

***THE EFFECTS OF CHINA'S ENTRY INTO
THE WORLD TRADE ORGANIZATION ON
EMPLOYMENT***

Dissertation

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Von

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Preface

When choosing “The Effects of China’s Entry into the WTO on Employment” as my doctoral thesis, both my professor Dr. György Széll and I were in agreement that it was not going to be an easy task. However, the significant theoretical and practical meaning of this topic led me to undertake this challenge and to complete it with all my endeavors. I, far one, shall do my utmost to continue my exploration on the subject.

From the choice of topic to completion of the thesis, Professor Dr. György Széll constantly gave me his precious and invaluable guidance and advice. Every discussion with Professor Dr. György Széll is an inspiration. His profound erudition, sagacious academic perception and down-to-earth work style has deeply influenced and greatly benefited me. I believe it will influence me throughout my life. Hence, I would like to extend my heartfelt gratitude to Professor Dr. György Széll.

Also, I would like to thank Professor Dr. Joerg Glombowski, from Osnabrueck University, Professor Dr. Xiangquan Zeng, Deputy President of the Renmen University of China. In addition, I would like to extend my gratitude to the municipal government of Tianjin City, the Statistics Bureau of Tianjin and the University of Finance and Economics of Tianjin, for their generous support.

Last but not least, I would like to express my appreciation of Osnabrueck University-its beauty, serenity and freedom, which has impressed and attracted me from the bottom of my heart. From 2001 to 2005, I experienced a wonderful time in Osnabrueck, enjoying my every minute in the city. I can only

wish that the beauty of Osnabrueck University will never change.

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Chapter 1

Introduction

China's accession to the World Trade Organization (WTO) is a landmark event in its path to economic reform and in the evolution of the international trading system. As China meets its WTO commitments, productivity will be improved, the country's inefficient, unprofitable companies will be transformed and the development of a commercial credit culture in the financial system will be hastened. On the other hand, heightened competition will eventually increase the number of unemployed in China, potentially contributing to social unrest.

The effects of China's entry into the World Trade Organization (WTO) on employment have been central concerns among economists and policymakers since 2001. The effects of the entry to the WTO raise the following considerations:

- A. China has the largest population in the world. The unemployment problem is both an economic and a social concern. China's government has sought to remedy the problem of tackling the social need for employment. Especially in recent years as the free market economy has continually developed, high unemployment has become increasingly worrisome.
- B. It is commonly believed that China's entry into the WTO may have a significant influence on various economic sectors in China. The primary purpose of my current study is to assess the size and scope of this influence.
- C. China's entry into the WTO has had a pervasive impact on China's gross employment. For this reason, I will put forward a quantitative estimation on employment as a result of China's entry into the WTO.

I will begin by discussing the employment theories. I will then proceed to employ comparative analysis and statistical methods to discuss the outcome of China's entry into the WTO, China's gross employment and various economic sectors.

1.1 Research design

1.1.1 The scope of the thesis

This thesis refers to the period from the beginning of 1990 to 2004. It will discuss the influence of China's entry into the WTO, China's gross employment and various economic sectors. The main problems are summarized below:

1. China's economy entered into a new era. To what extent did China's gross employment change after its accession to the WTO?
2. How many surplus rural labor forces are there in China's rural community?
3. How has China's accession to the WTO affected employment in agriculture?
4. How has China's accession to the WTO affected employment in the automobile industry?
5. How has China's accession to the WTO affected employment in the textiles and apparel industry?
6. How has China's accession to the WTO affected employment in the financial industry?

1.1.2 Methodical approach

Both the quality of available data and the employed method are essential to the persuading power of the current study.

Mainly macroeconomic data have been used in this thesis. The data has been derived from research reports, market surveys, seminar papers, journals, bulletins, newspapers, books, annual reports, agreements, speeches at the national congress, trade commissions and statistical yearbooks. Updated data and the latest information have been discussed and collected from Internet sources.

Various statistical methods and economic theories have been used to make a qualitative analysis on China's entry into the WTO, the effect on gross employment and various economic sectors in China. Wherever necessary, a variety of statistical measures such as sample, surveys, comparisons, quota sampling, opinion surveys, growth rates, averages, coefficients of variations and coefficients of correlation have been applied for the analysis and interpretation of data.

1.2 The purpose of the subject

A. Why discuss China's employment problem?

From the 1980's, China introduced a series of policies to open up to the world. However, since the 1990's, the unemployment problem has become a growing concern in the economic development of China. China's government continually promises to resolve the problem, but unfortunately it has only worsened.

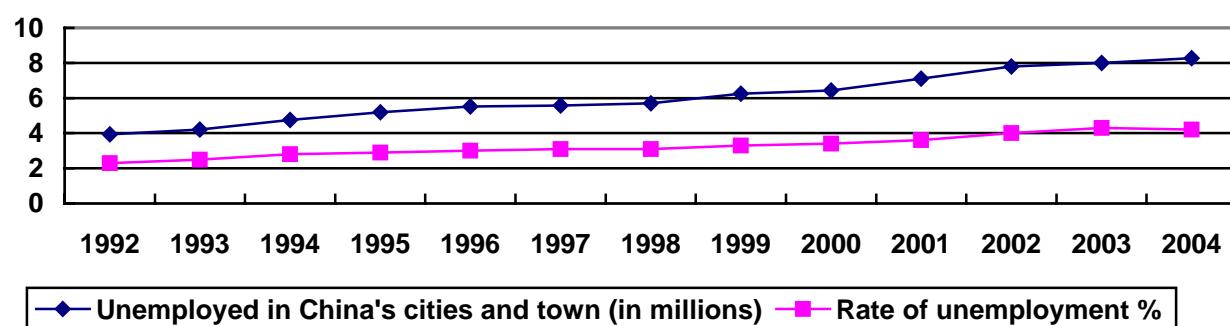
Since China's economic reforms, unemployment has increased in China year after year. According to the official data published by China's government, the unemployment rate in the cities and towns is increasing.

Table 1-1

Registered unemployed and the rate of unemployment in the cities and towns published by China's government

Year	1992	1993	1994	1995	1996	1997	1998
No. Of registered unemployed in China's cities and towns (Unit: million)	3.93	4.20	4.76	5.19	5.52	5.57	5.71
No. of rate of unemployment	2.3%	2.5%	2.8%	2.9%	3.0%	3.1%	3.1%
Year	1999	2000	2001	2002	2003	2004	
No. Of registered unemployed in China's cities and towns(Unit: million)	6.24	6.43	7.10	7.80	8.00	8.27	
No. Of rate of unemployment	3.3%	3.4%	3.6%	4%	4.3%	4.2%	

Sources: *China Labor Statistics Yearbook 2003*, National Bureau of Statistics of China p. 198, *China's Labor Social Security China's Employment Report 2005* http://news.xinhuanet.com/newscenter/2005-05/19/Content_2975538.htm



In a recent research project at the Development Research Center of the State Council (DRC), PRC, the rate of unemployment was more than 10% in the

middle of 1990's, when calculating the total number of laid off workers. It reached 13% and 15% in 1997 and 1998, respectively. Some results now suggest that the rate of unemployment in China will not fall below 10% until 2008¹. Nevertheless, the above-mentioned unemployment data are merely the tip of the iceberg of China's current unemployment situation.

Arguably, as we well know, high unemployment not only limits the development of the economy but also affects social stability. On the one hand, unemployment leads to the enforced idleness of members of the workforce who are able and willing to work but who cannot find jobs. In societies in which most people can earn a living only by working for others, being unable to find a job is a serious problem. On the other hand, high unemployment reduces incomes, and consumption levels fall. Society then has to provide the necessary social security for the unemployed. In addition, China's jobless, who not only lack the income to provide for themselves and their families, also lack the opportunity of receiving continual training. The vicious circle makes the jobless poorer and poorer. For instance, laid off workers at a railway station in Zhenzhou, south China, blocked off the railway at the beginning of 2003². Because of their concern with social stability, China's government did not report this case, and others like it.

As part of the process to become more involved in the global marketplace, China has been attempting to join the General Agreement on Tariffs and Trade (GATT) since 1986³. But the Tiananmen Square incident in 1989 prevented China from merging into the world economy⁴. In the wake of the massacre in Beijing in June 1989, most Western countries imposed economic sanctions on China. Exports, credit and economic assistance programs, for example, were suspended. No western government was willing to send representatives to meet Chinese trade negotiators in Geneva. Hence, the scheduled July 1989 meeting of the working party had to be cancelled. After 15 years of arduous

negotiations, China became a member of the WTO at the end of 2001.

Telling, since China's entry into the WTO, the country has not changed its former liberalizing policies that have been taking place for 20 years. The integrated framework of the WTO puts forward an agenda for China's future reform and development. It also creates a restrictive environment. Before China became a member of the WTO, China's industrial structure had to make corresponding adjustments. Is it possible under the pressure of the WTO to alleviate the growing unemployment rate in China? How did China's gross employment change occur after China's WTO accession?

Furthermore, WTO membership improved economic efficiency, and contributed to sustainable growth. Finally, the worst-case focus on vulnerable sectors needs to be balanced by examining new export opportunities that WTO membership will create⁵.

Firstly, a comprehensive view will be given of the economic response to China's entry into the WTO. This response was reflected in China's net exports, in foreign direct investment (FDI) and in other macroeconomic indexes. Based on those results, the influence on China's employment will subsequently be quantified.

II Why the topic will draw the attention of China's government and scholars?

The published official figures do not give much insight into the profile of Chinese unemployment. For instance, the official data represents a good level on a world scale, being only 1-2% higher than the full employment of Sweden in the 1980's. At that time, Sweden successfully maintained the unemployment rate at 2%-3%, which is regarded as full employment⁶. What is the actual rate

of unemployment in China? Will China's entry into the WTO mean unemployment will become worse?

Nicholas R. Lardy has published articles in the Wall Street journal. He announced that China's entry into the WTO negotiations with the US would increase unemployment by 1 million workers and decrease 30% of relative product exports⁷. China's scholar Liu, L. issued an article stating that the rapid growth of unemployment is the most expensive compensation resulting from China's WTO accession⁸.

Indeed, the Chinese government has now comprehensively acknowledged the employment problem. The Minister of Labor and Social Security of the People's Republic of China, Wang, D. announced that the increasing unemployment problem is gradually damaging social stabilization. In the coming years, there will be 12 or 13 million people entering the Chinese labor market every year. Even when the rate of economic growth reaches 7%, only employment positions for 8 million people will be created⁹.

Actually, on 29 April 2004, the Chinese government issued China's Status of labor and social security, stating that the Chinese government had the full understanding of the unemployment problem in the cities and towns and even in the rural areas. The unemployment issue is becoming increasingly serious. And for the first time, the Chinese authority stated that creating new employment opportunities was one of its main goals in its 2003 national macroeconomic policy¹⁰. Prime Minister Wen, J. emphasized in the government's work report that China will enforce policies to increase employment opportunities and re-employment opportunities¹¹.

Strikingly, the attention emerging from the Chinese government also highlights that the employment problem has already become of serious concern.

Policymakers and economists from various countries have made investigations and presented their arguments. The literature of qualitative analysis on the effects of China's entry into the WTO on employment is surprisingly limited.

1.3 Why does this thesis only select some economic sectors for analysis?

This thesis focuses mainly on four economic sectors, namely agriculture, the automobile industry, the textile and apparel industry, and the financial industry.

The reasons for this are as follows:

- 1) Due to the shortage of China's statistical data and the limited space of the thesis, I am not able to analyze all economic sectors in China.
- 2) The general idea is that agriculture will be the sector adversely affected by China's WTO accession¹². There was great uncertainty among politicians and researchers about the outcome of such a significant policy. The most heated debate especially highlighted the WTO's negative influence on China's agricultural employment. Overpopulation and the acute shortage of arable land for China's rural communities have contributed to a high rate of hidden unemployment in China. As a best example of a dual economic society, the surplus labor forces consequentially move out from primary industry to secondary industry and tertiary industry. How has China's accession to the WTO affected employment in agriculture?
- 3) As pillar industries that measure the sensitiveness of the sector, the automobile industry and the textile and apparel industry have experienced the most severe change following China's WTO accession. More generally, many believe that China's WTO accession had a detrimental effect on

China's automobile industry employment growth and a positive impact on textile and apparel industry employment. And, as unlikely as it might have once seemed, employment in the automobile industry increased year by year. Unsurprisingly, employment in the China's textile and apparel industry increased after accession.

4) How did China's accession to the WTO affect the country's employment in financial industry employment? The literature on the effects of China's WTO accession on employment in the financial industry is limited. This question has not yet been answered in China.

1.4 The status quo of unemployment in China

Definition of unemployment

According to the definition of the International Labor Organization (ILO), an employed person is someone who perform any form of paid work, as well as those who have jobs but are absent from work because of illness, vacations, etc. Unlike employed persons, the unemployed are persons with the ability to work and who are willing to work, but who cannot find a job. In essence, the laborer cannot be united with production materials, failing to create social wealth. It is a waste of economic resources. Based on this definition, an unemployed person must meet three conditions: 1, he/she has the ability to work; 2, he/she would like to work; and 3, he/she is jobless¹³. In contrast, according to the Chinese government's definition, the unemployed refer to the non-agricultural population in cities and towns within a certain age range (16 years old and above but under 50 years for males and under 45 years old for females) who are reportedly jobless, capable of obtaining a job if willing to accept one with minimal requirements, and taking initiatives to seek a job and are simultaneously registered at the local employment bureaus. Chinese

government's definition of unemployment is much narrower than that of the International Labor Organization.

First of all, it limits the unemployed to those people living in cities and towns, excluding the agricultural population. The government believes that farmers can access their own share of production materials-land. It means that every laborer, united with production materials, is capable of production activities. Hence, no unemployment exists. But the Chinese economy is a dual economy, in which the labor force transfer is limited, so those farmers are stuck in a rural community.

Secondly, the number of the agricultural surplus labor force increases in all literature now available, only few measure the Chinese surplus agricultural labor force. Most just make an estimate. In chapter 3, we will calculate the number of surplus agricultural labor force in China, whom the government ignores when calculating the unemployment.

Thirdly, when calculating the unemployed, the government does not consider unemployed of non-registered people, so the number of unemployment reported in the Chinese authority's statistics is much lower than the actual unemployment. Why are so many unemployed people not registered at government agencies in China? Yet, in most countries, people registered at government agencies are entitled to unemployment insurance benefits and have access to employment information. As a result, the majority of the unemployed would like to go to labor administration to make an unemployment claim. But in China, the unemployed very difficult to obtain unemployment insurance benefits even, if they were registered, so most do not bother to register.

Moreover, in China the laid off workers from enterprises are not counted as

being unemployed. From the 2002 Labor Statistics Yearbook, we can see that from 1996 to 2000, state-owned enterprises cut 31 million jobs and collective enterprises did away with 5 million jobs. During the same period, jobs created by foreign companies, private enterprises and the self-employed were 4, 6 and 4 million respectively. New graduates took most of these positions. The number of laid off employees who were lucky enough to be rehired was very small. In 2001, it was only 24.1%¹⁴. Interestingly, the Chinese government recently coined a new name, “XiaGang” workers, for laid off workers. They are simply not counted as members of the unemployed population.

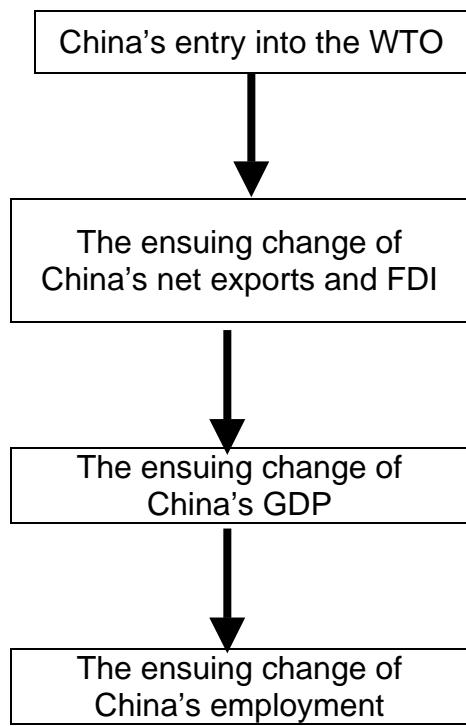
Finally, China's authority set an age limit for the statistical unemployment population (16 years old and above but under 50 years for male and under 45 years old for female), but the International Labor Organization has no age limit. Up to now, analysis has shown that the Chinese government has reduced the number of unemployment.

So, we believe:

$$\begin{array}{lcl} \text{China's actual} \\ \text{unemployment} \\ \text{population} & = & \text{The registered} \\ & & \text{urban} \\ & & \text{unemployment} \\ & & \text{population} \\ & + & \text{The surplus} \\ & & \text{rural labor force} \\ & & \text{population} \\ \\ + & \text{The number of laid-off} \\ & \text{workers (non-rehired)} \\ & \text{XiaoGang Workers)} & + \\ & & \text{The number of} \\ & & \text{non-registered} \\ & & \text{unemployment} \end{array}$$

1.5 Frame of thesis

What is the effect on employment due to China's accession to the WTO? We shall use aggregate analysis method to investigate China's entry into the WTO in the short term. I analyze the change of gross economic volume within a short period after China's entry into the WTO. The analytical approach is structured as follows:



1.6 Overview of the chapters

The underlying framework of my thesis is organised as follows:

The chapter 1 introduction mainly deals with the period of time and related topics of the thesis. Since China's reform and accession to the WTO, increasing unemployment has become one of the most serious issues in the economic development of China. China's government is lacking a good solution to tackle the social need for employment. Especially in recent years, as the free market economy has continually succeeded, high unemployment

became increasingly worrisome, which was the reason why I selected China's employment as the subject of my doctor thesis. This may arouse the interest of China's government and scholars.

Chapter 2 seeks to review and examine various theories of employment: Marxist employment theory; from the Say's market law to the Pigou's unemployment theory; from Keynesian employment theory to Phillips' curve. Since the 1970s, new employment theories have developed. Wages, broadly speaking, fall into two categories (nominal and real wages); the neo-Keynesian labor force market theory develops the nominal wages stickiness theory and real wages stickiness theory. The theory of real wages stickiness implicitly includes the contract theory, insider-outsider theory, and the efficiency wages theory. The theory of nominal wages stickiness involves staggered adjustable wages and long-term contracts. I then investigate the transfer theory of Simon Kuznets' employment structure.

Chapter 3 discusses the influence of the WTO on China's agricultural industry employment. The surplus rural labor force becomes another problem that attracts attention. I will take the following two methods to calculate China's surplus rural labor force: a. The working time of rural employees in farming; b. The theory of Simon Kuznets. I use SPSS software to calculate the effects of the WTO relative to the model of net exports and FDI. Furthermore, I will use the elasticity of employment to calculate the influence of the WTO on China's agricultural employment.

Chapter 4 explains the influence of the WTO on employment in China's automobile industry. Firstly, I will discuss the current situation of China's automobile industry and the country's commitment to this industry. Secondly, I use SPSS software to calculate the effect of the WTO on net exports and FDI. I will also use the elasticity of employment to calculate the influence of the WTO

on employment in China's automobile industry. In conclusion, following China's entry into the WTO, the Chinese automobile industry will cut 19,600 jobs each year.

Chapter 5 investigates the influence of the WTO on China's textile and apparel industry employment. Firstly, I will describe the current situation of China's textile and apparel industry and the country's commitment to this industry. Secondly, I will use the SPSS software to calculate the effects of the WTO on net exports and FDI. In conclusion, following China's entry into the WTO, 0.744 million jobs will be created in the textile and apparel industry each year. Over the next 8 years, 5.9 million jobs will be created in the textile and apparel industry.

Chapter 6 evaluates the influence of the WTO on employment in China's financial industry. Firstly, I will introduce the present situation of the financial industry. I have used the structure theory of Simon Kuznets to make an empirical estimation to explain why the four large state-owned commercial banks cut employment from 1998 to 2002. I will then explain the country's commitment to the financial industry. I will analyze the effects of the WTO on the banking, insurance, and securities sector, respectively. Finally, a statistical method will be used to analyze the effects of the WTO on employment in the banking, insurance, and securities sectors, respectively.

Chapter 7 analyzes the influence of China's WTO accession on China's employment. I will use SPSS software to calculate the effects on net exports and FDI. The elasticity of employment will be used to calculate the influence of the WTO on the gross employment of China. Following China's entry into the WTO, employment opportunities will be the creation of between 2.58 million and 2.99 million each year in the coming five years.

