	2,861.50	18,386.90	-15,525.50
Oct-04	2,946.70	19,718.20	-16,771.40
Nov-04	2,964.50	19,679.00	-16,714.50
Dec-04	3,246.00	17,412.00	-14,166.00
TOTAL 2004	34,744.10	196,682.00	-161,938.00
Jan-03	2,069.80	11,403.50	-9,333.70
Feb-03	2,048.70	9,629.60	-7,581.00
Mar-03	2,423.10	10,110.00	-7,686.90
Apr-03	2,121.90	11,521.90	-9,399.90
May-03	1,984.30	11,884.70	-9,900.40
Jun-03	2,119.60	12,127.30	-10,007.70
Jul-03	2,067.40	13,438.60	-11,371.20
Aug-03	2,034.40	13,764.90	-11,730.40
Sep-03	2,091.00	14,747.50	-12,656.50
Oct-03	2,778.30	16,458.30	-13,680.00
Nov-03	3,319.70	14,156.90	-10,837.30
Dec-03	3,309.60	13,192.80	-9,883.20
TOTAL 2003	28,367.90	152,436.10	-124,068.20
Jan-02	1,569.30	8,415.40	-6,846.10
Feb-02	1,529.50	8,020.80	-6,491.30
Mar-02	1,620.50	7,259.00	-5,638.50
Apr-02	1,544.50	9,097.60	-7,553.10
May-02	1,773.90	9,846.90	-8,073.00
Jun-02	2,205.90	10,727.20	-8,521.30
Jul-02	1,848.00	11,213.20	-9,365.20
Aug-02	1,839.80	12,671.40	-10,831.60
Sep-02	2,023.70	12,291.50	-10,267.80
Oct-02	1,962.70	11,455.00	-9,492.30
Nov-02	2,160.80	12,569.60	-10,408.80
Dec-02	2,049.10	11,625.00	-9,575.90
TOTAL 2002	22,127.70	125,192.60	-103,064.90

Jan-01	1,187.50	8,427.50	-7,240.00
Feb-01	1,289.80	6,375.60	-5,085.80
Mar-01	1,855.80	7,590.20	-5,734.40
Apr-01	1,398.90	7,686.80	-6,287.90
May-01	1,596.00	7,757.90	-6,161.90
Jun-01	1,786.40	8,398.20	-6,611.80
Jul-01	1,487.00	8,975.30	-7,488.30
Aug-01	1,929.70	10,042.90	-8,113.20
Sep-01	1,427.80	9,927.80	-8,500.00
Oct-01	1,647.70	10,808.30	-9,160.60
Nov-01	1,674.50	8,878.80	-7,204.30
Dec-01	1,901.20	7,409.10	-5,507.90
TOTAL 2001	19,182.30	102,278.40	-83,096.10
Jan-00	863.1	6,902.10	-6,039.00
Feb-00	972.7	6,584.40	-5,611.70
Mar-00	1,330.50	6,424.10	-5,093.60
Apr-00	1,227.50	7,070.50	-5,843.00
May-00	1,526.30	7,850.20	-6,323.90
Jun-00	1,335.60	8,541.70	-7,206.10
Jul-00	1,642.80	9,246.40	-7,603.60
Aug-00	1,429.00	10,054.00	-8,625.00
Sep-00	1,333.30	10,061.70	-8,728.40
Oct-00	1,487.30	10,611.60	-9,124.30
Nov-00	1,450.40	9,066.80	-7,616.40
Dec-00	1,586.70	7,604.70	-6,018.00
TOTAL 2000	16,185.20	100,018.20	-83,833.00
Jan-99	781.3	5,654.00	-4,872.70
Feb-99	923.9	5,563.10	-4,639.20
Mar-99	1,076.00	5,204.00	-4,128.00
Apr-99	1,035.00	5,818.90	-4,783.90
May-99	1,113.80	6,363.10	-5,249.30
Jun-99	1,442.00	7,117.40	-5,675.40
Jul-99	1,074.00	7,405.70	-6,331.70
Aug-99	1,151.30	8,022.10	-6,870.80
Sep-99	1,325.30	8,198.20	-6,872.90
Oct-99	1,069.10	8,207.90	-7,138.80
Nov-99	1,025.50	7,543.50	-6,518.00
Dec-99	1,093.90	6,690.30	-5,596.40
TOTAL 1999	13,111.10	81,788.20	-68,677.10
Jan-98	1,271.10	5,453.20	-4,182.10
Feb-98	1,019.30	4,559.60	-3,540.30
Mar-98	1,034.20	4,798.10	-3,763.90
Apr-98	984.9	5,262.90	-4,278.00

May-98	911.3	5,539.40	-4,628.10
Jun-98	1,282.70	6,020.20	-4,737.50
Jul-98	1,100.80	6,556.20	-5,455.40
Aug-98	869.9	6,779.90	-5,910.00
Sep-98	1,214.90	7,125.20	-5,910.30
Oct-98	1,855.20	7,377.70	-5,522.50
Nov-98	1,317.20	6,374.10	-5,056.90
Dec-98	1,379.70	5,322.10	-3,942.40
TOTAL 1998	14,241.20	71,168.60	-56,927.40

- *'TOTAL' may not add due to rounding.*
- *Table reflects only those months for which there was trade.*
- *CONTACT: Data Dissemination Branch, U.S. Census Bureau, (301) 763-2311*
- *SOURCE: U.S. Census Bureau, Foreign Trade Division, Data Dissemination Branch, Washington, D.C. 20233*

Appendix B:

U.S. International Trade Statistics
Value of Exports, General Imports, and Imports by Country
by 2-digit Commodity Groupings
China (5700)

[In Thousands of Dollars.(-) represents zero.(Z)-represents less than 0.05.]