1.7 The main shortcomings of thesis

1. To some extent, the statistics collected in China are unsatisfactory, thus affecting the accuracy of calculation. The best example may be that the added value of the securities and insurance sector is not available in China's Statistics Yearbook and Almanac of China's Finance and Banking.
2. Inconsistency of data is unavoidable, if compare the data from different sources, which correspondingly results in different outcomes. This can be seen for instance, the number of jobs in China differs in the China Statistics Yearbook and China's Labor Statistics Yearbook. In this thesis, I mainly used data from the China Statistics Yearbook.
3. As the factors influencing employment are too complicated to be subjected to the rigor of mathematical calculation, this thesis is based on single equation analysis module rather than a systemic analysis module, which has limited my thesis. I will work on the problems listed above in my future research.

1.8 Concluding comments

In this chapter, I discussed the time period and the topics of the thesis. The thesis focuses on the Chinese employment problems between 1990 and 2004.

I must therefore explain why I have selected employment as my thesis. Since the 1990's, increasing unemployment has become one of the most serious issues in China. I will try to accurately evaluate the influence of China's entry into the WTO and its effect on employment. I expect that this will arouse the interest of Chinese government and scholars.

Next, I must therefore explain why I have selected China's four industries; the agricultural industry, the automobile industry, the textile and apparel industry

and the financial industry. Furthermore, I discuss and explain the theoretical basis of the thesis. Finally, I would like to briefly describe the logical structure of the thesis, its content, and provide necessary explanations regarding the shortcomings of this thesis.

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Chapter 2

Employment and Unemployment Theories

High unemployment is an economic problem because it represents a waste of valuable resources. High unemployment is a major social problem because it causes enormous suffering as unemployed workers struggle with reduced incomes, and social unrest¹.

Samuelson, an American economist, argued “When the unemployment rate goes up, the economy is in effect throwing away the goods and services that the unemployed workers could have produced. During recessions, it is as if vast quantities of automobiles, housing, clothing and other commodities were simply dumped into the ocean²”. “The economic losses during periods of high unemployment are the greatest documented wastes in a modern economy. They are many times larger than the estimated inefficiencies from microeconomic waste due to monopoly or than the waste induced by tariffs and quotas”³.

According to calculation by Hu, A., a Chinese economist, GDP decreased by 0.23%-2.25% due to unemployment in 1996, increasing to 4.05%-6.30% in 1997 and 6.53%-7.45% in 1998. Obviously, the higher the growing rate of unemployment, the more dramatically GDP losses will rise⁴.

2.1 Unemployment / employment theories

2.1.1 Marxian employment theory

1) Labor forces are commodities. The Marxian employment theory argued that labor forces are sold as commodities. The value of commodities is calculated from time of labor employed in their production⁵. Unemployment refers to the

concept that the labor forces as commodities remain in the field of circulation and cannot achieve their value.

2) Marx identified that the result of capital excludes or repels the labor force, which is unemployment in a capitalist society. In the light of the development of capitalism, the pressure of competition continuously grows, forcing capitalists to raise productivity continuously. There is little doubt that the organic composition of capital improves increasingly, namely, the constant portion in capital organic composition becomes larger and larger whereas the variable capital decreases. When the capital demand for labor force does not equal the demand for employment, unemployment rises.

3) Based on three basic categories of the surplus population, Karl Marx argued that it is diverse in structure.

- A. Migrant surplus population, namely the temporarily jobless population who cannot find jobs within a short period of time;
- B. Hidden surplus population, namely the surplus population in the countryside;
- C. Stagnant surplus population, namely laborers, who have no stable occupations but who make a living by doing miscellaneous job.

Karl Marx and Frederick Engels depicted, "While workers are producing capital, at the same time they become surplus population"⁶. "This is a law of population peculiar to the capitalist mode of production"⁷. "Whenever the workers want to carry out a struggling fight against capitalism for their livelihood, they became a stumbling block and serve as a modulator, keeping workers' wages at the low level within the capitalists demand at any time." In the Marxian employment theory, the improved organic composition of capital leads to the demand shortage for the labor force, which is the root of unemployment. Full employment is based on the following assumptions⁸:

- 1) Marx's employment theory supposed that the decisions and policies are made by the human resource and labor departments in a democratic and scientific way, free from personal bias.
- 2) Marx's employment theory supposed that demand is equal to the supply of the labor force.
- 3) Marx's employment theory supposed that the demand and supply of labor force information is provided and updated extremely quickly, and policy makers are absolutely reliable.

2.1.2 Classical employment theories

Jean Baptiste Say (1767-1832), a French economist, in his book "Political Economics", based on the theory of three elements in production and the theory of production expenditure, put forward the famous "Market Theory". Market theory stated that in the process of 'commodity—money—commodity', money is the medium of exchange, selling is buying, buying is selling, and supply creates demand. Macroscopically, Say denied the possibility that the shortage in demand will lead to a surplus production crisis and high unemployment. He argued that 1) the price system eliminates the uneconomic structure nationwide; 2) the market economy moves labor forces to full employment; 3) government intervention is unnecessary⁹.

A. C. Pigou, a British economist, carried out intensive research on unemployment. He argued that both the Worker's Union and the minimum wage contribute to unemployment. In his book "Unemployment" (1933), he reiterated the theory of neo-classical marginal productivity and put forward the idea that the reduction of wages can lead to the elimination of unemployment¹⁰.

In the classical macroeconomic view, a long line of the most distinguished economists including David Ricardo (1817), John Stuart Mill (1848), and Alfred Marshall (1890), subscribed to that the fact overproduction is impossible.

Even during the Great Depression, when one fourth of the American labor force was unemployed, the eminent economist A. C. Pigou exhibited: "With perfectly free competition there will always be a strong tendency toward full employment. Such unemployment as exists at any time is due wholly to frictional resistance that prevents the appropriate wage and price adjustments being made instantaneously"¹¹.

2.1.3 Keynes's employment theory

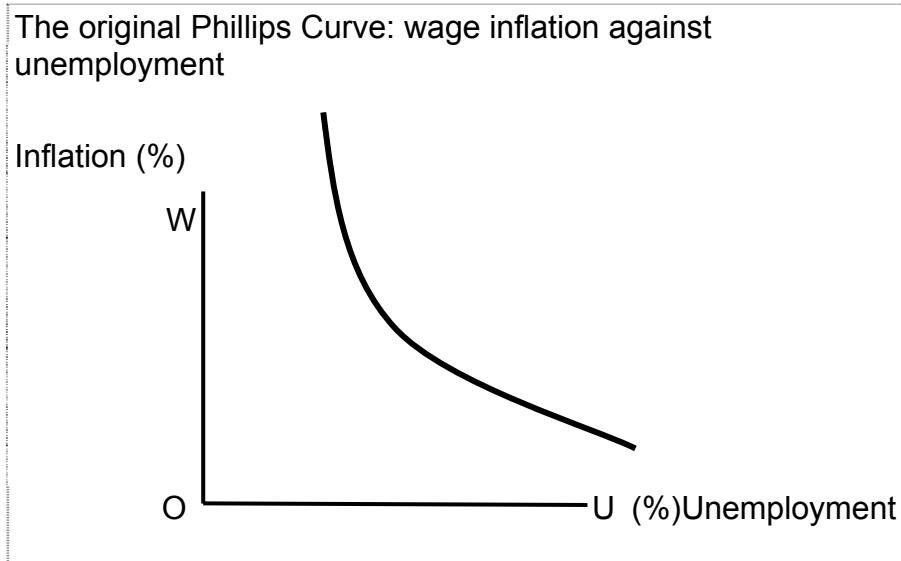
John M. Keynes ('1883-1946'; a British economist) in *The General Theory of Employment, Interest and Money* (1936) invented an alternative macroeconomic theory, a new set of theoretical spectacles for looking at impacts of economic policies as well as external shocks. In fact, the Keynesian revolution combined two elements. First, Keynes presented the concept of aggregate demand. A second feature was the Keynesian theory of aggregate supply¹².

Keynes argued that involuntary unemployment is the most significant concept in economics. Full employment could only be achieved, if involuntary unemployment was eliminated. "The involuntary unemployment is a phenomenon, in which one wants to work but fails to find a job under the current wage level"¹³. The existence of unemployment is due to the shortage of efficient demand in a capitalist society. As the aggregate demand increases, aggregate employment will also increase, or vice versa.

In the light of this statement, the best way to solve the unemployment issue is to improve the marginal efficiency of capital and reduce interests, simultaneously, to raise consumption. Only when society expands efficient demand can solve unemployment. Keynes argued involuntary unemployment would exist in the long run. Following a close inspection of involuntary unemployment, he came up with the following main suggestions: stimulating consumption, expanding efficient demand, etc.

2.1.4 Phillips curve

In 1958, A. W. Phillips used statistical methods to portray the relationship between the unemployment rate and the wage growth rate. Phillips links an inverse relationship between unemployment and wages. In other words, if unemployment increases, inflation will decrease, and vice versa. Since the wage rate is related to the increase of inflation, it also denotes the increase of prices. In fact, the Phillips curve displays the relationship between the inflation rate and the unemployment rate. The ou-axis denotes the rate of unemployment while the ow-axis denotes the increase of prices (see below figure). The Phillips curve, which moves from the top left down to the bottom right, indicates an inverse relationship between the unemployment rate and the inflation rate.



As the economy grows, the aggregate demand (AD) will increase and therefore lead to an increase in employment. At the beginning, there will be little pressure for a raise in wages. However, as the economy grows faster, and more people are in employment, wages will slowly rise. In the eyes of many, this then contributes to substantially increased costs. Therefore a decrease in unemployment leads to an increase in inflation, and vice versa.

The Phillips curve actually revised Keynes' employment theory. The curve exhibits the possibility that the inflation rate and the unemployment rate can be coexistent, even at a higher level. As a result, governments could choose a certain degree (a rate of inflation) that is accepted by society. When the rate of unemployment becomes a major economic issue, governments could, at least in the short run, introduce an inflation policy to resolve the employment pressure.

2.1.5 Employment theory of economic development

In 1954, Arthur Lewis published “Economic Development under the Infinite Supply of Labor¹⁴”. In a dual economy (in which traditional agriculture and modern industry are coexistent during the industrialization process), he points out that a large number of the labor force which earn extremely low wages are existent in a traditional agricultural sector.

Since the agricultural sector of the labor force supply is infinite, the industry sector can absorb the labor force and pay low wages similar to those paid in the traditional agricultural sector. Less noticed, the surplus profit that is earned by the industrial sector is reinvested in the production process. Capital profit is accumulated, the scale of capital therefore becomes larger and larger. Then, the traditional agricultural sector gradually sheds its surplus population. Simultaneously, the dual economic structure turns into the mono-economic structure.

In 1961, the American economists John C.H. Fei and Gustav Rannis jointly wrote the book “Surplus Population Economy”. In this book, they portrayed that in order to achieve agricultural surplus employment transfer to secondary industry and tertiary industry, the agricultural industry must make enough products to support more and more non-agricultural labor demand¹⁵. The only way to solve this problem is to improve agricultural productivity.

2.1.6 New developments of employment theories

Since the 1970s, there has been a coexistence of high unemployment and inflation in western developed countries, which none of the employment theories, including Keynesian unemployment theory, can explain. Neo-Keynesian economists advanced a series of employment theories, to highlight the issue. Strikingly, the key to neo-Keynesian theories on the labor market is

wage stickiness. Wages can easily go up but it is difficult to make them go down.

Wages can be split into two components: nominal wages and real wages. Correspondingly, wage stickiness can be divided into nominal wages' stickiness and real wages' stickiness. Allegedly, the neo-Keynesian theories mainly consist of nominal wages' stickiness and real wages' stickiness theory. The theory of real wages' stickiness mainly consists of implicit contract theory, insider-outsider theory, and efficient wage theory. The theory of nominal wages' stickiness includes the staggered adjustable wages theory and the long-term contract theory.

The implicit contract theory is an informal contract between the risk-neutral employer and the risk-neutral employee. The theory of implicit contract depicts the relationship between wages and involuntary unemployment. Arguably, according to the theory, in the long run the worker sells his labor to his employer, and the employer pays him a salary. In fact, it is similar to the insurance contract, which could protect the worker from the influence of random and observable economic fluctuations. Information is asymmetric, both the employer and the employee only have limited information. The employer normally prefers to apportion jobs rather than to fire workers.

Unsurprisingly, a person who temporarily loses his job would refuse better positions provided by other employers, in an attempt to show his loyalty, so as to obtain a better contract from his current employer. Thus unemployment will continually exist. The implicit contract theory also portrays wage stickiness. There is little doubt that it costs the employer and the worker a great deal to obtain public information. Consequently, the contract that adjusts wages is not based on efficient information but on several cheap and simple economic factors.

A. Lindbeck and D. Snowe invented the insider–outsider theory in the 1980s. The theory defines employed workers as “insiders” and the unemployed in the labor market as “outsiders”. If he dismisses workers, the employer has to arrange new interviews and examinations for new employees. In addition, in order for an “outsider” to master the same skills and knowledge as the “insider”, the “outsider” must be trained, and the employer has to pay more costs. Moreover, replacing current employed workers by the unemployed will incur strong protest from the “insiders” and the Labor Union. Bearing out this perspective, involuntary unemployment will not only continue to exist, but will also become even become worrisome.

The Efficiency Wages Theory emphasizes that productivity is influenced by the workers’ wages. The higher wages are, the higher productivity is, and vice versa. Beyond a certain level, raising wages will raise costs and reduce profit. In order to increase productivity, the employer always pays higher real wages, so that the labor market cannot be cleared (market-equilibrium (clearing) wages), and unemployment follows. Also, high wages will attract workers who are more skillful. Finally, high wages make workers feel they are being treated fairly. If all employees earn high wages, the wage level will go up. Then the labor market cannot be cleared and involuntary unemployment occurs.

The staggered adjustable wages theory argued that inflation and high unemployment will inevitably coexist, and that either contracts or a rational anticipation system is needed to stabilize the wage level in the short run. By using staggered adjustable wages, the employer and the employee can adjust wages via a working contract. The wages cannot be adjusted simultaneously, but in a staggered fashion. The staggered adjustable wages make wages become inert and influence production and employment. Contracts could help the total wages to stabilize and the wage level to become rigid.

Long-term contracts lead to nominal wage stickiness. Generally, the large companies have Labor Unions and wages are fixed. They cannot be adjusted according to changes in the labor market. Some companies do not make contracts with employees. These companies' wages are influenced by the wage stickiness of the contractual companies and will not readily change either¹⁶.

2.2 Employment structure theories

At the beginning of the 17th century, William Petty, the founder of classical British economics, stated that the difference of wage levels in different industrial sectors would trigger the change of employment structures. In his book "Political Arithmetic", he stated that workers in manufacturing earn more than workers earn in the agriculture and commerce. Allegedly, the labor force would move from agriculture to manufacturing and commerce¹⁷.

In 1940, Clark Colin, a British economist, published "Conditions for Economic Progress". In this book, Clark Colin stated that the labor force employment structure is subject to ongoing changes in the economic development process. By using the labor force index, he investigated the changes of the labor force among the three sectors. He argued that in the course of the economic development period, different labor force employment structures would appear in different countries. And with economic development and increased average income, the labor force would move from the primary industry to the secondary and tertiary non-agricultural industry. Clark Colin pointed out that the non-agricultural labor force transfer tendency was caused by the different incomes among economic industrial sectors¹⁸.

In his book “On Modern Economic Growth”, Simon Kuznets tested changes of employment structures. After closer examination of the data from over 20 nations, he drew to the following conclusions:

- 1) The share of the agricultural sector in the total labor force declined in every country.
- 2) The share of the agricultural sector in the total reproducible wealth declined in every country.
- 3) The share of the agricultural sector in the total labor force rose in every country.
- 4) The share of the industrial sector in the total reproducible capital rose and the rise is somewhat greater as a share in total material wealth, including non-reproducible resources.
- 5) The share of the services sector in the total labor force was significantly greater than the increase in its share in the total product.
- 6) The share of the services sector in the total resources shows a significant rise in a number of countries. Compared with constancy or a minor movement in the sector's share in the total product.

Simon Kuznets argued that the ratio of labor force in one sector has a relation with this sector's output tendency and economic efficiency tendency¹⁹. In fact, it relates to trends in sectional productivity or efficiency, in output per suit of input. Let us designate:

T and T_i – total product and the product of sector I

O and O_i - total resources and resources used in Sector I (labor, capital or both)

F_i –the share of sector I in the total product

G_i – the share of sector I in the total resources

Then $F_i/G_i = T_i/O_i = T/O$

If $F_i/G_i=1$, the sector's productivity is equal to average social productivity; If $F_i/G_i<1$, the sector productivity is smaller than average social productivity, and the labor force in this industry will move to other sectors. If $F_i/G_i>1$, the sector's productivity is higher than the average social productivity, the labor force will move from other sectors to this sector.

The verifying Simon Kuznets' labor force transfer theory

Based on Simon Kuznets' theoretical framework, I draw further implications:

- 1) If $F_i/G_i=1$, then sector productivity is equal to the national average productivity. The average worker's wage in this sector is at the same level as the national average wage. The ratio of output is equal to the national output ratio.
- 2) If $F_i/G_i<1$, then sector productivity is lower than the national average productivity, and the labor force will transfer from this sector other sectors until sector productivity reaches the national average level. Of course, if we increase the sector's output, the same result will be reached. It is very difficult to raise a sector's output (for instance agricultural sector) to a high level within a short period. But labor force transfers from its sector to other sectors can easily reach the same result within a short period.
- 3) If $F_i/G_i>1$, the sector's productivity is higher than the national average of productivity. Investment will inevitably move into the sector, attracting more and more laborers. Due to the above-mentioned reasons, labor force will transfer into the sector.

So we define F_i/G_i as the labor force transfer coefficient.

If $F_i/G_i < 1$, the sector's labor force will transfer to outside.

If $F_i/G_i > 1$, the labor force will transfer into this sector.

Apparently, we cannot deny that the new technological revolution could increase employment opportunities. In the short run, it has reverse relations. In order to improve productivity, advanced technology must be used, which inevitably reduces the labor force scale. In the long run, if productivity is improved, laborers can produce more surplus products. Thus, more capital can be accumulated, which is the basis for increased employment opportunities.

Richard M. Cyert (1987) among others has noted that: "Technological changes have other important effects that historically have enabled society to achieve greater prosperity without sacrificing employment. Technological change in production process frequently leads to increased demand for that commodity. Greater output demand results in increased production, which requires more labor, and offsets the effects of reductions in the amount of labor required per unit of output."²⁰

2.3 Theoretical basis and framework of thesis

Of all the concepts in macroeconomics, the most important single measure is the gross domestic product (GDP), which measures the aggregate value of goods and services produced in a country. The gross domestic product (GDP) is the most comprehensive measure of a nation's aggregate output of goods and services. It is the sum of the money values of consumption, investment, government purchases of goods and services, and net exports produced within a nation during a given year²¹.

In order to calculate the effect of China's accession into the WTO, we firstly start off with the national income equation:

$$Y = C + I + G + (X - M) \quad (1)$$

Y, C, I, G, X and M denote the national income, consumption, investment, government expenditure, exports and imports, respectively. WTO aims at regulating international trade and capital flow. Therefore, within a short run of entry into the WTO, there is a direct impact on international investment (I) and net exports (X-M) among several decomposable elements of national income. The WTO's factor may possibly have a certain influence on consumption (C), government expenditure (G) and investment, too. Most obviously, the effect is indirect and dependent on some type of interaction. Thus we suppose that the influence of the WTO on the national income is mainly fulfilled by influencing FDI and net exports.

From the structure of the GDP, the WTO will have a direct influence on China's net exports and international investment within a short period of time. I employ time-series analysis and set up the regression model to investigate the impact of accession on China's net exports and international investment. Furthermore, I calculate the elasticity of employment (another expression of Okun coefficient) to estimate the effects of China's WTO accession on aggregate employment in the coming years.

In the late 1960s, Arthur Okun, an American economist, discovered numerical relation between output and unemployment, which is known as Okun's Law. Okun's Law states that for every 2 percentage points that GDP falls relative to the potential GDP, the unemployment rate rises about 1 percentage point²². The "Law" refers the United States of America.

One significant implication of Okun's Law is that real GDP must grow as rapidly as the potential GDP so as to curb the unemployment rate from rising. In a sense, the GDP has to keep running to hold unemployment in the same place. Moreover, if you want to bring the unemployment rate down, real GDP must grow faster than the potential GDP. Okun's Law provides the vital link between the output market and the labor market.

Anne O. Krueger, an American economist, argued that a free and open trade strategy would benefit economic development. "Exports plays a significant role in the increase of employment opportunities in the developing countries²³".

Anne O. Krueger suggested that if developing countries chose export-oriented strategies, they would benefit in the following three ways:

- a. The global market introduces competition, which would encourage domestic enterprises to pay attention to applying new technologies, development and improves the quality of new products as well as the management of the enterprise.
- b. As enterprises can receive export subsidies from the government, the extra costs would drop more sharply than the costs of import substitute products.
- c. Profit-making enterprises will be able to grow rapidly. There is little doubt that these enterprises will not be limited by the demand in the domestic market.

If developing countries implement an import-oriented strategy, they will obtain the following results:

- a. The currency exchange rate remains high; the value of exports drops;

- b. A lack of foreign currency will cause more barriers to import foreign products.
I.C. bureaucracy becomes even worse²⁴.

2.3.1 The effect of China's entry into the WTO on net exports

Let us begin with the equation of national income:

$$Y = C + I + G + (X - M) \quad (1)$$

Substitute to formula (2): the equation of the increase in national income,

$$\Delta Y = \Delta C + \Delta I + \Delta G + \Delta (X - M) \quad (2)$$

We suppose $\Delta I=0$, $\Delta G=0$, $c = \Delta C / \Delta Y$, c denotes Marginal Propensity of Consume (MPC). We get

$$\Delta Y = (\Delta X - \Delta M) \times 1/(1 - c) \quad (3)$$

2.3.2 The effect of China's entry into the WTO on foreign direct investment (FDI)

Let us begin with the equation of national income:

$$Y = C + I + G + (X - M) \quad (1)$$

Substitute to formula (2), the increase in national income:

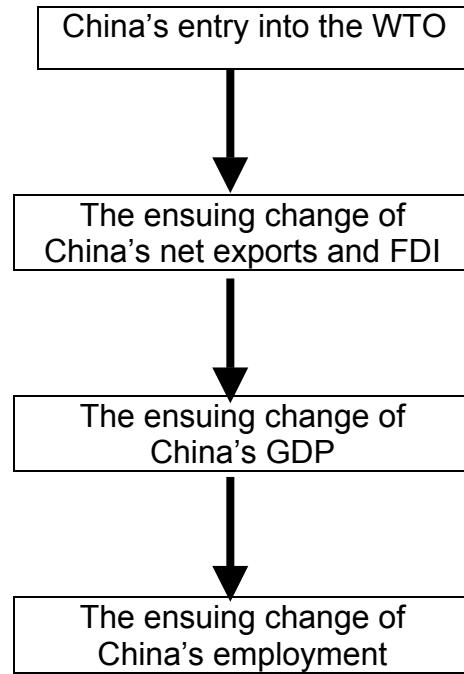
$$\Delta Y = \Delta C + \Delta I + \Delta G + \Delta (X - M) \quad (2)$$

We suppose $\Delta G=0$, $\Delta (X-M)=0$, $c = \Delta C / \Delta Y$, c denotes Marginal Propensity of Consume (MPC). We get

$$\Delta Y = \Delta I \times 1/(1 - c) \quad (3)$$

What are the effects of China's entry into the WTO on employment?

The analytical approach is structured as follows:



2.4 Summaries of issues regarding China's WTO accession, affecting employment

China's WTO accession will inevitably influence China's economic structure and employment structure. It will stimulate the development of China's market economy. Currently, there has been a lot of investigation carried out on accession. Most of these papers focused on trade. Then in 1999 the Chinese Academy of Social Sciences (CASS) wrote a book entitled "The process of reforming enterprises after China's WTO accession", which discussed WTO's factors affecting the agricultural industry, textile and clothing sector, petroleum & steel industry, automobile industry, telecommunications sector, etc. In 2001, Zhang, J. published "A second look China's WTO accession", which also investigated the effects on China's trade sector. In 2002, Long, Y. of the Ministry of Foreign Trade compiled a set of books: "WTO and China's Service

Industry" and "WTO and China's Industrial". This set of books mainly analyzed WTO rules and regulations as well as WTO's impact on China's main economic sectors.

And, as unlikely as it might once have seemed, literature on WTO accession affecting employment is surprisingly limited. The reasons may be as follows:

- 1) Cross-disciplines specialists (social science, statistics, economics, information technology, mathematics, etc.) are rare.
- 2) The data to be collected is huge, including not only employment data but also many data from the core macroeconomic variables.
- 3) There is no widely accepted analysis approach. The large body of literature on employment issues frequently quoted from the book "China and The World" (2000, Li, S., Wang, Z.), published by the China Development Research Center of the State Council. The book employed the computable general equilibrium model (CGE) to measure the effects the WTO have on China's employment in main economic sectors.

The Development Research Center of the State Council (DRC), PRC, established two computable general equilibrium models (CGE) to analyze the issue of China's WTO accession. The first CGE model involves 41 sectors and 10 representative households (5 rural and 5 urban). This model deals with two types of foreign trade: ordinary trade and processing trade. It also incorporates the scale economy and the market structure, as well as other features of China's current hybrid economy. It mainly evaluates different foreign trade policies and reforms, and estimates the effects the WTO has on China's economy. The second CGE model is a 17-region, 19-sector recursive dynamic model for world production and trade, which is composed of 17 countries

(regions) and 19 production sectors. It analyzes the impact of China's entry to the WTO on other major countries' (regions') production and trade, as well as the impact on trade relations between China and her main trade partners. Both models cover the period from 1995 to 2010. Some significant results are summarized as follows:²⁵

- 1) China's entry into the WTO will benefit China a great deal. Between 1998 and 2010, the Chinese annual GDP will increase by 1%; the GDP in 2010 will be 13% higher than that in the base year in 1998. Most of GDP growth originates in improved efficiency, resulting from reallocated resources based on comparative advantages. If the improved productivity brought by free trade is considered further, China will receive greater benefits.
- 2) Due to the scarcity of per capita arable land in China, agricultural comparative advantage will deteriorate over time. Agricultural protection will have a high social cost in the long run. Trade liberalization in agriculture plays a critical role in China's accession to the WTO.
- 3) The aforementioned efficiency benefits are not allocated evenly among sectors, so entry into the WTO requires a major structural adjustment. The agricultural sector and the capital-intensive sectors, such as the automobile, cotton and wheat sectors, will decline in production whereas the labor-intensive sectors will become major beneficiaries. The elimination of the Multi-Fibre Arrangement (MFA) quota and the expansion of the world textile and clothing market will have important implications to the transformation of the Chinese agricultural labor force.

Nowadays, China has a strong comparative advantage in the production of many fruits and vegetables. Yet a reduction of the output of wheat by 6% and 1.7% in 2003 and 2004, respectively²⁶, bears out this perspective.

4) Labor force transfer within sectors is a major adjustment cost after entry into the WTO. Between 1998 and 2010, about 9.6 million laborers will transfer from the agricultural sector to other sectors, and 5.4 million jobs will be created in the textile and apparel sector.

5) Agriculture and the automobile industry are the two largest 'disaster areas'. But in 2005, the degree of self-sufficiency in China's grain will still be kept at 90% or above. Free trade will cause China's automobile manufacturing enterprises to be reduced by 27% by 2005. The real farming income will decline by 2.3% compared to that of the base year in 1995, whereas the earnings in cities and towns will increase by 4.6%.

6) For the developing countries with similar resource allocation, their labor-intensive exported products will face heated competition, leading to the reduction of prices. Other production elements, however, will grow through the import and export of agricultural products. By 2010, China will have surpassed Japan and become the largest exporting country of agricultural products.

Using the first CGE model, Li, S. and Wang, Z. came to the aforementioned conclusions. The following table 2-1 displays the changes in output, employment and trade of main economic sectors following China's entry into the WTO from 1995 to 2010:

Table 2-1

Changes in Output, Employment and Trade following China's Entry into the WTO Compared to the base Year in 1995

Output (%)	Employment (in thousands)	Employment (%)	Import (%)	Export (%)
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	Output (%)	Employment (in thousands)	Employment (%)	Import (%)	Export (%)
Rice	-1.4	-2,461	-2.8	300.1	12.0
Wheat	-9.0	-5,403	-14.2	205.5	73.3
Cotton	-12.6	-4,982	-22.6	426.6	209.4
Other plants	1.8	1,511	1.9	10.9	1.1
Forestry	1.1	54	1.4	10.7	-2.2
Wool	-37.0	-100	-37.5	86.6	-15.4
Other farming	5.2	572	5.1	19.4	4.6
Fishery	1.0	90	1.3	55.8	6.1
Coal	-1.2	-22	-0.3	4.5	-4.3
Petroleum and Natural Gas Extraction	-4.8	-38	-2.9	4.9	-10.0
Metal	-1.7	-11	-0.8	0.6	-3.9
Nonmetal	0.4	53	1.4	6.7	-2.2
Food Processing	-5.8	-133	-8.0	260.2	126.6
Sweaters	-2.1	-15	-1.6	83.8	18.5
Food	5.3	316	5.9	16.1	31.7
Textiles	25.5	2,825	23.6	85.7	63.8
Clothing	74.0	2,610	52.3	124.4	214.1
Leather Products	5.9	219	7.6	124.1	6.6
Furniture	-0.6	21	0.6	5.6	-2.1
Manufacturing					
Production and Supply of Power	-1.4	-0.01	0.0	5.6	-7.2
Petroleum Refining and Coking	-3.5	-31	-2.6	35.1	-6.8
Chemical Fiber	3.8	589	4.2	26.8	14.4
Construction	-0.8	57	0.3	2.8	-4.2
Metal Products	-1.7	-42	-0.5	1.6	-5.7

	Output (%)	Employment (in thousands)	Employment (%)	Import (%)	Export (%)
Ordinary Machinery	-3.1	-298	-2.2	10.2	-4.4
Transport Equipment	-15.1	-498	-14.5	105.1	-7.8
Electronic and Telecommunic -ations	-4.7	-109	-3.3	5.2	-5.2
Construction Equipment	1.2	928	2.2	3.6	-0.3
Other Manufacturing	0.2	416	1.1	3.4	-1.3
Domestic Trade	1.8	2,615	3.3	4.0	-0.8
Other services	-0.1	49	0.1	3.8	-2.0

Sources: Li, S. and Wang, Z., *China and The World*, The Development Research Center of the State Council (DRC), PRC. 2000, p. 56.

Using the second CGE model, Li, S. and Wang, Z. came to the following conclusions.

Table 2-2

The influence on the world employment following China's WTO accession (in %) Compared to the base Year in 1995

	United States of America	Canada	EU	Australia and New Zealand	Japan	korea	South Africa
Rice	-0.6	0	-0.5	0	-1.4	-1.3	0.2
Wheat	4.6	16.6	1.2	2.0	0	0	0.2
other cereals	1.8	16.6	0.5	3.6	0	0.6	0.1
Cotton	12.3	0	1.3	1.9	0	14.3	0.1
Other Farm Crops	-0.4	-0.7	-0.4	-0.4	-1.0	-0.8	0

	United States of America	Canada	EU	Australia and New Zealand	Japan	Korea	South Africa
Livestock	0	0	-0.4	0.1	-0.8	0.1	0
Forestry	-0.3	-0.6	-0.1	-0.2	-0.5	-0.2	0
Textile industry	-1.6	-2.8	-1.3	-2.1	-0.6	1.8	0.8
Garments	-4.2	-8.7	-3.7	-5.0	-3.8	-5.8	-0.9
Vehicles	0.1	-0.1	0.6	-0.3	-0.2	0.1	0.6
Electrical Products	-0.4	-0.5	-0.2	-0.7	0	-0.7	1.0
Electronics and Telecommunications	-0.2	-0.5	0	-0.6	-0.1	-0.7	0.5
Construction	0	0.1	0.1	0.1	0.2	0.3	-0.2
Other services	0.1	0.2	0.1	0.1	0.2	0.3	0.1

Sources: Li, S. and Wang, Z., *China and The World* The Development Research Center of the State Council (DRC), PRC. 2000 p. 82.

By 2010, the U.S. clothing sector will fall by 4.2%, but plant fiber production will increase by 12.3%; in Canada, employment in the wheat production sector will increase by 16.6%; the largest loss faced by the EU is in the clothing sector, whose employment will be reduced by 8.7%. In general, China's entry into the WTO will contribute 0.12% to world GDP growth. By 2010, the cumulative GDP growth rate will be 2.67% higher than that of the base year in 1995. China's entry into the WTO will stimulate U.S. real GDP by 0.8%. That of the EU will increase by 1.2%²⁷.

Based on the preceding analyses, the results were estimated by the Development Research Center of the State Council (DRC), PRC, had serious problems:

A The assumptions used in the research have problems, since China had not entered the WTO at the time of the research was undertaken.

B Most importantly, the computable general equilibrium models assume that all firms are perfectly competitive. This means that Chinese enterprises, even before the accession, are assumed to base the combination of inputs and output on an optimistic assumption, which was largely deviated from status quo.

As they stressed in the research report, “The results reported in this report need to be interpreted with caution: they can be viewed as indicative but not as precise real outcomes²⁸”.

Other studies:

Li, G. and Li, H. employed the modified computable general equilibrium model (CGE) to estimate the effects of China's WTO accession on China's employment. The base year is still 1995 and the data is also quoted from the China Development Research Center of the State Council PRC.

The model shows that China's unemployment rate will decrease from 4.35% in 2000 to 3.25% in 2005, and that the employment rate will go up by 1%²⁹.

Table 2-3

The influence of China's Entry into the WTO on Trade (in %) Compared to the base Year in 1995

	2005	2010
Total import value	27.6	24.5
Total export value	15.3	20.8
Automobile import value	54.6	48.8
Agricultural import value	21.5	17.6
Textile export value	41.7	44.6

	2005	2010
Clothing export value	72.8	72.2
Import value from USA	6.7	3.9
Import value from the EU	21	17.6
Export value to USA	13.6	19.5
Export Value to the EU	18.3	25.1

Sources: *The Developmental Road of China and Economic Globalization*, China's People University Press 2001 Anderson Consultant Corporation; Yang, G., The Department of Economics of Georgia Sciences College Li, H., Colorado University Prof T. Ludefud p. 140.

Table 2-4

Employment Transfer with China's accession the WTO (in %) Base Year in 1995

	2005	2010
Textile	5.0	5.3
Clothing	60.2	56.6
Agriculture	-3.4	-2.5
Automobile	-34.6	-35.3
Electronics	5.2	8.9
Light industry	1.8	4.5
Mining	-0.6	0.2
Machinery and Manufacturing	-1.7	-0.2
Public Service	2.1	1.5

Sources: *The Developmental Road of China and Economic Globalization*, China's People University Press 2001 Anderson Consultant Corporation; Yang, G., The Department of Economics of Georgia Sciences Collage Li, H., Colorado University Prof T. Ludefud p. 142.

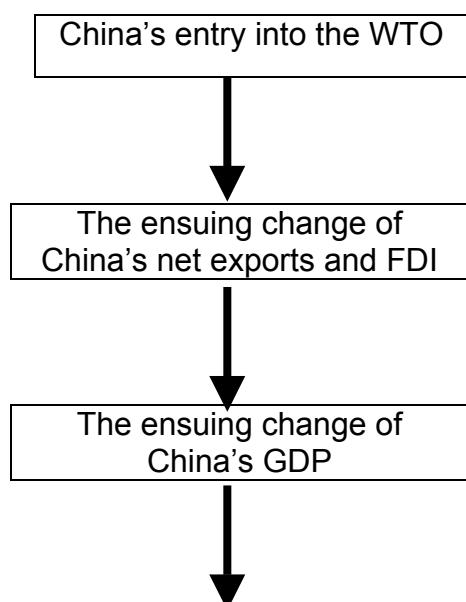
Compared to the research undertaken by the Development Research Center of the State Council (DRC), PRC, they used the rate of unemployment as one of

their research dynamic parameters. The data used (2001) are more reliable than those in the report by the Development Research Center of the State Council (DRC), PRC.

2.5 Concluding comments

In this chapter, I first reviewed various employment theories: The Marxian employment theory; from Say's market law to Pigou's unemployment theory; from Keynesian employment theory to Phillips' curve. Since the 1970s, new employment theories have developed. Wages can be split into two components (nominal and real wages); neo-Keynesian labor force market theories develop with nominal wages' stickiness theory and real wages' stickiness theory. The theory of real wages' stickiness includes implicit contract theory, insider-outsider theory, and efficiency wages theory. The theory of nominal wages' stickiness involves staggered adjustable wages and long-term contracts.

Secondly, the WTO had a direct influence on China's net exports and international investment in the short run. I investigate China's entry into the WTO. The analytical approach is structured as follows:



The ensuing change of China's employment

I made analyses of the transfer theory of Simon Kuznets' employment structure. The Development Research Center of the State Council (DRC), PRC, set up two computable general equilibrium models (CGE) to analyze the WTO's impact on China's employment.

- ¹ Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press, July 1998, P. 588.
- ² Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press, July 1998, P. 569
- ³ Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press, July 1998, P. 564.
- ⁴ Hu, Angang *Unemployment*, Shanghai People's Publishing Press, 1999, 1 p. 78.
- ⁵ Mandel, Ernest *Karl Marx Capital Volume One 1977*, vintage books a division of Random house New York, p. 568.
- ⁶ *The Complete Works of Marx and Engels*, People's Publishing House, V. 23, 1983, p. 236.
- ⁷ Mandel, Ernest *Karl Marx Capital Volume One 1977*, vintage books a division of Random house New York, p. 784.
- ⁸ Xia, Changjie *Marx's Employment Theory of Socialist Labor*, Modern Economics Studies, 1999. p. 8.
- ⁹ Jean- Baptiste,Say *A Treatise on Political Economy*, The Commercial Press, 1988, p. 140.
- ¹⁰ Pigou, Arthur Cecil, *Unemployment Theory*, London, 1933, p. 252.
- ¹¹ Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press, July 1998, p. 622
- ¹² Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press, July 1998, p. 624
- ¹³ Keynes, John M, *The General Theory of Employment, Interest, and Money*, The Commercial Press, Beijing, 1963, p. 19.
- ¹⁴ Lewis, W. Arthur, *On Dual Economy*, China Economy Institute Press, 1989, p. 80.
- ¹⁵ Fei, John C.H. and Rannis, Gustav, *The Development of Labor Force Surplus Economy*, China Huaxia Press, 1989, Chapter 6
- ¹⁶ Deng, Dasong, *Unemployment measures*, China's Labor Social Security Press, December 2002, p. 12.
- ¹⁷ Petty, William, *Political Arithmetic*, The Commercial Press, 1981 version
- ¹⁸ Yang, Xianming, *Labor Force Market*, The Commercial Press, Beijing, 1999, p. 98.
- ¹⁹ Simon, Kuznets, *Economic Growth*, Beijing Economic Institute Press, 1991, p. 100.
- ²⁰ Cyert, Richard M. and Mowery, David C. *Technology and Employment Innovation and Growth in the U.S. Economy*, National Academy of Sciences National Academy Press Washington, D. C. 1987, p. 17.
- ²¹ Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press, July 1998, p. 391.
- ²² Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press, July 1998, p. 319.
- ²³ Krueger, Anne O. *Trade and Employment in Developing Countries*, Shanghai People Press, 1995, p. 123.
- ²⁴ Krueger, Anne O. *Trade and Employment in Developing Countries*, Shanghai People Press, 1995, p. 18.

²⁵ Li, Shantong and Wang, Zhi, *China and the World*, China Development Press, 2000, p. 3

²⁶The web of China Agriculture for trade and economy <http://www.cafte.gov.cn/gjscts/scyjgyc/4128.asp>

²⁷ Li, Shantong and Wang, Zhi, *China and the World*, China Development Press, 2000, p. 59.

²⁸ Li, Shantong and, Wang, Zhi, *China and the World*, China Development Press, 2000, p. 165.

²⁹ Anderson Consultant Corporation; Yang, Guifang, The Department of Economics of Georgia Sciences College Li, Haizheng, Colorado University Prof. T. Iudefud *WTO Report, The Developmental Road of China and Economic Globalization*, China's People University Press, 2001, p. 130, p. 140.

Chapter 3

The Effects of China's Entry into the WTO on its Agricultural Industry Employment

Agriculture had always been one of the most controversial issues facing the Chinese government, especially after China's WTO accession. Generally, China was still a tiny player in a global perspective. On the one hand, the WTO member passport provided China's agriculture industry with new opportunities; on the other hand, it posed a challenge to agricultural products, and required substantial structural adjustment. A perennial topic, skeptics of China's WTO accession emphasize that Chinese farm workers are threatened with the same kind of mass unemployment as those laid off by state-owned enterprises.

Before discussing this, we should review the status quo of China's agricultural employment and rural surplus labor force. Fundamentally, I am convinced that the agricultural employment problem involves other issues, such as agricultural product output, agricultural product imports, etc. Allegedly, the investigation of the agricultural employment issue has to be seen within the larger context.