SITC	Desc	Exports	General Imports
'00'	Live animals other than fish, crustaceans, molluscs and aquatic invertebrates of division 03	20,006	34,509
'01'	Meat and meat preparations	774,687	17,630
'02'	Dairy products and birds' eggs	114,995	3,224
'03'	Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof	543,708	2,012,930
'04'	Cereals and cereal preparations	27,689	117,372
'05'	Vegetables and fruit	208,423	1,415,790
'06'	Sugars, sugar preparations and honey	41,026	137,911
'07'	Coffee, tea, cocoa, spices and manufactures thereof	31,300	176,627
'08'	Feeding stuff for animals (not including unmilled cereals)	92,929	165,463
'09'	Miscellaneous edible products and preparations	94,227	128,920
'11'	Beverages	25,251	31,741
'12'	Tobacco and tobacco manufactures	68,306	19,150
'21'	Hides, skins and furskins, raw	830,529	112
'22'	Oil seeds and oleaginous fruits	4,125,195	33,361
'23'	Crude rubber (including synthetic and reclaimed)	406,300	20,679
'24'	Cork and wood	518,664	343,544
'25'	Pulp and waste paper	2,053,130	7,168
'26'	Textile fibers (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)	1,788,893	164,012
'27'	Crude fertilizers (imports only), except those of division 56, and crude minerals (excluding coal, petroleum and precious stones)	148,643	365,570
'28'	Metalliferous ores and metal scrap	6,530,335	66,876
'29'	Crude animal and vegetable materials, n.e.s.	156,657	570,579
'32'	Coal, coke and briquettes	15,756	225,002
'33'	Petroleum, petroleum products and related materials	281,691	434,408
'34'	Gas, natural and manufactured	172	449
'41'	Animal oils and fats	11,303	11,630
'42'	Fixed vegetable fats and oils, crude, refined or fractionated	141,706	15,596
'43'	Animal or vegetable fats and oils processed; waxes and inedible mixtures or preparations of animal or vegetable fats or oils, n.e.s.	12,594	4,274
'51'	Organic chemicals	2,123,162	2,363,361

'52'	Inorganic chemicals	714,070	956,970
'53'	Dyeing, tanning and coloring materials	274,948	330,504
'54'	Medicinal and pharmaceutical products	376,034	922,494
'55'	Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	305,329	683,822
'56'	Fertilizers (exports include group 272; imports exclude group 272)	96,982	200,513
'57'	Plastics in primary forms	2,914,973	331,841
'58'	Plastics in nonprimary forms	508,700	699,997
'59'	Chemical materials and products, n.e.s.	1,093,608	797,929
'61'	Leather, leather manufactures, n.e.s., and dressed furskins	190,555	317,867
'62'	Rubber manufactures, n.e.s.	163,566	2,953,045
'63'	Cork and wood manufactures other than furniture	62,321	2,784,515
'64'	Paper, paperboard, and articles of paper pulp, paper or paper board	523,000	2,092,580
'65'	Textile yarn, fabrics, made-up articles, n.e.s., and related products	495,163	7,136,575
'66'	Nonmetallic mineral manufactures, n.e.s.	386,448	4,437,914
'67'	Iron and steel	632,271	4,880,421
'68'	Nonferrous metals	1,045,681	1,789,220
'69'	Manufactures of metals, n.e.s.	678,949	13,882,303
'71'	Power generating machinery and equipment	1,319,262	2,527,499
'72'	Machinery specialized for particular industries	2,749,092	2,559,309
'73'	Metalworking machinery	514,114	395,609
'74'	General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.	2,731,978	10,965,400
'75'	Office machines and automatic data processing machines	2,167,847	47,512,917
'76'	Telecommunications and sound recording and reproducing apparatus and equipment	1,527,317	51,753,182
'77'	Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including nonelectrical counterparts of household type, n.e.s.)	8,731,647	23,975,649
'78'	Road vehicles (including air-cushion vehicles)	1,942,154	6,012,113
'79'	Transport equipment, n.e.s.	7,296,704	490,506
'81'	Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.	37,948	4,541,868
'82'	Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings	130,348	16,153,090
'83'	Travel goods, handbags and similar containers	12,983	5,674,466
'84'	Articles of apparel and clothing accessories	34,858	27,131,508
'85'	Footwear	38,703	14,136,731
'87'	Professional, scientific and controlling instruments and apparatus, n.e.s.	2,416,046	3,565,605
'88'	Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks	497,033	2,170,972
'89'	Miscellaneous manufactured articles, n.e.s.	885,440	43,912,960
'93'	Special transactions and commodities not classified according to kind	169,762	1,149,951
'95'	Coin, including gold coin; proof and presentation sets and current coin	426	10,857
'96'	Coin (other than gold coin), not being legal tender	382	2,703

'97'	Gold, nonmonetary (excluding gold ores and concentrates)	2,999	2,053
'98'	Estimate of import items valued under \$251 and of other low valued items nonexempt from formal entry	-	2,776,439
'99'	Estimate of non-canadian low value shipments; compiled low value shipments to canada; and various export shipments not identified by kind	381,393	-
	Total	65,238,310	321,507,785