3.1 The Status quo of agriculture

3.1.1 China's population

1) China's population increases continually year by year

In 2004, China's population was almost 1.3 billion people (see Table 3-1). The number of habitants in cities and towns was over 530 million, or 40.83% of the total population. The majority of China's population used to live in

rural communities, which have fallen since 1978 by about 1.316% annually. Correspondingly, the urban population has increased by 1.316% annually.

Table 3-1**Chinese Population and Its Composition (in thousands)**

Data in this table excludes the population of Hong Kong, Macao and Taiwan

Year	Total population	Urban		Rural	
		Population	Proportion(%)	Population	Proportion (%)
1978	962,590	172,450	17.92	790,140	82.08
1980	987,050	191,400	19.39	795,650	80.61
1985	1,058,510	250,940	23.71	807,570	76.29
1990	1,143,330	301,950	26.41	841,380	73.59
1991	1,158,230	312,030	26.94	846,200	73.06
1992	1,171,710	321,750	27.46	849,960	72.54
1993	1,185,170	331,730	27.99	853,440	72.01
1994	1,198,500	341,690	28.51	856,810	71.49
1995	1,211,210	351,740	29.04	859,470	70.96
1996	1,223,890	373,040	30.48	850,850	69.52
1997	1,236,260	394,490	31.91	841,770	68.09
1998	1,247,610	416,080	33.35	831,530	66.65
1999	1,257,860	437,480	34.78	820,380	65.22
2000	1,267,430	459,060	36.22	808,370	63.78
2001	1,276,270	480,640	37.66	795,630	62.34
2002	1,284,530	502,120	39.09	782,410	60.91
2003	1,292,270	523,760	40.53	768,510	59.47
2004	1,299,880	530,351	40.80	769,529	59.20

Sources: *China Statistical Yearbook 2004*, National Bureau of Statistics of China p. 97. The 2004 data are from http://news.xinhuanet.com/ziliaoziliao/2005-01/18/content_695553.htm

Other indexes, namely the birth rate, death rate and natural growth rate of the Chinese population, have declined every year. The natural growth rate of the Chinese population increased from 12‰ in 1978 and peaked in 1987, declining in 2004 to 6.38‰. In addition, China's birthrate went up from 18.25‰ in 1978 and peaked in 1987. Since 1987, it has fallen annually by a rate of 0.71‰, reaching 12.38‰ in 2004. Table 3-2 shows that China's one child policy has gained results.

Table 3-2**Birth, death and natural growth rate of Chinese population (in ‰)**

Data in this table excludes the population of Hong Kong, Macao and Taiwan

Year	Birth Rate	Death Rate	Natural Growth Rate of Population
1978	18.25	6.25	12.00
1980	18.21	6.34	11.87
1981	20.91	6.36	14.55
1982	22.28	6.60	15.68
1983	20.19	6.90	13.29
1984	19.90	6.82	13.08
1985	21.04	6.78	14.26
1986	22.43	6.86	15.57
1987	23.33	6.72	16.61
1988	22.37	6.64	15.73
1989	21.58	6.54	15.04
1990	21.06	6.67	14.39
1991	19.68	6.70	12.98
1992	18.24	6.64	11.60
1993	18.09	6.64	11.45
1994	17.70	6.49	11.21
1995	17.12	6.57	10.55
1996	16.98	6.56	10.42

Year	Birth Rate	Death Rate	Natural Growth Rate of Population
1997	16.57	6.51	10.06
1998	15.64	6.50	9.14
1999	14.64	6.46	8.18
2000	14.03	6.45	7.58
2001	13.38	6.43	6.95
2002	12.86	6.41	6.45
2003	12.41	6.40	6.01
2004	12.38	6.38	6.01

Sources: *China Statistical Yearbook 2004*, National Bureau of Statistics of China p. 97.
The 2004 data are from http://news.xinhuanet.com/ziliao/2005-01/18/content_695553.htm

The state Statistical Bureau of China carried out censuses in 1953, 1964, 1982, 1990 and 2000. There is little doubt that the increases of the 15-64 years population segment portrayed the increases of potential labor forces in coming years.

Table 3-3
Basic Statistics on National Population Census In 1953,1964,1982,1990, 2000

Data in this table excludes the population of Hong Kong, Macao and Taiwan

Item	1953	1964	1982	1990	2000
Total Population (1,000 persons)	594,350	694,580	1,008,180	1,133,680	1,265,830
Male	307,990	356,520	519,440	584,950	653,550
Female	286,360	338,060	488,740	548,730	612,280
Sex Ratio	107.56	105.46	106.30	106.60	106.74
Population by Age Group (%)					
0 -14	36.28	40.69	33.59	27.69	22.89

Item	1953	1964	1982	1990	2000
15 - 64	59.31	55.75	61.50	66.74	70.15
65 and over	4.41	3.56	4.91	5.57	6.96
Population By Residence (1,000 persons)					
Urban	77,260	127,100	210,820	299,710	458,440
Rural	505,340	567,480	797,360	833,970	807,390

Sources: *China Statistical Yearbook 2004*, National Bureau of Statistics of China p. 99.

2) Chinese rural laborers increase year by year

From 1978 to 2003, Chinese rural laborers increased annually by 4.5 million. Notably, the number of Chinese labor force engaged in this primary industry peaked in 1991 at 340 million. Even since then, it has fallen every year.

Table 3-4 depicts that the rural labor force employed in the non-agricultural sector has increased every year since 1978. Laborers engaged in industry has increased by 0.92 million annually; those in construction has increased by 0.86 million annually and those in transportation, warehousing, trade and services have increased by 3.15 million per year.

Table 3-4
Rural Laborers by Sector at year end (in thousands)

Data in this table excludes the population of Hong Kong, Macao and Taiwan

Year	Number of Rural Laborers	Farming, Forestry, Animal Husbandry and Fishery	Industry	Construction	Transport Storage, Post and Communi- cation Services	Wholesale, Retail Trade & Catering Services	Other Non-agricultural Trades
1985	370,651	303,515	27,410	11,301	4,341	4,626	19,458

Year	Number of Rural Laborers	Farming, Forestry, Animal Husbandry and Fishery	Industry	Construction	Transport Storage, Post and Communication Services	Wholesale, Retail Trade & Catering Services	Other Non- agricultural Trades
1990	420,095	333,364	32,287	15,228	6,353	6,932	25,931
1991	430,925	341,863	32,679	15,338	6,550	7,228	27,267
1992	438,016	340,370	34,682	16,588	7,063	8,137	31,176
1993	442,558	332,582	36,590	18,868	7,999	9,488	37,031
1994	446,542	326,903	38,495	20,573	9,083	10,843	40,645
1995	450,419	323,345	39,707	22,036	9,830	11,704	43,797
1996	452,880	322,604	40,185	23,043	10,276	12,615	44,157
1997	459,621	324,349	40,313	23,727	10,578	13,815	46,839
1998	464,323	326,264	39,286	24,535	10,879	14,619	48,740
1999	468,964	329,118	39,530	25,319	11,158	15,846	47,993
2000	479,621	327,975	41,086	26,917	11,706	17,518	54,419
2001	482,289	324,510	42,960	27,974	12,054	18,645	56,146
2002	485,269	319,906	45,056	29,590	12,591	19,968	58,158
2003	488,360	317,824	46,244	30,688	12,889	20,482	60,233

Note: The number of laborers by sector in this table is classified by their main activities. For example, those engaged primarily in agriculture and secondarily in commerce are classified under farming, forestry, animal husbandry and fishery.

Sources: *China Statistical Yearbook 2004*, National Bureau of Statistics of China p. 414.

3.1.2 Acute shortage of arable land

According to “The Chinese National Territory Resources Gazette 2004”, there were 124,470,000 hectares of arable land in China in 2003. The per capita amount is 0.096 hectares, whereas the world per capita amount is 3.75 acres. In other words, the Chinese per capita amount only accounts for 39.17% of the world and 10% of the United States¹.

The Chinese government strengthened its protection of arable land. However, due to the fast development of the economy, land demands have increased drastically. Unsurprisingly, the total of available arable land is inevitably shrinking dramatically.

The labor forces employed in the primary industry (husbandry and fishery) increased from 285 million in 1978 to 325 million in 2003. In comparison, the arable land in the same period decreased by 64 million acres². This is the best indication that the rural labor force is increasing and the total arable land is decreasing, simultaneously.

From 1981 to 1995, four provinces (Guangdong, Fujian, Zhejiang and Jiangsu) decreased its arable land by 920,000 hectares, which is the equivalent of 80% of the Fujian province's arable land (in 1995, Fujian had 1.2 million hectares of farmland). From 1991 to 1995, arable land decreased by 4.5 million hectares in the four provinces³. In 2003, a total of 1.68 million hectares, or 1.32% of national arable land was lost.

From the analysis up to now, we can conclude that there is an inverse relationship between China's per capita of arable land and population growth. In a recent research project at the World Bank, it was estimated that China's imports as a share of world trade would become much larger for food grains, grains, oilseeds, meat and livestock, and even dairy products⁴. The trend of rising imports for these products is a consequence of the acute shortage of arable land; China does not have a comparative advantage in the production of land-intensive crops such as grain.

3.1.3 The Chinese uneconomic agricultural structure (irrational)

Since 1978, when China opened up to the world, issues regarding uneconomic agriculture structure there have been many concerns among policymakers. Since 1949, the percentage of rural laborers in the total population decreased from 91.6% to 70% in 1978, and further to 59.20% in

2004⁵. On close inspection, it can be seen that the current Chinese industrial structure is still uneconomic or irrational.

1. China's uneconomic structure.

In contrast to the total national output value, the proportion of primary industry output declined gradually from 30% in 1978 to 14.7% in 2003⁶. A similar descending tendency can be found in the employment structure. The percentage of the primary industry employment fell from 70% in 1978 to 49% in 2003⁷. Strikingly, the descending tendency in the percentage of employed laborers in the primary industry is much slower than that of the output value of the primary industry.

Correspondingly, following Simon Kuznet's of transfer theory coefficient of employment (F_i/G_i), as described in chapter 2, we can calculate the employment transfer coefficient of the primary industry in 2003:

$$F_i/G_i \text{ (2003)} = 14.7\% / 49\% = 0.30.$$

In 2003, the primary industry's employment transfer coefficient was $0.30 < 1$. Most obviously, the result indicated that rural laborers would move from the agricultural sector to other sectors.

2. Uneconomic structure of Chinese agriculture

The empirical evidence suggests a periodization of the uneconomic structure of Chinese agriculture. Since 1990, the following stages of development may be distinguished:

From 1990 to 1994, China's authorities announced adjustment in the agricultural economic structure, resulting in significant developments of animal husbandry industry, the fishery industry, and the forestry industry. Table 3-4 depicts that the output of the fishery industry dramatically increased by 214% from 41 billion RMB to 88.2 billion RMB. The output of

the forestry industry increased by 185% from 33 million RMB to 61.11 million RMB.

From 1990 to 1994, the inadequacy of food grain products and the prices rose quickly, triggered panic purchasing. In order to fight against the rise of grain prices and a nation-wide panic, the state introduced the industrial policy to “Improve the Economic Environment”. The agricultural structure then entered a 3-year period of reorganization⁸. One goal of the policy is to restrict the fast development of the second and tertiary industries, and to encourage resources to invest in the agricultural sector.

On January 4, 1994, China declared a foreign currency exchange reform, which led the domestic currency (RMB) to depreciate by 49.5%. Less obviously, the foreign trade departments and the southern provinces anticipated that the Chinese government would reform its fixed rate currency system. They purchased domestic grain production instead of importing foreign grain for the purpose of earning extra profit in the future. The phenomenon is demonstrated in Table 3-14 (The balance of imports and exports in recent years). In 1993, the imported agricultural products only valued 4.7 billion USD (see Table 3-14).

Bearing out this perspective, in 1993 and 1994 the shortage of grain food products became worse in the domestic markets. In 1993, the average grain price went up 15%⁹. More generally, the Chinese government also agreed to increase the grain price so as to it subsidies, since the agricultural industry was comparatively inefficient.

Table 3-5

**Average Exchange Rate of RMB Against Main Convertible Currencies
(Medium Rate) 100 USD**

Year	
1985	293.66

Year	
1986	345.28
1987	372.21
1988	372.21
1989	376.51
1990	478.32
1991	532.33
1992	551.46
1993	576.20
1994	861.87
1995	835.10
1996	831.42
1997	828.98
1998	827.91
1999	827.83
2000	827.84
2001	827.70
2002	827.70
2003	827.70
2004	827.70

Sources: *China Statistical Yearbook 2004*, National Bureau of Statistics of China p. 197.

Table 3-6
Gross Output Value of Farming, Forestry, Animal Husbandry and Fishery and Related Index (in billion RMB)

Year	Total	Farming	Forestry	Animal Husbandry	Fishery	Shares	Shares of	Shares of	Shares
						of Gross	Gross	Gross	of Gross
1990	766	495	33	196	41	0.65	0.05	0.26	0.05

Year	Total	Farming	Forestry	Animal Husbandry	Fishery	Shares	Shares of	Shares of	Shares
						of Gross Output of Farming	Gross Output of Forestry %	Gross Output of Animal Husbandry %	Gross Output of Fishery %
1991	815	514	36	215	48	0.63	0.05	0.26	0.06
1992	908	558	42	246	61	0.61	0.04	0.27	0.07
1993	1,099	660	49	301	88	0.60	0.04	0.27	0.08
1994	1,575	917	61	467	129	0.58	0.04	0.30	0.08
1995	2,034	1,188	71	604	170	0.58	0.03	0.30	0.08
1996	2,235	1,354	78	601	202	0.60	0.03	0.27	0.09
1997	2,378	1,385	82	683	228	0.58	0.03	0.29	0.10
1998	2,454	1,424	85	702	242	0.58	0.03	0.29	0.10
1999	2,452	1,410	88	700	253	0.57	0.04	0.29	0.10
2000	2,492	1,387	93	739	271	0.56	0.04	0.30	0.11
2001	2,618	1,446	94	796	281	0.55	0.04	0.30	0.11
2002	2,739	1,493	103	845	297	0.54	0.04	0.30	0.11
2003	3,279	1,672	131	1,082	393	0.51	0.04	0.32	0.12

Data in value terms in this table are calculated at current prices, while the indexes are calculated at comparable prices.

Sources: *China Statistical Yearbook 2004*, National Bureau of Statistics of China p. 416.

In the sense of developed countries, the ratio of output in China's farming is much higher. In 1985, the ratios of the animal husbandry's output in the United States, France and England reached 49.98%, 53.7% and 60.8%, respectively (See Table 3-7).

Table 3-7
Shares of Gross Output of Farming and Animal Husbandry (in %)

	Year	Index of Gross	Index of Gross Output of
		Output of Farming	Animal Husbandry
China	1980	80.6	19.4
	1985	77.4	22.6

	Year	Index of Gross Output of Farming	Index of Gross Output of Animal Husbandry
USA	2001	55.0	30.0
	1980	51.7	48.3
	1985	50.1	49.9
France	1980	46.2	53.8
	1985	46.3	53.7
UK	1980	34.4	65.6
	1985	39.2	60.8

Sources: *Agricultural Economy*, China Agriculture Press, 1989 edition Nu Yanfeng P. 886 - 887; *China Statistical Yearbook 2003*, National Bureau of Statistics of China, p. 416.

3.2 A dual economy

China is a developing country. 60% of its population lives in rural areas. Productivity in the agricultural sector is lower than that in the industrial sector. Hence, in a dual economy, the transfer of the rural labor force to the industrial sector is “unlimited”. Whenever investment in the industrial sector expands, rural laborers will move to the industrial sector.

It is generally believed that a dual economy causes the income inequality between the urban and rural areas of China. In contrast to farmers, town residents are entitled to enjoy privileged treatment regarding income, education, medical benefits and welfare. Since 1978, the agricultural economy has made considerable progress. As unlikely as it might have been seemed, the income inequality between the urban and the rural community has substantially contributed to social issues.

1.The index of income inequality between urban and rural area.

The index of income inequality between urban and rural area is as follows:

The index of income inequality between urban and rural area =

Average income per urban resident /Average income per rural resident

2. The Gini coefficient.

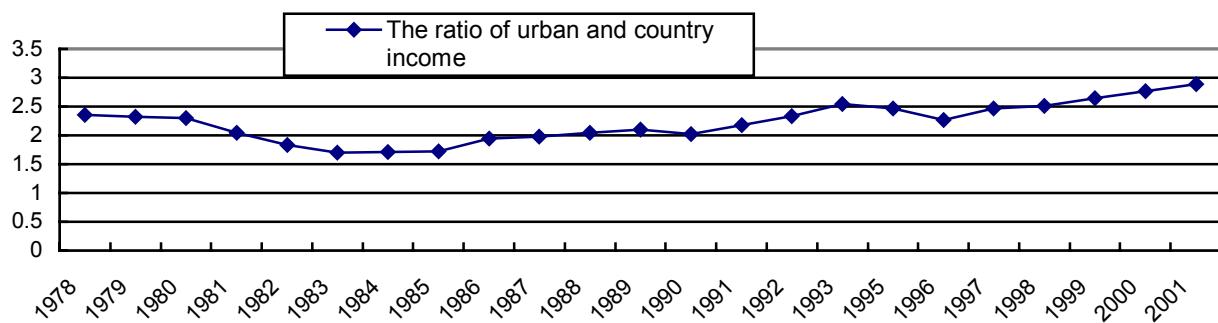
The Gini coefficient is a number between 0 and 1, where 0 corresponds with perfect equality (where everyone has the same income) and 1 corresponds with perfect inequality (where one person has all the income, and everyone else has zero income)¹⁰. In the equation, when $Gd=0$, it indicates that the income in towns is equal to that in rural communities.

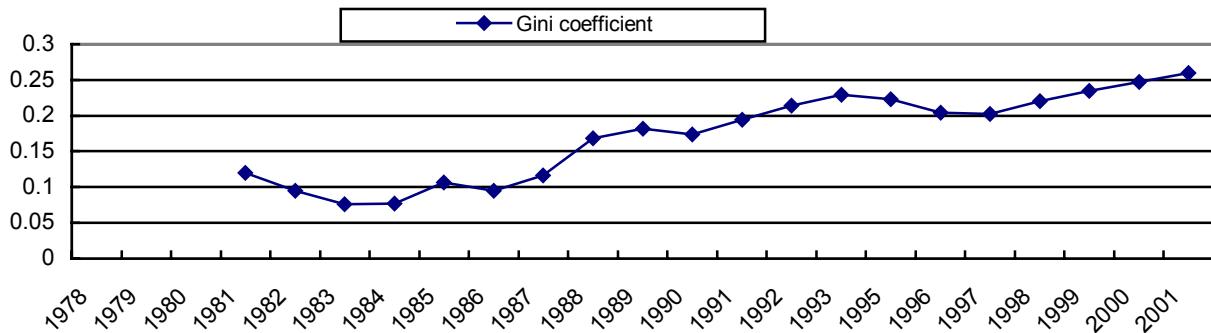
Table 3-8

**The ratio of urban and rural community income and Gini coefficient
1978-2001**

		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
The ratio of urban and country income		2.36	2.32	2.30	2.05	1.83	1.70	1.71	1.72	1.95	1.98	2.05
Gini coefficient					0.12	0.095	0.076	0.077	0.107	0.095	0.116	0.168
1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
2.10	2.02	2.18	2.33	2.54	2.60	2.47	2.27	2.47	2.51	2.64	2.77	2.89
0.182	0.174	0.194	0.214	0.229	0.234	0.223	0.204	0.202	0.220	0.235	0.247	0.26

Source: *China Statistical Yearbook 2004*, National Bureau of Statistics of China, p. 480.





The above figure and table depicts that both the Gini coefficient and the index of income inequality between urban and rural areas have a similar ascending tendency.

Qiu,X., Director of the National Bureau of Statistics of China, stated that the average urban income was 6,860 RMB; the average rural income was 2,360 RMB. Nevertheless, 40% of a farmer's income is income in kind rather than monetary income. If 40% (income in kind) is not included in a farmer's total income, the average annual farmer's income should be 1800 RMB, or 150 RMB per month. In addition, 20% will be used to purchase product materials. Thus, in 2002, a farmer's monetary income that was used in commodity consumption was 120 RMB per mouth, which is in contrast to the average urban monetary income of 600 RMB per month. Based on the above analysis, the index of income inequality between urban and rural areas is 5:1¹¹. This further demonstrates that poverty is another issue in the rural communities of China.

Nevertheless, poverty also exists in developed countries. Széll György argued: "It is really not understandable in respect to the level of technical and economic development of richest nations that there still exists hunger, social disease, lack of education even with these nations whereas worldwide production would suffice to guarantee a decent life for everyone¹²".

3.3 China's agricultural migrant population and the number of surplus rural labor force

Harris-Todaro invented a migration model. In the model, the economic factors of the migrant labor force areas are called “**PULL**” and “**PUSH**”:

$$M_t = f(W_u - W_r)$$

$$W_{eu} = PW_u$$

$$P = E_u / (E_u + D_u),$$

where, M_t denotes the quantity of the migrant labor force in t time, f denotes response function W_u and W_r denote the rates of wages in a moving-in area and a moving-out area, respectively. P and W_u denote the probability of finding a job in the moving-in area and the expected rate of wages, respectively. E_u and D_u denote the rate of employment and the rate of unemployment in the moving-in area, respectively.

Theodore W. Schultz applied a human resources perspective to investigate the labor force migration. He argued that labor force migration is an important investment among human resources. The decisive factor for labor migration is migration's present value of net income¹³.

$$\text{Present value of net income} = \sum_{t=1}^T \frac{B_{jt} - B_{ot}}{(1+r)^t} C,$$

where B_{jt} and B_{ot} denote the utilities of the new and old jobs in t year, respectively. T denotes the working time at j job; r denotes the discount, and C denotes the loss of utilities caused by migration.

3.3.1 China's rural migration

If the per capita of arable land had been equal to Indonesia's in 2001, there would have been more than 90 million surplus rural laborers. If it had been equal to Japan's in 2001, there would have been more than 250 million

surplus rural laborers¹⁴. Wang, D., the minister of labor and social security, argued that there were currently more than 150 million rural surplus laborers in China¹⁵.

According to the latest statistics of the Asian Development Bank (ADB), China's rural surplus labor force population is more than 200 million. China has 22% of the world's population and only 7% of the world's arable land. Allegedly, it only needed 60 million rural laborers in 2001¹⁶. In 2003, however, the number of China's rural laborers was 493 million. In the coming decade, China needs to move 150-200 million rural laborers from rural to urban areas¹⁷.

3.3.2 China's rural migrant laborers

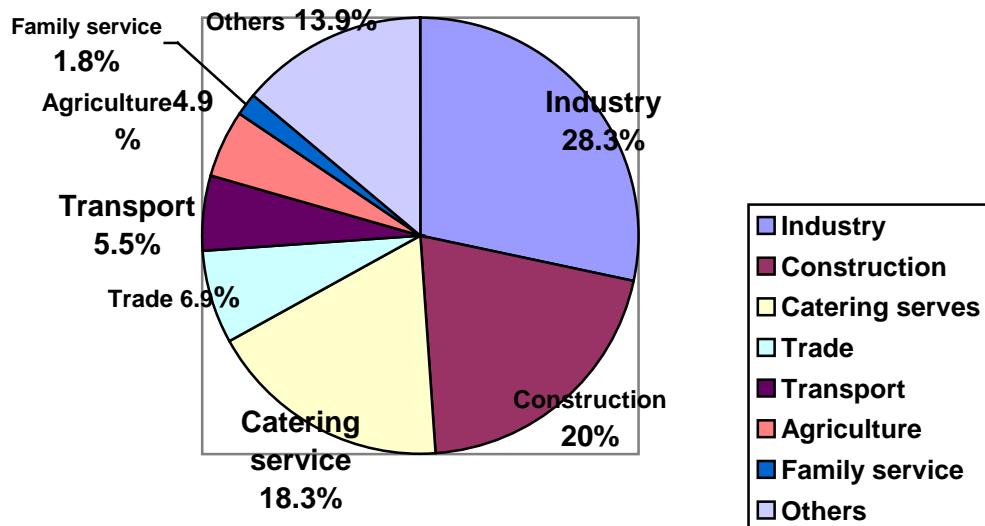
In a recent research project at the Ministry of Agriculture, the duration of rural migrant laborers in China is addressed using panel data at four provinces in 2002. The investigation covered 319 villages and over 20,000 rural households. Results indicate that there were over 94 million rural migrant laborers, 4.7 million more than in 2001 (89.61 million in 2001)¹⁸.

3.3.3 Migration region

In 2002, the average age of rural migrants was 33.4 years old. Notably, the priority destinations are still in the southeastern coastal provinces/cities, including Guangdong, Fujian, Zhejiang, Shanghai and JiangSu.

Most of the rural migrants in 2002 were young people, which is in agreement with Theodore W. Schultz's model. Younger laborers are more willing to migrate. Meanwhile, in 2002, the coastal cities served as an important destination, receiving more than 65% of the migration. Arguably, the main reason is that the rate of employment and expected wages in these areas are much higher than in other areas, such as the northwestern and central areas. This is in agreement with Harris-Todaro's model.

In 2002, the rural migrants mainly worked in three sectors: industry, construction, and catering services.



Male laborers choose very different jobs to female laborers: 27% of the males chose the construction sector, followed by 25.3% working in industry. In contrast, 35.4% of the females chose industry, followed by 27.8% working in catering services.

It is also of significance that, the education level of the migrants was higher than the rural laborers. 59.5% of the rural migrants have completed middle school, which is 16% more than the sample population; 12.6% of the rural migrants have completed senior school or higher education, which is 4.3% more than the sample population. This is also in agreement with Theodore W. Schultz's model. The higher the education a laborer receives, the more readily migrates.

3.3.4 The obstacles of the floating labor force

Although floating laborers have certainly solved the issue of the lack of labor force in cities, the substantial migration has increased the pressure on unemployment in towns. One of the best examples is Beijing, where in 2001

over 11% of those employed in trade and services were from rural floating population¹⁹.

Simultaneously, a lesser-noticed factor is that the floating rural labor also faces obstacles:

1) Information obstacle. Migrants rely completely on relatives and friends for the acquisition of information on employment. This information is very scarce and insufficient.

2) Bias obstacle. Rural laborers move to better paid positions in urban areas. Not only do they increase the income of rural laborers, but they also slash the income of urban laborers, leading to complaints and resistance from urban inhabitants.

3) System obstacle. The general idea is that the local government represents the local residents. Due to complaints from the urban inhabitants, the local government will correspondingly introduce a series of policies to restrain rural migration. The household registration system and urban employment system are two of the typical systematic arrangements for blocking the flow of rural labor.

Since the 1990s, China's gross employment demand has been inadequate. Consequently, the government announced a series of measures to reduce the rate of unemployment. Most of the local government's employment policies aimed at rejecting rural labor. Under the policy of the "Rehired Program", the local government urged employers to hire the locally unemployed. For example, the Tianjin government introduced a policy that a firm will be awarded 2,000 RMB if they hire a local "off-the-position" worker.

3.3.5 The surplus rural labor force

Surplus rural laborers and rural migrants are not the same concept, but they are certainly closely related. Why is it important to investigate the number of China's rural surplus laborers? Strikingly, it is necessary to accurately calculate the surplus labor force in the primary industry, because China's WTO accession will increase or decrease the primary industry's surplus labor force.

In the following, we will use two methods to calculate the quantity of the surplus rural labor force. The first method is based on the ratio of working time to calculate the quantity of the surplus rural labor force. The second method uses aforementioned employment transfer coefficient (F_i/G_i) to calculate the quantity of the surplus rural labor force.

Method #1:

$$SEL = SL * (0\% * 12 + T\% * 10.5 + \dots + TW\% * 5.5)/12,$$

where SEL denotes the quantity of China's surplus rural labor force, SL denotes the total of the rural labor force, the percentage of laborers whose working time is less than 1 month is 0%, 1-2 months is T% and 5-6 months is TW%.

In 2001, the percentage of the rural labor force that worked on farms for less than 1 month was 3.58%, 1-2 months 9.32%, 2-4 months 10.91%, 4-6 months 9.17% and over 6 months 67.03%²⁰. In 2001, the total rural labor force amounted to 482.28 million.

The surplus rural labor force = total rural labor force*

$$(3.58\% * 12 + 9.32\% * 10.5 + 10.91\% * 9 + 9.17\% * 7) / 12$$

$$SEL (2001) = 48228 * (42.96\% + 97.86\% + 98.19\% + 64.19\%) / 12 = 121.85 \text{ million}$$

The data indicates that China's surplus rural labor force was 121.85 million. In other words, about 1/3 of rural laborers were unemployed.

We assume that the working time for the rural employed in 2002 does not change. In 2002, the total rural labor force amounted to 485.26 million.

$$\text{SEL (2002)} = 485.26 * (42.96\% + 97.86\% + 98.19\% + 64.19\%) / 12 = 122.98 \text{ million.}$$

**Table 3-9
China's Surplus Rural Labor Force**

Year	Surplus Rural Labor Force (in millions)
2002	122.98
2003	124.09
2004	125.23
2005	126.37
2006	127.50

Method # 2:

We use the aforementioned employment transfer coefficient (F_i/G_i) to calculate the quantity of the surplus rural labor force.

$$\text{SEL (year)} = \text{those employed in primary industry} * (1 - F_i/G_i)$$

Where SEL denotes the quantity of China's surplus rural labor force.

In the following, Table 3-10 demonstrates that the G_i in primary industry decreased year for year.

**Table 3-10
(Gi) %**

Year	Primary Industry	Secondary Industry	Tertiary Industry
1990	60.1	21.4	18.5
1991	59.7	21.4	18.9
1992	58.5	21.7	19.8
1993	56.4	22.4	21.2
1994	54.3	22.7	23.0
1995	52.2	23.0	24.8
1996	50.5	23.5	26.0
1997	49.9	23.7	26.4
1998	49.8	23.5	26.7
1999	50.1	23.0	26.9
2000	50.0	22.5	27.5
2001	50.0	22.2	27.8
2002	50.0	21.4	28.6
2003	50.0	21.2	28.8

Sources: *China Statistical Yearbook 2004*, National Bureau of Statistics of China, p. 116.

Table 3-11
(Fi) %

Year	GDP	Primary Industry	Composition in
	(in billion RMB)	GDP (in billion RMB)	Percentage (Fi)
1990	1,859	502	26.0%
1991	2,166	528	24.0%
1992	2,665	580	21.7%
1993	3,456	688	19.9%
1994	4,667	945	20.0%
1995	5,749	1,199	20.0%
1996	6,685	1,384	20.7%
1997	7,314	1,421	19.0%

Year	GDP	Primary Industry	Composition in
	(in billion RMB)	GDP (in billion RMB)	Percentage (Fi)
1998	7,697	1,455	18.9%
1999	8,058	1,447	17.9%
2000	8,823	1,463	16.6%
2001	9,435	1,461	15.4%
2002	10,479	1,611	15.0%
2003	11,669	1,725	14.8%

Sources: *China Statistical Yearbook 2004*, National Bureau of Statistics of China, p. 488.

SEL (year) = Those employed in farming sector * (1-Fi/Gi).

We can calculate the quantity of China surplus rural labor force for each year (See Table 3-12). The number of employed in farming sector see Table 3-6.

Table 3-12
China's Surplus Rural Labor Force 1990-2003 (in thousands)

Year	Fi/Gi	SEL
1990	0.43	189,150
1991	0.40	204,430
1992	0.37	214,110
1993	0.35	215,230
1994	0.37	206,500
1995	0.38	161,670
1996	0.41	190,330
1997	0.38	201,090
1998	0.38	202,280
1999	0.36	210,630
2000	0.33	219,740
2001	0.30	227,160
2002	0.29	231,294

2003	0.29	232,450
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3.3.6 Other measurements of the number of China's surplus rural laborers

How many surplus rural laborers existed in China? Many economists and organizations have investigated this.

China's first Blue-Book used unspecified methodology to estimate that China's surplus rural labor force population was 150 million in 2002²¹. The methodology and empirical evidence for this figure, however, could not be found.

Allegedly, China's Green-Book claimed that after the surplus agricultural labor force transferred to non-agricultural departments, agricultural productivity should be equal to non-agricultural productivity²².

$$P = 1 - W_a/W_n,$$

where P denotes the surplus agricultural rural laborers, W_a and W_n denote agricultural productivity and non-agricultural productivity, respectively.

Arguably, in China's Green-Book the Ministry of Labor and Social Security PRC adds a modified function of 1.5. It was asserted that the coefficient (1.5) would affect the accurate calculation of China's surplus agricultural labor force population.

Analyzing the two methods, we found:

Method 1: It is difficult to obtain the data of the working time of rural laborers in primary industry. We argued that it could be used for a province or city. If used for the whole country, the result may be erroneous for a different region.

Method 2: We use the employment transfer coefficient to calculate the surplus labor force population. From 1990 to 2002, China's surplus rural labor force population was between 180 and 220 million.

3.4 The effects of China's entry into the WTO on China's employment in the agricultural industry

Skeptics about China's WTO accession emphasize the potentially high costs of adjusting to more open traditional agriculture. Agriculture is a sector where imports are almost certain to increase dramatically as a result of China's WTO entry²³. The Development Research Center of the State Council (DRC), PRC. estimated that employment in the production of rice, wheat and cotton would decline by 2.46 million, 5.4 million and 4.98 million, respectively, as a result of China's WTO accession²⁴.

3.4.1 China's commitments to the agricultural industry

China's commitments in agriculture encompass provisions on market access, which include tariff reductions and minimum access opportunities under a tariff-rate quota system, and limits subsidies for agricultural products.

Based on the following analysis, China's commitments in agriculture were much broader and deeper than those in domestic economic activity.

1 Tariff reduction.

Table 3-13 exhibits the change of China's average statutory tariff rate.

Table 3-13
Average Statutory Import Tariff Rate (in %)

Year	Statutory Import Tariff Rate	Industrial products	Agricultural products
1991	44.1	41.5	53.4
1992	43.2	40.6	52.3
1993	39.9	37.5	49
1994	35.9	33.7	44.5
1995	35.6	33.5	44.2
1996	23	21.5	30
1997	17	15.8	23.2
1998	16.8	15.6	23
1999	16.7	15.5	22.9
2000	15.6	14.5	21.7
2001	14	13	19.9
2002	12.7	11.7	18.5
2003	11.5	10.6	17.4
2004	10.6	9.8	15.8
2005	10.1	9.3	15.5
2006	10.1	9.3	15.5
2007	10.1	9.3	15.5

Sources: Qin, D. and Long, Y. *Entering into the WTO*, China's Development Farming Press 2003, p. 800. *Integration into the world*," (Journal of International Trade) 1999, No.9, p. 3. *Commitment to Cut Tariffs*, China Daily Dec. 30, 2000, p. 1.

2 Minimum access opportunities under a tariff-rate quota system

China's tariff-rate quota system commitment for key products such as wheat, corn, cotton is probably more important than reducing the average statutory tariff rate for agricultural products. China agreed to establish extraordinarily low tariffs, with only 1% tariff tax as the minimum access opportunity.

- (1) The rice import quota in 2003 was 2 million tons, accounting for 1.3% of China's total rice output in 2001; it was 2.6 million tons in 2004, accounting for 1.5% of China's total rice output in 2001.

(2). The wheat import quota in 2003 was 9 million tons, which was 9.6% of China's total wheat output in 2001; it was 9.6 million tons in 2004, accounting for 10.26% of the total in 2001.

(3). The corn import quota in 2003 was 6 million tons, being 5.7% of 2001 total; it was 7.2 million in 2004, which was 6.3% of the total in 2001.

(4). The cotton import quota in 2003 was 8 million tons, representing 16% of the 2001 total; it was 9 million tons in 2004, 16.8% of the total in 2001.

(5). The import quota of rapeseed oil and soybean in 2003 was 3.8 million tons, representing 13% of the 2001 total; it was 4.2 million tons in 2004, 14.7% of the 2001 total²⁵.

3 Agricultural Subsidies.

China is entitled to 8.5% more in agricultural subsidies than the developed countries but less than developing countries²⁶.

3.4.2 Impact on China's agricultural products

Some studies forecast that China will incur significant restructuring costs in meeting its sweeping WTO commitments. There is little doubt that the structural change is one of the greatest challenges China faces. These projections, however, almost certainly overestimated the challenges that China faced when it finally entered the World Trade Organization. The reason is simple. The projections are based on conditions that existed in the mid-90s and thus do not take into account the huge economic restructuring that occurred in China in the years immediately before its entry into the WTO.

Lu, L. (2004), an agronomist and academic of the Chinese Engineering Academy, argued that China's WTO accession successfully avoided China's agricultural prejudiced treatment and that China was able to use the corresponding systems and regulations to solve its trade conflicts²⁷.

More profoundly, adjustments in the farm sector had already been made before China's accession to the World Trade Organization. Largely in response to relative price changes, farmers were moving out of land-intensive horticultural crops. Given its factor endowments, China has a strong comparative advantage in the production of many fruits and vegetables.

Since 1979, two ensuing stages of development can be distinguished: From 1979 to 1982 and from 1994 to 1996, China's government introduced policies to increase agriculture product prices two times. Few social scientists argued that the first increase in prices of agricultural products was an agricultural subsidy. The second time, from 1994 to 1996, the Chinese government raised domestic grain procurement prices in order to give a stimulus to grain production and farmers' incomes²⁸.

Unsurprisingly, since the end of 1993, the domestic grain price has been regarded as "the ceiling price". The best example of this is that corn cost 1.44 RMB/kg on the Chinese domestic market and only 0.72 RMB/kg on the U.S. Chicago market in March 1993. Even considering transportation fees, there was still a huge gap between Sino-US grain prices²⁹. Indeed, a significant gap remained between domestic and international prices before China's entry into the WTO.

To prepare for opening to the world, the Chinese government has taken steps to reduce grain prices on the domestic market since 1999. The prices of wheat and corn fell by 20 to 30 percent in 1999.

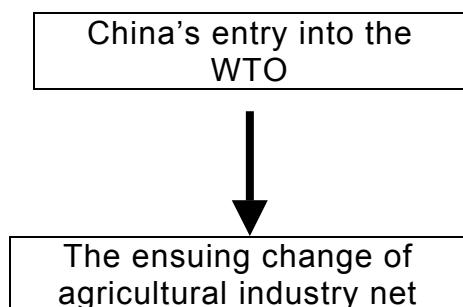
On March 17, 2003, Qiu, X., the Director of the National Statistical Bureau, stated that China's agriculture had performed extraordinarily well in 2002³⁰. As China implemented its WTO commitments, the tariff of China's agricultural products was reduced from 19.9% down to 15.8% from 2001 to 2004.

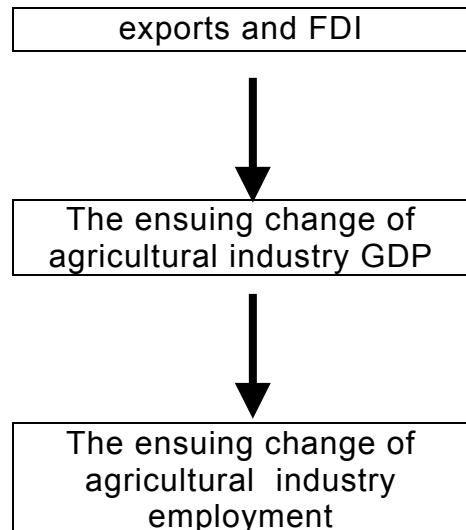
The value of agricultural exports was 13.5 billion USD, 13% increase from 2002; the import of agricultural products was 10.2 billion USD, an increasing of 2% from 2002³¹. Why did not the effects of China's WTO accession have a serious impact on China's agricultural sector in 2002? The reasons are as follows:

- 1) The output of food products decreased due to flooding in North America in 2002, causing food products support scarcity, and food product prices increased on international markets. The output of wheat fell 7% in the USA. The prices of wheat rose by 25% on international markets in 2002. The prices of corn rose by 30%. Premier Wen, J. claimed at the National People's Congress in spring 2003: "China's agricultural industry has not been seriously impacted at the first year of China's entry into the WTO"³².
- 2) The US dollar depreciated against other major currencies. During 2002, the US dollar depreciated 14% against the Euro. The US dollar's real exchange rates depreciated by 7.9% against major currencies.
- 3) Quotas are not the maximum amount allowed. Except for a few quotas of products (such as sugar, palm oil and wool, etc.), which were used by 70%, the other commodities' quotas, such as wheat, corn, rice, and soybean oil, etc., have only been used 7.4%, 0.2%, 6% and 34.6%, respectively.

3.4.3 The effects of China's entry into the WTO on employment in China's agricultural industry

The analytical approach is structured as follows:





(1) WTO influence on net exports of China's agricultural industry

Net exports have a positive relationship with employment opportunities. When total net imports rise, employment opportunities also rise. In other words, total net exports are negatively related to surplus rural laborers.

A. Exports

**Table 3-14
China's agricultural exports and imports (in billion USD)**

Year	Import	Export	Year	Import	Export
1990	7.5	6.2	1991	6.1	6.8
1992	8.6	7.8	1993	4.7	7.9
1994	8.6	9.7	1995	15.2	9.6
1996	12.8	9.7	1997	10.4	10.8
1998	9.2	9.9	1999	8.7	9.7
2000	9.9	11.4	2001	10.0	11.9
2002	10.2	13.5	2003	18.9	21.2

Sources: 1990-2000 data from *China Development Report*, National Bureau of Statistics of China 2001, p. 466. 2001-2003 data from <http://www.agrisci.com/info/200503280302.shtml>

We establish the time-series model of the value of exports. The simplest single-equation linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u$$

where the variable X denotes the time factor as the independent variable, Y denotes the value of exports in recent years as the dependent variable. The Y variable can be expressed in terms of a constant (β_0) and a slope (β_1) times the X variable. The constant is also referred to as the intercept, and the slope as the regression coefficient or β_1 coefficient. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y . The result is $\beta_0 = 61.192$ and $\beta_1 = 4.984$.

$$\begin{aligned} Y &= 61.192 + 4.984X \\ &\quad (14.540) \quad (9.399) \end{aligned}$$

$$R^2 = 0.893 \text{ ADJR}^2 = 0.879 \text{ F} = 88.333 \text{ DW} = 1.987.$$

In the value of export regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.893. The F-value and t-value passed the significance tests. We could therefore use the value of export regression equation to forecast the Chinese value of exports from 2002 to 2006. (Table 3-15)

Table 3-15
Chinese value of farming exports (in billion USD)

Year	value of farming exports
2002	13.59
2003	14.07
2004	14.57
2005	15.06
2006	15.56

B. Imports

Strictly speaking, imports, which are largely integrated in to global trade, influenced the employment issue. Positively, China's import business differs from those in other countries in the following aspects:

At first glance, we investigate the relation between imports and tariffs. Generally speaking, tariffs have a negative relationship with imports. But, at some particular period, the value of imports does not rise with tariff decline. One important example was the RMB depreciation in 1993. As already noted, the foreign trade departments and the southern provinces anticipated that the Chinese government would reform the currency system. They purchased domestic grain food products instead of importing foreign grain food products for the purpose of earning extra profit in the future. This phenomenon has also been illustrated in the balance of imports and exports for the past year.

We employ the statistics software Eviews 5.0 to do Granger Causality Tests on the change of exportation amount and tariffs. The results:

	<u>F-Statistics</u>	<u>Probability</u>
The export amount does not Granger cause tariff	10.2018	0.01719
Tariffs do not Granger cause the export amount	1.1106	0.39897

The result of Granger Causality Tests shows that tariffs and the value of farming imports from 1990 to 2001 are not connected. We calculated the value of farming imports from 1990 to 2001 with statistical software Eviews 5.0 to forecast the value of farming product imports from 2002 to 2006.

The result is Table 3-16

Table3-16
The value of farming product imports from 2002 to 2006 (in billion USD)

Year	Value of farming product imports
2002	11
2003	11.2
2004	12.1
2005	12.9
2006	13.8

Many variables affect China's agricultural product net imports. These include, for instance, the GDP of China, a rebate of value-added taxes on exports, the average exchange rate of RMB against main convertible currencies (Middle Rare), the tariff of Chinese farm product imports, the average prices of farm products on international markets, the average prices of farm products on domestic markets, etc. From the results of the statistics software Eviews 5.0 we find there is no relationship between agricultural exports and tariffs from 1990 to 2001.

Unsurprisingly, most countries in the world introduced agricultural protection policies. In addition, other factors also impact average farm product prices. Hence, we could not forecast the change of average of farm products price on international markets and the average of farm product prices on domestic markets.

Table 3-17

China's GDP, export duties refund, exchange rate and China's membership of the WTO

Year	GDP (in billion RMB)	Export duties refund	Exchange rate	WTO

1988	1492.8		3.72	0
1989	1690.9		3.76	0
1990	1854.7		4.78	0
1991	2161.7		5.32	0
1992	2663.8		5.51	0
1993	3463.4		5.76	0
1994	4675.9	715	8.61	0
1995	5847.8	846	8.35	0
1996	6788.4	828	8.28	0
1997	7446.2	432	8.27	0
1998	7834.5	436	8.27	0
1999	8206.7	627	8.27	0
2000	8940.3	1050	8.27	0
2001	9593.3	1071	8.27	0
2002	10479.0	1072	8.27	1
2003	11669.4			1
2004				1
2005				1
2006				1
2007				1
2008				1

Sources: GDP data *China Statistical Yearbook 2004* National Bureau of Statistics of China, p. 460.

We establish the multi-regression equation on China's net exports, in which the variable Y is determined by four explanatory variables. The independent variables are the export duties refund (X_1), GDP (X_2), WTO (X_3) and the exchange rate (X_4). The dependent variables are China's net exports from past years (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y . The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + u$$

We used the statistics software “SPSS 8.0” to get the linear regression equation. The result is:

$$Y = -3091.215 - 6.27(E-02) X_1 + 3.183(E-03) X_2 + 1.465 X_3 + 348.138 X_4$$

(-8.930) (-5.515) (10. 571) (-1.920) (8.780)

$R^2 = 0.972$ $ADJ R^2 = 0.943$ $F = 34.336$ $DW = 1.990$.

In the value of China's net export regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.972. The F-value and t-value passed the significance tests. We could therefore use the multi-regression equation to forecast China's net export.

In other words, China's entry into the WTO contributes **1.465** billion USD annually. From the Report of the Chinese National Economy and Social Development Statistics 2002³³, we know that the total of primary industry GDP is 1,461 billion RMB. We estimate the effect of GDP as an increase of net exports, which could contribute to the GDP **1.465*8.27 / 1,461 = 0.829%**.

(2) The Effect of China's entry into the WTO on Foreign Direct Investment

The basic analytical methods are the same as the above-mentioned.

Table 3-18
Foreign direct investment over the years (in billion USD)

Year	China's actual utilized foreign capital	China's foreign capital utilized in primary industry
1990	3.487	0.1
1991	4.366	0.1
1992	11.007	0.2
1993	27.515	0.5
1994	33.767	0.57

1995	37.521	0.6
1996	41.725	0.66
1997	45.257	0.72
1998	45.463	0.72
1999	40.319	0.76
2000	40.715	0.76
2001	46.800	0.89
2002	52.718	0.94
2003	56.680	1.03
2004	60.600	1.22

Source: *China Statistical Yearbook 2004*, National Bureau of Statistics of China, p. 653.

2003,2004 data are from <http://finance.sina.com.cn/g/20050407/19321497937.shtml>

We establish the time-series model on FDI from 1990 to 2001. The simplest single-equation linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u,$$

Where the variable X denotes the time factor as the independent variable, Y denotes FDI for recent years as the dependent variables. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y. The result is $\beta_0 = 1.431$ and $\beta_1 = 0.765$.

$$Y = 0.765X + 1.431$$

(10.454) (3.013)

$$R^2 = 0.916 \text{ ADJR}^2 = 0.918 \text{ F} = 109.279 \text{ DW} = 1.918.$$

In the FDI regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.916. The F-value and t-value passed the significance tests. We could therefore use the regression equation to forecast FDI from 2003 to 2006. (Table 3-19)

Table 3-19
Foreign Direct Investments in Chinese agriculture from 2002 to 2006 (in billion USD)

Year	Foreign Direct Investments in agriculture
2002	1.06
2003	1.1376
2004	1.2141
2005	1.2906
2006	1.3671

Fundamentally, I am convinced that China's entry into WTO not only has a significant impact on foreign direct investment in Chinese agriculture, but also on other variables, such as changes of FDI environment from international markets and changes of domestic market policy. Another explication is that both variables could not be forecasted. Thus, we only define the WTO variable as an independent variable in the FDI regression equation.

We establish that the simplest single-equation linear regression model on FDI is specified as:

$$Y = \beta_0 + \beta_1 X + u,$$

where the variable X denotes the WTO factor as the independent variable, Y denotes FDI for recent years as the dependent variables. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y. The result is $\beta_0 = 5.295$ and $\beta_1 = 0.683$.

$$Y = 0.683X + 5.295$$

$$(5.232) (7.261)$$

$$R^2 = 0.662 \quad ADJ R^2 = 0.637 \quad F = 27.378 \quad DW = 2.110.$$

In the FDI regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.662. The F-value and t-value passed the significance tests.

In other words, the FDI contributes 0.683 billion USD annually to Chinese agriculture. From the Report of the Chinese National Economy and Social Development Statistics 2002³⁴, the total of primary industry GDP is 1,461 billion RMB. We estimate the effect of GDP by an increase of agricultural FDI, which is caused by the WTO is:

$$0.683 \times 8.27 \text{ (Exchange rate)} / 1,461 = 0.386\%.$$

We obtain the conclusion that WTO factors could contribute to the GDP of the country by

$$0.829\% + 0.386\% = 1.215\%.$$

(3) Elasticity of Employment

We propose that the elasticity of employment. Elasticity of employment is the employment increase against economic growth. The formula is:

Elasticity of employment = rate of employment increase/ rate of economic growth.

In other words, if the economy increases by one percentage point, the demand of employment increases by several percentage points.

Table 3-20
The Economic Growth of Primary Industry, Employment Increase and Elasticity of Employment

Year	Economic growth (GDP %)	Employment increase (%)	Elasticity of employment (%)

Year	Economic growth (GDP %)	Employment increase (%)	Elasticity of employment (%)
1990	18.6		
1991	5.4	2.5	0.463
1992	9.6	-0.4	-0.042
1993	18.5	-2.2	-0.119
1994	37	-1.7	-0.046
1995	26	-1.1	-0.042
1996	15.4	-0.2	-0.013
1997	2.6	0.5	0.192
1998	2.4	0.60	0.25
1999	-0.5	0.8	-1.6
2000	-1.7	-0.3	0.176
2001	2.8	-0.1	-0.036
2002	4.0	0.1	0.025

Sources: *China Statistical Yearbook 2003*, National Bureau of Statistics of China, p. 55, p. 414.

(4) Employment forecast

As we mentioned above, the rate of the contribution to agricultural growth for China's entry into the WTO is 1.215%, and the basis of the agricultural employment population in 2001, we calculate the data of employment of China's accession into the WTO in 5 years. From the distribution of the elasticity of employment, we found that the average value of elasticity of employment is -0.0817 from 1991 to 2002. We obtained the result of the effect of agricultural employment due to China's WTO accession.

Table 3-21

The change of agricultural employment following China's WTO accession

Year	1.215%*(-0.0817)	Numbers of people employed (in thousands)	Change of employees (in thousands)
2002	-0.099%	324,510	-321.30
2003	-0.099%	324,188	-320.95
2004	-0.099%	323,867	-320.63
2005	-0.099%	323,546	-320.31
2006	-0.099%	323,225	-319.99

On the basis of the average of the elasticity employment from 1991 to 2001, after China's entry into the WTO, 321,000 jobs will be lost in the agricultural industry each year. Over the coming 5 years, 1.60 million jobs will be lost in the agricultural industry.

Perhaps the elasticity of employment is more conservative in the calculation process, but it has no bearing on the eventual outcome.

3.4.4 The result analysis

According to our analysis, China's WTO accession does not have much influence on China's agricultural employment. Given the errors in regression analysis, the forecasted results show that China's net exports and foreign direct investments are not much influenced by the WTO factor.

Why does China's entry into the WTO not seriously affect agricultural employment?

Firstly, structural adjustments in the farming sector were successfully completed before China's accession to the WTO. As already noted in chapter 2, largely in the response to relative price changes, farmers were already moving out of land-intensive horticultural crops. Given its factor

endowments, China has a strong comparative advantage in the production of many fruits and vegetables³⁵.

Secondly, the projected reduction in China's agricultural industry employment after China's WTO accession must be seen in a larger context. Since the beginning of China's reform era, China's statistical data show that the number of those in employment fell dramatically from 71% in 1978 to only 49% in 2001. Some researchers even believe that official data overstate agricultural employment³⁶.

Thirdly, in the FDI regression equation, the coefficient of determination R^2 is only 0.662, although the F-value and t-value have passed the significance tests. Yet, the prediction does not live up to the expectation.

Last but not least, the employment statistics data are probably problematic. As noted in chapter 1, the number of jobs in China differs in the China Statistics Yearbook and China's Labor Statistic Yearbook. When making the regression analysis, we employed the average elasticity of employment from 1992 to 2001, and the two data are more conservative. But these could not affect the conclusion.

3.5 Concluding comments

In this chapter, I discussed the influence of the WTO on China's agricultural employment. Under a dual labor economic environment of increasing rural employment population and decreasing arable land, the surplus rural labor force becomes another problem that attracts attention. I used two methods to calculate China's surplus rural labor force.

The two macroeconomic indexes of net exports and international investments directly effect China's agriculture employment. Following its entry to the WTO, in conclusion, after China's entry into the WTO, 321,000

jobs will be lost in agricultural industry each year. Over the coming 5 years, 1.60 million jobs will be lost in the agricultural industry.

¹ <http://www.clbiz.com> 2004-4-17 14:39:10

² Liao, Quanwen *China Labor Market* ShanDong People's Publishing Press, 2002, p. 50.

³ Li, Ping *Farming Information Research* 1998 4th stage

⁴ Ianovichina, Elena and Martin, Will *Trade Liberalization in China* World Bank Policy Research Working Paper Washington, June 2001, p. 228.

⁵ *China Statistical Yearbook 2004*, National Bureau of Statistics of China, p. 97.

⁶ *China Statistical Yearbook 2004*, National Bureau of Statistics of China, p. 416.

⁷ *China Statistical Yearbook 2004*, National Bureau of Statistics of China, p. 416.

⁸ Liu, Li, *WTO and Agriculture Development*, The Middle Party School Press, 2001, P. 196.

⁹ Wen, Tiejun *Five Waves Price of Food Product in China*, The Guide of Science and Technology, 1999.1

¹⁰ Wikipedia *The free encyclopedia*, http://en.wikipedia.org/wiki/Gini_coefficient

¹¹ Qiu, Xiaohua (2004): *The Income Difference between Town and Country*, (www.drcnet.com.cn) 2004/2/12

¹² Széll György (ed)(1994) *Return of Work, production and Administration to Capitalism* Peter Lang GmbH Europaeischer Verlag der Wissenschaften

¹³ Schultz, Theodore W. *Investment of Human Resources* Beijing Economy Academy Press, 1990, P. 30.

¹⁴ Liao, Quanwen *China Labor Market*, ShanDong People's Publishing Press, 2002, p. 27.

¹⁵ Wang, Dongjin, *Rural Surplus Laborers in China*, www.drcnet.com.cn 2004/3/12

¹⁶ Asian Development Bank *China Agriculture*, www.drcnet.com.cn 2004/4/10

¹⁷ Liao, Quanwen *China Labor Market*, ShanDong People's Publishing Press, 2002, p. 166.

¹⁸ *The National Department of Industrial Policies*, www.molss.gov.cn 2000/12/12

¹⁹ Li, Yifu *Employment Theory*, China Economic Press, 2002, p. 165.

²⁰ *China Agriculture Yearbook 2002* National Bureau of Statistics of China, p. 444.

²¹ The Ministry of Labor and Social Security of China 2002: *The Report of China Employment* Beijing Labor and Social Security Press, 2003, p. 4

²² The Ministry of Labor and Social Security of China 2002: *The Report of Population and Employment in China* Social Sciences Literature Press, p. 71

²³ Lardy, Nicholas R. *Integrating China Into The Global Economy*,

Brookings Institution Press Washington, D. C. 2002, p. 106.

²⁴ Li, Shantong and Wang, Zhi, *China and the World*, China Development Press, 2000, p. 59.

²⁵ *National Economy and Social Development Statistical Gazette 2001*

- ²⁶ Qin, Dahe, *China Agriculture Development*, China Development Farming Press 2003, p. 800.
- ²⁷ Lu, Liangnu, *China Agriculture* (www.molss.gov.cn) March 4, 2004
- ²⁸ Lu, Liangnu, *China Agriculture* (www.molss.gov.cn) March 4, 2004
- ²⁹ Long, Guoqiang, *Will China Liberalize Its Grain Trade?* www.brook.edu/fp/cnaps/papers/1999 Dec. 21, 1999
- ³⁰ Qiu, Xiaohua, *China's Entry into WTO*, www.drcnt.com.cn March 23, 2003
- ³¹ Qiu, Xiaohua, *China's Entry into WTO*, www.drcnt.com.cn March 23, 2003
- ³² Qiu, Xiaohua, *China's Entry into WTO*, www.drcnt.com.cn March 23, 2003
- ³³ National Bureau of Statistics of China *The Report of Chinese National Economy and Social Development Statistics 2004* 2004-02-26 13:19:21
www.drcnt.com.cn
- ³⁴ National Bureau of Statistics of China *The Report of Chinese National Economy and Social Development Statistics 2004* 2004-02-26 13:19:21
www.drcnt.com.cn
- ³⁵ Lardy, Nicholas R. *Integrating China Into The Global Economy*, Brookings Institution Press Washington, D. C. 2002, p. 114.
- ³⁶ Rawski, Thomas G. and Meade, Robert *On the Trail of China's Phantom Farmers*, World Development, vol. 26 May 1998, p. 767-781

Chapter 4

Influence on China's Automobile Industry Employment after China's WTO Accession

The automobile industry is one of the most important industries in the world, affecting not only the economy but also national cultures. It provides jobs for millions of people, providing the basis for a multitude of related service and support industries¹.

It is generally accepted that China's automobile industry has been tremendously influenced by China's WTO accession. Nicholas R. Lardy pointed out that: "The adverse effects of WTO entry on output and employment are forecasted to be particularly adverse in the motor vehicle industry. Employment in the auto industry is expected to fall by 500,000"².

In the eyes of many, China's WTO accession will decrease China's automobile industry employment opportunities. Wang, Z. and Li, S. from the Development Research Center of the State Council (DRC), PRC established general equilibrium models (CGE) to analyze the influence of China's accession WTO³. The result is that more than 415,000 jobs will be in China's automobile industry.

Before investigating the influence on automobile employment following China's accession to the WTO, we need to discuss the influence on China's automobile industry itself.

Firstly, China's broader and deeper commitments on reducing tariffs and raising quotas will increase the import of vehicles, which will reduce China's employment opportunities in the automobile industry. Hence, I want to make an analysis of the current situation of China's automobile industry, China's commitments and automobile imports and exports.

Secondly, sums of foreign direct investment and domestic investment (funds from central government and local governments) will increase employment opportunities.

I set up the regression equation on net exports and FDI after China's WTO accession to investigate its impact on employment in China's automobile industry.

4.1 The status quo of China's automobile industry and its global competition

4.1.1 History and the status quo of China's automobile industry

In 1953, China began to construct its first automobile factory. In 1956, China's first vehicle (Jiefang automobile) drove down the assembly line, ending China's history of not being able to manufacture its own automobiles. From 1966 to 1980, the total output of vehicle production in China was 1.6 million units⁴.

Since 1978, when China opened to the world, its automobile industry has seen rapid developments and an extraordinary performance. From 1981 to 2002, the output of vehicle production in China was 14.52 million units, 3.25 million units of which were passenger cars⁵. By the end of 2003, the automobile industry had 2.08 million employees (See Table 4-1).

Table 4-1
Total Sale of Vehicles (in thousands)

Year	Total	Passenger vehicles	Other vehicles
1990	510	4.2	468
1991	710	81	629
1992	1,060	162	898

Year	Total	Passenger vehicles	Other vehicles
1993	1,290	230	1,060
1994	1,350	250	1,100
1995	1,450	320	1,130
1996	1,470	390	1,080
1997	1,570	480	1,090
1998	1,630	510	1,120
1999	1,830	570	1,260
2000	2,070	600	1,470
2001	2,340	700	1,640
2002	3,250	1,090	2,160
2003	4,440	2,020	2,420

Notice: Not including imported vehicles

Sources: *China vehicle Yearbook 2004*, The Department of Automobile under the Ministry of Engineering Industry of China, China Commercial Press, p. 561.

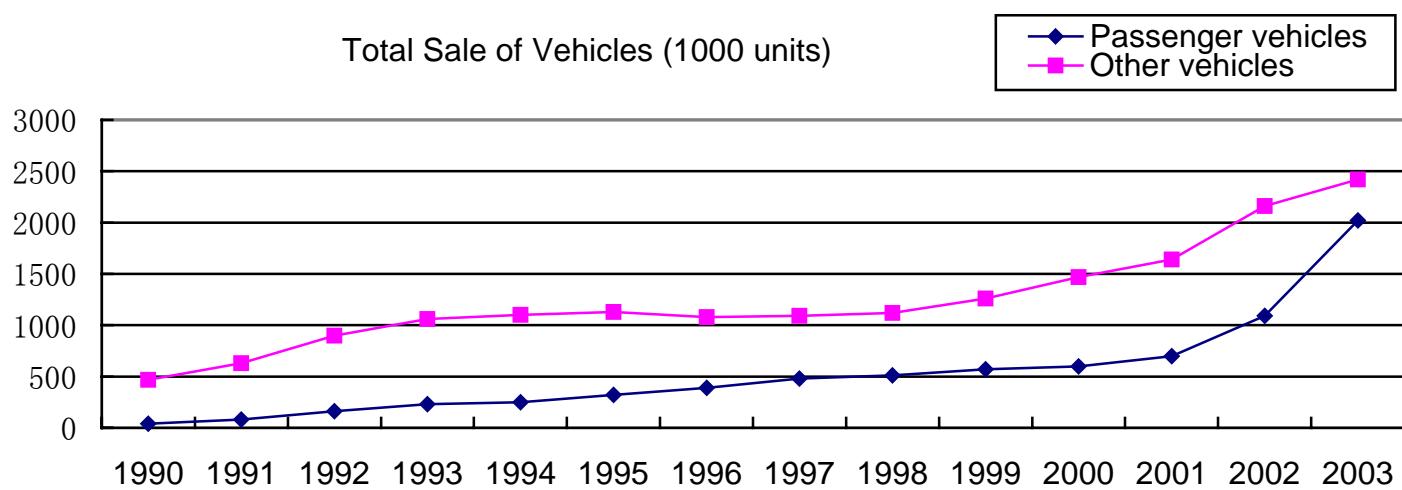


Table 4-1 shows that from 1990, automobile sales increased annually. In particular, from 1999 to 2003, the rate was 13.1%, 13%, 39% and 36.7% in 2000, 2001, 2002 and 2003, respectively. This extraordinary performance could also be seen as a result of China's WTO accession.

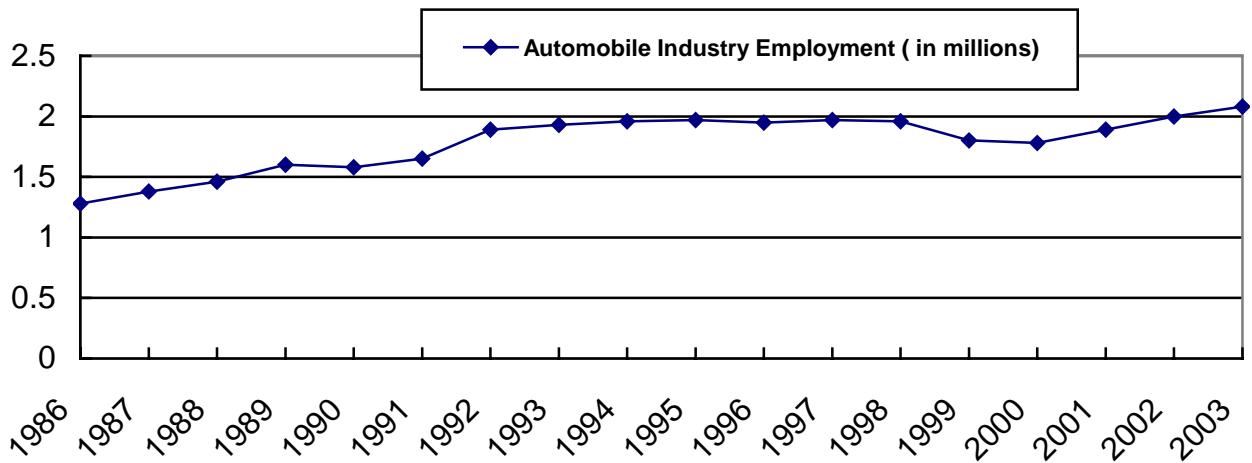
Table 4-2 depicts that 2.08 million people worked in China's automobile industry, and the related industries employed 27.9 million persons in 2003⁶. According to "China's Vehicle Yearbook" and "China's Automobile Market Yearbook", employment in the automobile industry increased every year from 1987 to 1997, but in 1998 began declining⁷. Unsurprisingly, the growth of the automobile industry had created large employment opportunities.

Table 4-2
Automobile Employment (in millions)

Year	Automobile Employment	Year	Automobile Industry Employment
1987	1.380	1996	1.95
1988	1.46	1997	1.97
1989	1.60	1998	1.96
1990	1.58	1999	1.80
1991	1.65	2000	1.78
1992	1.89	2001	1.89
1993	1.93	2002	2.00
1994	1.96	2003	2.08
1995	1.97		

Source: 1987-1998 from *China Vehicle Yearbook 1999*, The Department of Automobiles under the Ministry of Engineering Industry of China, China Commercial Press, p. 213

1999-2003 data are from the *China Automobile Market Yearbook 2004*, The Department of Automobiles under the Ministry of Engineering Industry of China, China Commercial Press, p. 266.

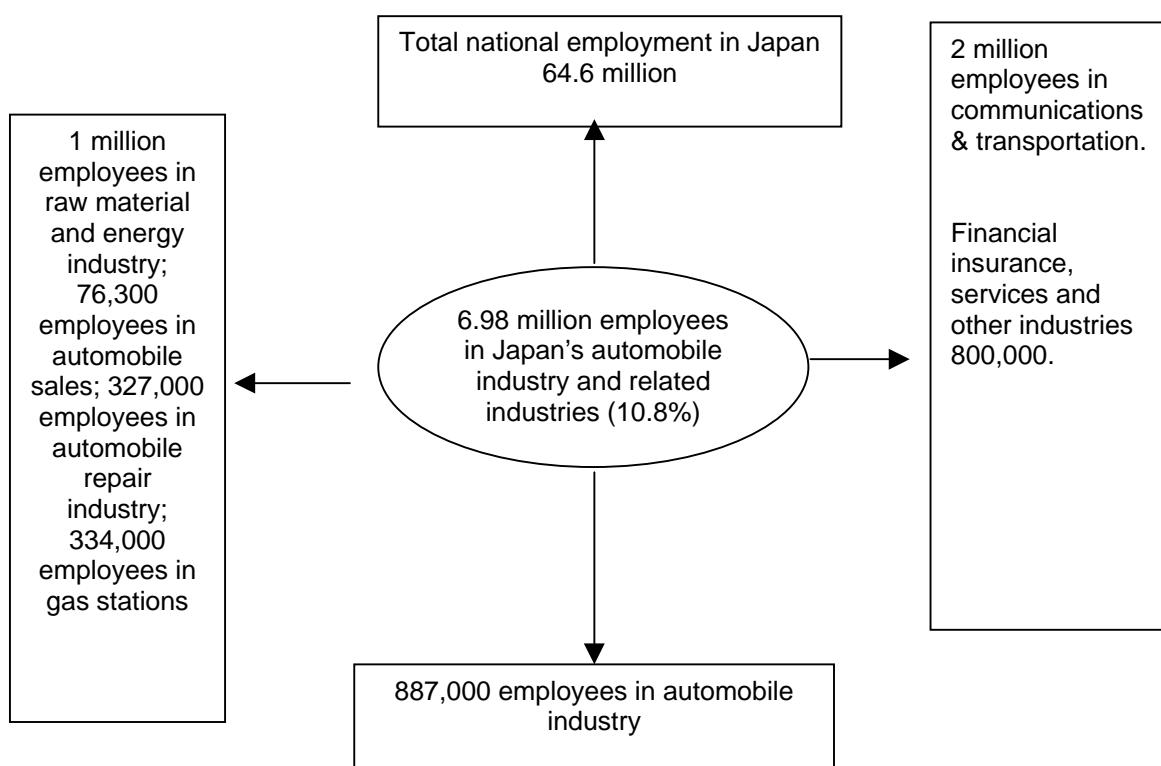
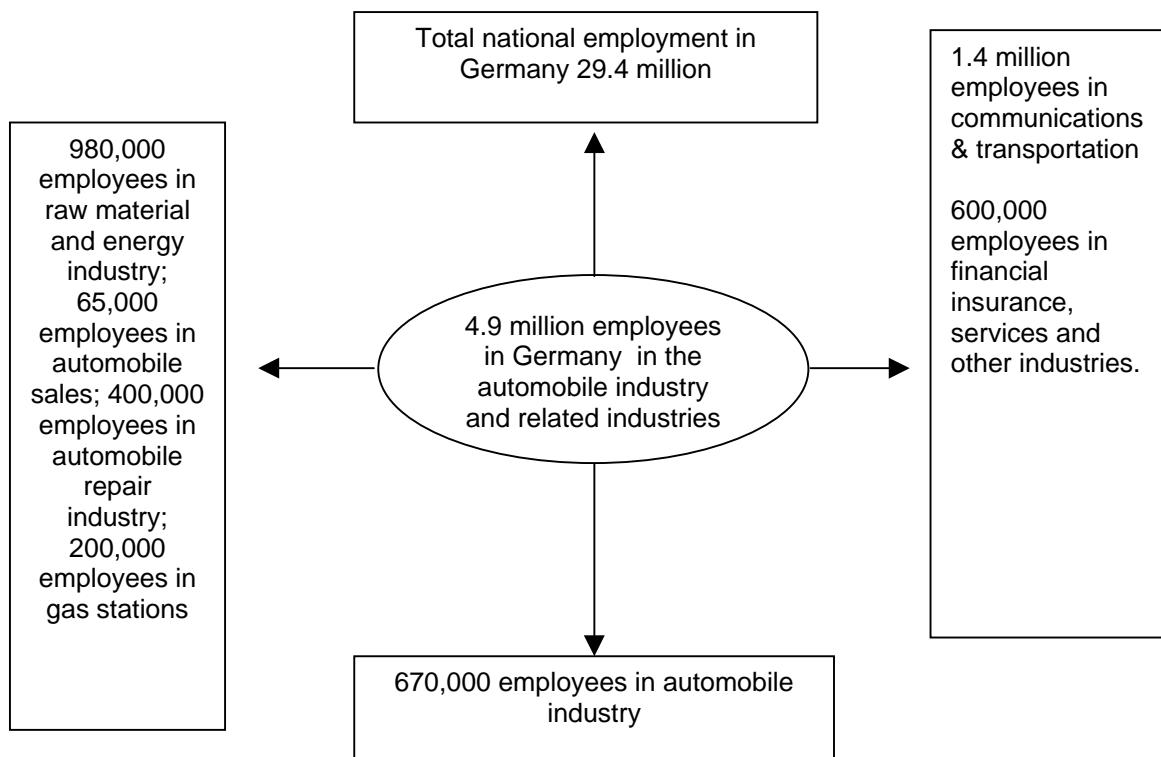


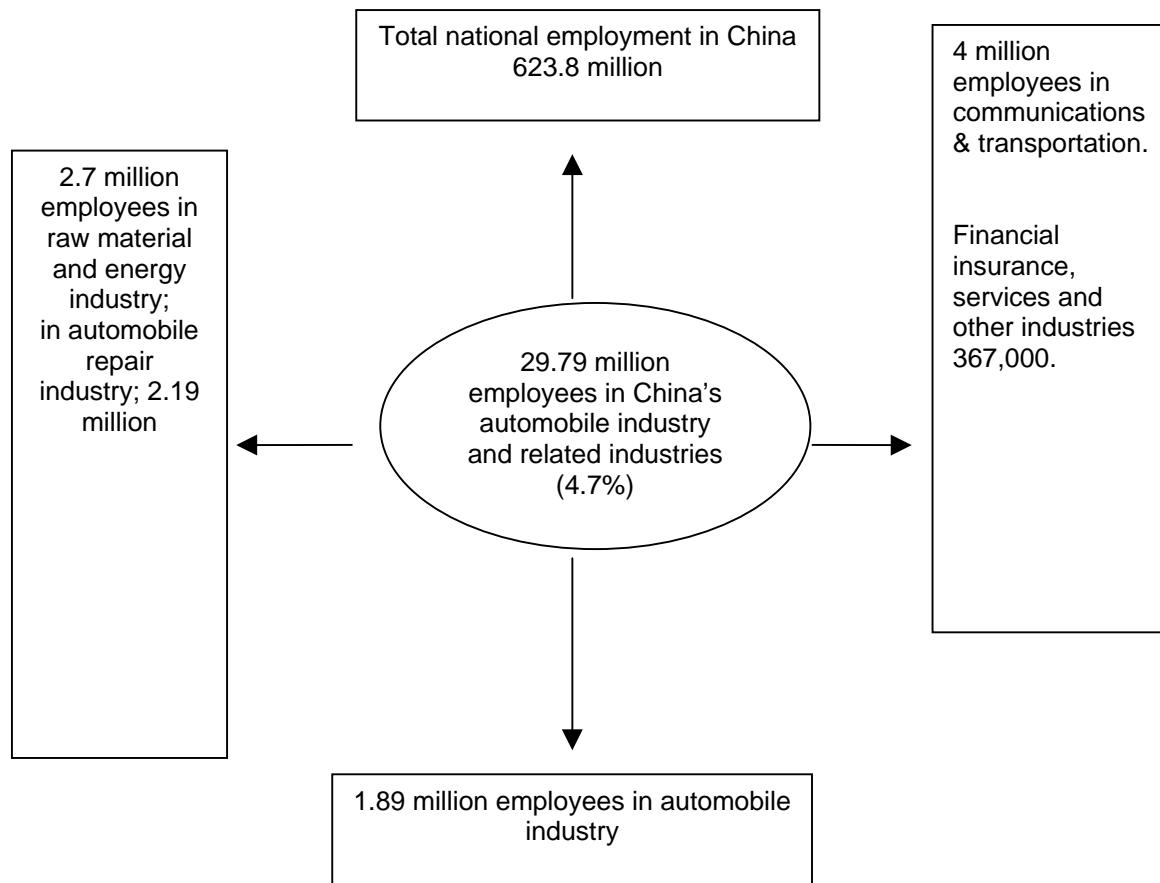
According to General Motors Inc. of America's idea, one job in the automobile industry will provide 2 employment opportunities for the upstream raw material industry and 11 opportunities for downstream industries, for instance, sales, services and transportation.

Germany's automobile industry and related industries provided 4.9 million jobs in 1997, accounting for 16.7% of the country's total employed population, of which 670,000 positions were provided by the automobile industry and 4.23 million positions by related industries (see the following figure)⁸.

Following Japan's Automobile Industry Association investigation, in 1994, there were 6.985 million employees in the automobile industry and related industries, accounting for 10.8% of all national employees⁹.

According to "China's Labor Statistics Yearbook 2002" and "China's Automobile Industry Yearbook 2002", in 2001, there were 1.89 million employees in the automobile industry and 27.9 million employees in related sectors.





4.1.2 Shortcomings in China's automobile industry

In contrast with global automobile companies, China's automobile industry is still a tiny player. At the same time, China's domestic automobile industry was unable to compete with international players in the global market.

- 1) Productivity. The average output per worker is a significant index for automobile manufacturing. (See Table 4-3).

Table 4-3
Comparison of Average Output per Person between China's Automobile Companies and International Automobile Companies

Name of Company	Average Output per Person	Name of Company	Average Output per Person
General Motors	14.9	Italy Fiat	12.9
Ford	22.1	China First Automobile	2.7
Toyota	45.2	China Dongfeng	2.0
Honda	42.5	Volkswagen Shanghai	4.1
Mazda	34.1	Beijing Jeep	3.3
France PSA	13.3	TianJin Xiali	2.5

Source: *China's Automobile Industry Yearbook 2000, The Implications of the Developments of the Automobile Industry in US, Japan and Western Europe on China's Automobile Industry* The Department of Automobiles under the Ministry of Engineering Industry of China, Chinese Commercial Press, p. 399.

Table 4-3 portrays that the average output per person in large global players in 1999 was generally more than 10 units. The average output per person in Japanese automobile companies was between 40-50 units. The highest average output in China is Volkswagen Shanghai Inc. The average output per person with other Chinese manufacturers was less than 3 units.

2) Technology and quality. Apparently, the development of the Chinese automobile industry, especially passenger cars, is mainly based on imitate and import foreign technology.

In addition to this: 1) China's automobile industry lacks the ability to design automobiles. 2) It has inadequate investments. 3) It has outdated equipment and technological performance. For the above-mentioned reasons, Chinese automobile production failed to compete with international foreign companies on international automobile markets.

3) Uneconomic structure. Theoretically, only the larger automakers, which are able to capture economies of scale, can earn profits. The economy scale of automobiles is 200,000-300,000 for passenger vehicles, 100,000-120,000 for light trucks and 10,000-80,000 for heavy trucks¹⁰. Only five Chinese automobile enterprises, including the Chinese First Automobile Group, achieved an annual output of more than 100,000 passenger cars.

These market-opening moves will place much additional competitive pressure on the domestic vehicle industry, which has been plagued for more than a decade with an uneconomic structure. By the mid-1980s, China had established about 120 vehicle manufacturers.

Although the auto industry policy sought to consolidate the industry into a handful of major auto enterprises, local governments have successfully resisted closure of their small, mostly inefficient plants. In 2000, there were still about 120 companies. The total national output in 2000 was 1.63 million trucks and 0.56 million passenger vehicles. The First Automobile Group's Volkswagen, the largest automobile enterprise in China, did not even meet the lower bound of the critical point of economy of scale¹¹.

The automobile industry, designed as a “pillar industry” by the Chinese government, is both a technology-intensive and capital-intensive industry. Theoretically, China’s entry into the World Trade Organization will not only affect 2 million Chinese automobile industry employees, but will also impact 27.6 million people employed in automobile-related industries.

4.2 China’s WTO commitments in the automobile industry

4.2.1 Automobile products tariff

In the 1990s, the average of China’s automobile tariff was 100%, and the tariff for passenger cars was even 240%¹². After China’s WTO accession, import duties on automobiles will decrease from the current 80-100 per cent to 25 per cent by 1 July 2006. Import duties on automobile parts and components will decrease from the current 35% to the average of 10% by July 1, 2006¹³. (See Tables 4-4 and 4-5)

**Table 4-4
China’s Automobile Tariffs**

Passenger Cars	Trucks	Parts and Components
----------------	--------	----------------------

2001	70%—80%	50%—30%	35%
2006	25%	30%—25%	10%

Table 4-5
Tariffs on Automobile Parts

	2001 Tariff	2006 Tariff	Year of Commitment
Generators	14%	10%	2001
Transmission	50%	10%	2005
Brakes	50%	10%	2005
Connectors	40%	10%	2005
Air Conditioners	20%	10%	2004
Combined Panels	16%	10%	2002
Power Doors & Locks	18%	10%	2004

Sources: Qin Dahe & Zhang Kunmin *China's Population Resources and Environment*, Xinhua Press, p. 800.

4.2.2 Non-tariff barriers¹⁴

- 1) Automobile quotas will be phased out by 2005. Over the period of implementation looms, the base level quota will be 6 billion USD (the level prior to the start of China's industry auto policy), and this level will grow by 15% annually until elimination.
- 2) Restrictions on trading rights (import and export) and on distribution (wholesaling, retailing, maintenance and repair, transportation) will be phased out over three years.
- 3) Non-bank foreign financial institutions will be permitted to provide automobile financing upon China's WTO accession.

- 4) Restriction in product policy (type, category and model) on automobiles produced in joint ventures will be phased out within 2 years of accession.
- 5) The compulsory formation of joint ventures in engine production will be abolished and wholly foreign ownership permitted.
- 6) The value level for automobile joint venture projects that is subject to approval will increase from the current 30 million USD to 150 million USD within two years of accession.

4.3 Influence on China's automobile industry after China's WTO accession

Although there is no doubt that China's entry into the WTO poses formidable challenges, focusing on only the most vulnerable sectors can be misleading. For one thing potential losses in the sensitive sectors are frequently overstated. China's domestic automobile companies have not wiped out by import of vehicles¹⁵.

4.3.1 Implications for the automobile industry

After China's entry into the WTO, substantial increases in foreign automobile products will enter China's domestic automobile market. In 2002, China's automobile imports were valued 7.85 billion USD (127,000 vehicles were imported). 153,000 and 172,683 vehicles were imported in 2003 and 2004, respectively. An increase of 13.5% and 12.9%, respectively¹⁶. Apparently, the import of vehicles met its WTO commitments on accession. This bears out the perspective that a transitional product-specific safeguard is necessary for this "infant industry".

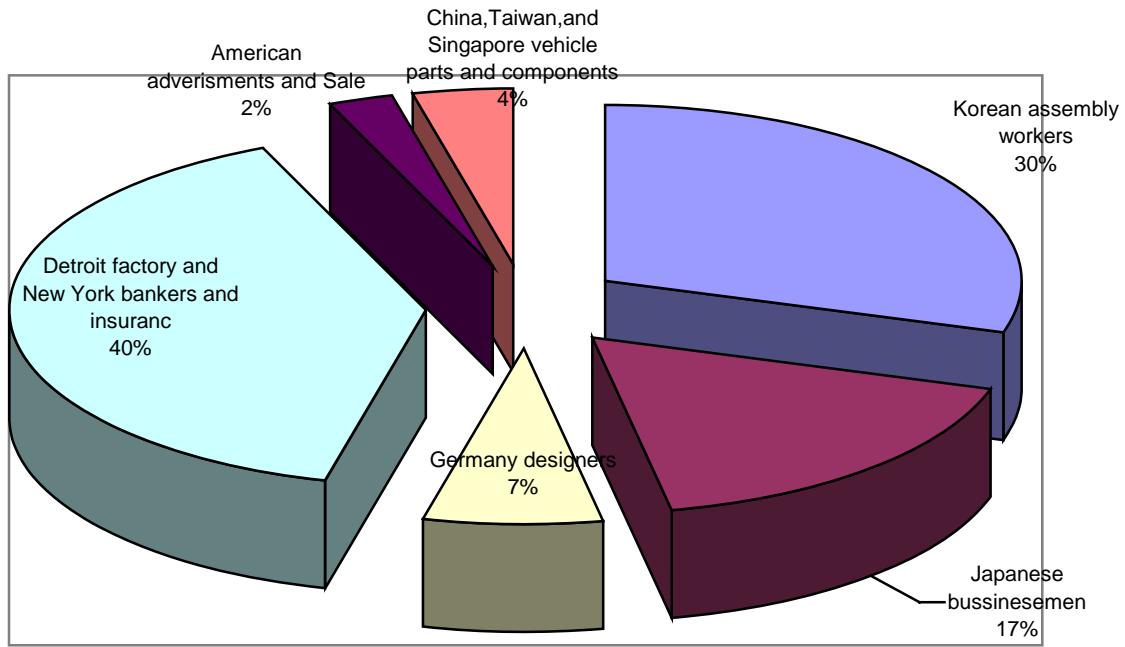
Clearly, almost all-large foreign automobile companies will strengthen their co-operation with China upon accession. First, Guangzhou Honda announced the news that Honda's output was 12,000 units and that a new firm opened in Guangzhou in 2003. After merging with TianJin Automobile Group and

Sichuan Automobile Group, the Chinese First Automobile Group carried out a large-scale cooperation with Japan's Toyota Group. It should be mentioned that within the first year of entry, the Japanese automobile industry eagerly entered the Chinese market.

Simultaneously, existing joint ventures are also expanding. Volkswagen Shanghai (Shanghai and Germany) jointly invested 3.4 billion RMB to renovate the First Automobile Plant (Shanghai). The Third Automobile Plant of Volkswagen Shanghai, which previously imported the Passat model, invested 7 billion RMB. At present, Passat model vehicle production volumes reached 500,000 units per year. Volkswagen's second joint venture, established in 1991 in northeast China, produced the Jetta, Bora and Audi A6. The company has been profitable every year. Volkswagen, through two separate joint ventures, controlled more than half of the domestic automobile industry in 2003¹⁷.

More profoundly, at present, the global automobile player has abjured the old development pattern, namely relying on domestic infrastructure, material resources, human resources and the domestic market. Instead, it has adopted a new development pattern, namely focusing on the global market and cross-national chain. This has become a basic rule for the development of the global automobile industry.

Robert L., Minister of Labor in the USA, in the book "National Task" points out that when an American spends 10,000 USD to buy a General Motors vehicle: Approximately \$3,000 is paid to Korean assembly workers, \$1,750 to Japanese businessmen for advanced vehicle parts, \$700 to German designers and \$400 for miscellaneous vehicle parts from China, Taiwan, and Singapore. \$250 is paid to American advertisements and sale services and only \$4,000 to Detroit factory and New York bankers and insurance companies¹⁸.



This represents a complex relation of the current global industry. In the age of globalization, it is not important which country the final product belongs to, because all competitive products are global products.

Notably, after the phased out of the localization restrictions, China's domestic enterprises adopted the strategy of global purchase. They manufactured automobile products by importing foreign vehicle parts. Simultaneously, they harmed production, which was currently being harvested for the domestic automobile supply. In particular, the phased out of restrictions on technological research adversely affected domestic enterprises. The following paragraphs contain an in-depth discussion of the effect on automobile-related industries by China's WTO accession.

Moreover, another feature of the globalization of the automobile industry is that the main global automobile enterprises employ all resources to carry out global purchases as well as automobile production, technology utilization and research localization. After China's WTO accession, large international

automobile manufacturing companies, such as General Motors and Ford from the USA, Honda and Toyota from Japan, Volkswagen from Germany, and Fiat from Italy, eventually sought to cooperate with Chinese automobile companies. Apparently, due to its WTO accession, the Chinese market is faced with heated competition from joint ventures.

Strikingly, the automobile quotas increased every year and the automobile tariff decreased, which inevitably led to an increase of automobile imports, following accession. In 2002, 70% of imported passenger car engines were over 2.0 liters¹⁹. From this aspect, China's WTO accession did not become a doomsday for the Chinese automobile industry. Conversely, it encourages China's automobile industry to grow and strengthen. Upon accession, China's automobile industry was infused with a large amount of foreign funds, in addition to corresponding national, local and banking funds. This significant financial support has inevitably led to an increase in employment opportunities.

4.3.2 Implications for the automobile supply industry

At present, China has about 51 engine firms and 1,540 manufacturers of automobile parts. The effect of WTO entry on inefficient, small-scale automobile supply companies is almost certainly to be adverse. If China had a fully functioning market, many, if not most, of these would disappear through mergers or bankruptcies²⁰.

According to WTO rules, the import tariff on automobile supplies will decrease to 10% in 2006. Arguably, the import tariff is a component of price, where by the reduction in price is not in the same proportion as the reduction in tariffs. The best representative is the duty on brake systems, which fell from 50% to 10%, whereas the average price of brake system parts fell by 27%; the tariff on switches declined from 35% to 10%, and the average price of combined switches fell by 19%²¹.

Ironically, the domestic automobile supply industry has been protected under the restriction of localization and local protectionism. For instance, the original

restriction that automobile enterprises reach a certain degree of localization will be granted a favored tariff treatment.

Apparently, China's WTO accession logically has both positive and negative effects on the domestic automobile supply industry. Those enterprises with stronger abilities in research and development and those that used to be protected by the policy of localization will benefit.

Therefore, under a full functioning market economy, in order to reduce costs, joint ventures and local enterprises tend to make local purchases. As a result, efficient and large-scale automobile supply enterprises will be continually stronger. As prices of car parts fall following China's entry into the WTO, the financial loss of the inefficient and small-scale automobile supply companies will certainly rise, thus ensuring their demise.

At the beginning of 2005, 3 years after accession, China's automobile industry continued to grow rapidly. The efficiency of China's automobile supplies companies to tackle unprecedented challenges had successfully developed the integration of the global economy. Massive disruption of automobile supply companies did not emerge for the automobile supply chain reason. Conversely, China became the main source of automobile parts and components purchasing for global automobile players²².

In short, after China's WTO accession, the supply tariff was reduced to 10%, and the phase out of localization restrictions. Even automobile manufacturers had to reduce their costs.

4.3.3 Structural impediments to compliance

It went less noticed that one of the most important structural impediments to China's compliance with its WTO obligations was its legal system. Prior to China's WTO accession, China had already revised some important laws and regulations. For instance, in 2000 the Standing Committee of the National People's Representatives Conference approved the amendment to the Law of

Foreign-Sino Cooperative Enterprises and Foreign Enterprises. The amendment, being effective on December 31, 2000, removed the provisions that an enterprise must balance its foreign exchange and must give priority to purchasing domestic raw materials. Another two amended laws also removed the provisions that restricted foreign enterprises from entering China's local market²³.

Another structural feature of China's economic system frequently cited as a potential impediment to WTO obligations, is the independent power of provincial and local governments²⁴. From the perspective of economic decision-making, do the local governments have adequate authority to interfere with the full implementation of WTO agreements approved by China's central government?

A case in point is that the local governments have the authority to drive foreign products out of local markets. In China, some provinces/cities levy higher taxes and fees or set other obstacles when granting licenses to non-local automobiles, including imported automobiles or automobiles manufactured by joint ventures. In Shanghai, for instance, the taxi license fee to local Santana passenger vehicles is only 20,000 RMB, while 98,000 RMB is charged for non-locals. As retaliation, many other places follow suit. This is why during the 1990s, all cars moving on the Shanghai streets were Santana vehicles. Xiali cars were seen everywhere in the Municipality of Tianjin, whereas in Shanghai there were few.

Ironically, the TianJin Passenger Transport Management Office stated that taxicab operators must choose Xiali or Dafa cars. This regulation was not revised until May 1, 2003. As a result, the prevalence of local protectionism has already constituted an obstacle for foreign automobiles to enter the Chinese market.

4.3.4 Import and export

The total value of imported vehicles of all types and parts shot up from 1.2 billion USD in 1990 to 5.3 billion USD by 1993. Table 4-6 shows that imported vehicles peaked at 310,000 units in 1993 being valued at 5.3 billion USD. Since then the value of imported vehicles fell to 1.2 billion USD by the end of 1999²⁵.

The main reason for this is that since 1994, China has promulgated its automobile industry policy. One goal of this policy was to increase the share of domestically produced vehicles to 90 percent of total consumption. This was to be accomplished in part through “restrictions on the total volume of imported cars, automobiles, and their key spare and component parts.”

Table 4-6
China's Automobile Imports

Year	Imported Automobiles (1,000 units)	Total value (in billion USD)
1990	65	1.20
1991	98	1.60
1992	210	3.50
1993	310	5.30
1994	280	4.70
1995	150	2.50
1996	70	2.50
1997	50	2.00
1998	40	1.30
1999	35	1.20
2000	53	1.26
2001	72	1.75
2002	127	3.17
2003	150	4.08
2004	172	5.80

Sources: *China vehicle Yearbook 2004*, The Department of Automobiles under the Ministry of Engineering Industry of China, China Commercial Press, p. 288.

The data of 2004 The report of China's automobile development 2005, <http://www.nanfangdaily.com.cn/southnews/qc/hydt/200501240712.asp>

Table 4-7
China's Automobile Exports

Year	Export Automobile (in units)	Total Value (in million USD)	Truck (in units)	Passenger Vehicles (in units)
1990	4,431	128	3,254	73
1991	4,108	153	2,253	789
1992	6,375	306	2,243	914
1993	11,116	424	4,534	2,866
1994	18,648	515	10,234	784
1995	17,747	721	9,070	1413
1996	15,112	817	11,291	635
1997	14,868	988	8,268	14
1998	13,627	714	12,974	653
1999	10,095	1,080	9,769	326
2000	17,313	1,110	16,753	560
2001	24,531	1,180	23,737	794
2002	22,000	1,090	21,000	1,000
2003	24,000	1,120	22,500	1,500

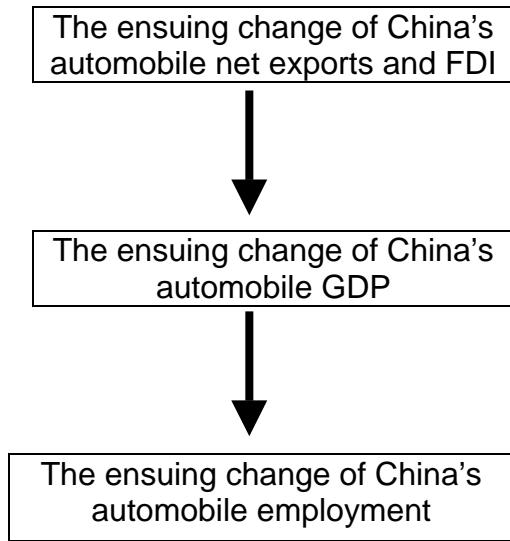
Sources: *China vehicle Yearbook 2004*, The Department of Automobiles under the Ministry of Engineering Industry of China, China Commercial Press, p. 290.

4.5 Effects on employment in China's automobile industry following China's WTO accession

The analytical approach is structured as follows:

China's entry into the WTO





4.5.1 The WTO influence on net exports of China's automobile industry

More profoundly, the major factors affecting net exports of China's automobile industry after China's WTO accession include Chinese GDP, government expenditure, domestic automobile sales, automobile tariffs, currency exchange rates, changes in Chinese government's automobile policies and the WTO rules. GDP growth and government expenditure provided more opportunities for automobile imports.

Simultaneously, domestic automobile market growth provided a broad market for automobile imports. In addition to this, the Chinese currency exchange rate had a direct influence on automobile imports. It has been clearly evident, that since late 2001, appreciation of the Euro directly triggered the fast growth of Japanese automobile imports in 2002. In the same year, European automobile imports declined²⁶.

Furthermore, the changes in the Chinese government's automobile policies also had an influence on its automobile imports. In the 1990s, in order to attract direct foreign investment, the Chinese government allowed foreign entrepreneurs to bring their own automobiles into China without duties. Many

enterprises took this opportunity to set up some sham joint ventures to purchase non-duty vehicles. Consequently, China imported a large number of automobiles between 1992 and 1993. When the state introduced a new industrial policy for vehicles in February 1994, it simultaneously set more restrictive quotas on the imports of automobiles, other vehicles, and parts.

We have established a multi-variable equation to calculate the effect on net automobile exports following China's entry into the WTO.

- (1) Table 3-17 table shows an ascending tendency of China GDP growth.
- (2) Table 4-8 exhibits an ascending tendency of China's government expenditure

**Table 4-8
Chinese Government Expenditure (in billion RMB)**

Year	Government expenditure	Year	Government expenditure
1990	308.3	1997	923.3
1991	338.6	1998	1,079.8
1992	374.2	1999	1,318.7
1993	464.2	2000	1,588.6
1994	579.2	2001	1,890.2
1995	682.3	2002	2,201.2
1996	783.7	2003	2,480.4

- (3) Chinese currency exchange rate. (Table 3-5)
- (4) China's vehicle sales from 1990 to the present (Table 4-1)
- (5) Changes in the automobile market due to the changes in China's automobile policies in 1992, 1993 and 1994

(6) The impact of the WTO on China's automobile industry after China's WTO accession in 2002

(7) China's Automobile Tariff (Table 4-9)

**Table 4-9
China's Automobile Import Tariff**

	Before 1/1/1994	After 1/1/1994	After 1/4/1996	After 1/10/1997	After 1/1/2000	After 1/1/2002
Overall tariff	43.2	35.9	23	17	14	12
Average Auto tariff		57.4	44.4	38.9	34.3	28.5
Passenger vehicle tariff	180-220	110-150	100-120	80-100	70-80	44-51

Sources: *China Vehicle Yearbook 2004*, Department of Automobiles under the Ministry of Engineering Industry of China, China Commercial Press, p. 347.

Next, we set up a regression equation for China's vehicle imports and vehicle exports, respectively.

A. We establish the time-series model on the value of vehicle imports. The simplest single-equation linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u$$

where the variable X denotes the time factor as the independent variable, Y denotes the value of vehicle imports from recent years as the dependent variables. The Y variable can be expressed in terms of a constant (β_0) and a slope (β_1) times the X variable. The constant is also referred to as the intercept, and the slope as the regression coefficient or β_1 coefficient. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y . The result is $\beta_0 = 1.184$ and $\beta_1 = -1.028$

$$\begin{aligned}
 Y &= 1.184 + 1.028 X \\
 &\quad (1.664) (6.880) \\
 R^2 &= 0.876 \quad ADJ R^2 = 0.853 \quad F = 47.335 \quad DW = 1.773
 \end{aligned}$$

In the value of the vehicle import regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.876. The F-value and t-value have passed the significance tests. We could therefore use the value of vehicle import regression equation to forecast the Chinese value of vehicle imports from 2002 to 2005. (Table 4-10)

B. We establish the time-series model on the value of vehicle exports. The simplest single-equation linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u$$

Where the variable X denotes the time factor as the independent variable, and Y denotes the value of automobile exports in recent years as the dependent variables. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y. The result is $\beta_0 = -1.061$ and $\beta_1 = 0.995$.

$$\begin{aligned}
 Y &= -1.061 + 0.995 X \\
 &\quad (-1.977) (10.9710) \\
 R^2 &= 0.957 \quad ADJ R^2 = 0.909 \quad F = 120.673 \quad DW = 1.921
 \end{aligned}$$

In the value of vehicle export regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.876. The F-value and t-value have passed the significance tests. We could therefore use the value of vehicle export regression equation to forecast the value of Chinese vehicle exports from 2002 to 2005. (Table 4-10)

Table 4-10
China's vehicle trade imports and exports (in million USD)

Year	Import	Export	Balance
1990	1,200	128	1,072
1991	1,600	153	1,447
1992	3,500	306	3,094
1993	5,300	424	4,876
1994	4,700	515	4,185
1995	2,500	721	1,779
1996	2,500	817	1,683
1997	2,000	988	1,012
1998	1,300	714	586
1999	780	1,084	-304
2000	1,260	1,110	150
2001	3,170	1,180	1,990
2002	7,850	1,090	6,760
2003	9,028	1,187	7,841
2004	10,381	1,286	9,095
2005	11,939	1,386	7,709

We employ the statistics software Eviews 5.0 to do Granger Causality Tests on all the 7 factors mentioned above. We find that the Chinese government's expenditure does not relate to the country's automobile net imports. The result is:

	F-statistics	Probability
The automobile net imports does not Granger cause expenditure	11.78346	0.00987
Expenditure does not Granger cause the automobile net imports	1.35245	0.62892

The result of the Granger Causality Test depicts that government expenditure does not relate to China's automobile net imports. Since 1990, China has

implemented very strict regulations to restrict the purchase of imported cars for government departments.

The provincial/municipal anti-corruption offices under the provincial/municipal Discipline Examination Committee must grant a special approval to those government departments that really need to purchase imported vehicles. Secondly, the provincial/municipal office (Office for the Control of the Purchasing Power of Social Groups) charges 30% fees for purchasing imported automobiles. Bearing out this perspective, government expenditure has no strong relation with China's automobile net imports.

Furthermore, we employ the statistics software Eviews 5.0 to do Granger Causality Tests on automobile tariffs and China's automobile net imports. We find that China's automobile tariffs do not relate to China's automobile net imports. The result is:

	F-statistics	Probability
China's automobile net imports do not Granger cause auto tariffs	10.1236	0.01298
Auto tariffs does not Granger cause China's automobile net imports	1.67888	0.9785

Unsurprisingly, imported vehicles are exactly equal to the quotas. In 2002, for instance, the imported automobile and parts quota was 7.8 billion USD; the actual imports were 7.85 billion USD. "My first year of achievement in China depends on how many quotas we are able to gain", said G. Xu, the new vice-president of Ford (China) Automobile Inc²⁷. In a word, auto tariffs have no strong relation with China's automobile net imports.

We establish the multi-regression equation on China's vehicle net imports. The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + u$$

In which the variable Y is determined by four explanatory variables. The independent variables are WTO (X_1), automobile policy (X_2), GDP (X_3) and vehicle sales (X_4), respectively. The dependent variables are China's vehicle

net exports in recent years (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y .

We used the statistics software “SPSS 8.0” to obtain the linear regression equation. The result is:

$$Y = -1.093 - 1.484 X_1 - 14.005 X_2 + 7.993(E-04) X_3 - 0.739 X_4$$

$$(-2.157) \quad (-1.727) \quad (-1.802) \quad (1.979) \quad (-2.122)$$

$$R^2 = 0.906 \quad ADJ R^2 = 0.852 \quad F = 58.336 \quad DW = 2.102$$

In the China's vehicle net import regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.906. The F-value and t-value have passed significance tests. We can therefore use this regression equation to forecast China's vehicle net imports.

In other words, China's entry into the WTO contributes **-1.484** billion USD annually to Chinese automobile net imports. From the Report of Chinese National Economy and Social Development Statistics 2002²⁸, the total of the automobile industry GDP is 428.9 billion RMB. We estimate the effect of GDP by the increase of net imports, which could contribute the GDP of the:

$$-1.484 * 8.27 \text{ (Exchange rate)} / 428.9 = -2.862\%.$$

4.5.2 The WTO influence on investment of China's automobile industry

We establish the time-series model on FDI from 1990 to 2001. The simplest single-equation linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u,$$

Where the variable X denotes time factor as the independent variable, Y denotes data of the FDI for recent years as the dependent variables. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y. The result is $\beta_0 = -3.057$ and $\beta_1 = 4.177e-2$.

$$Y = 4.177e-2X - 3.057$$

$$(7.283) \quad (-2.301)$$

$$R^2 = 0.828 \quad ARJR^2 = 0.813 \quad F = 53.035 \quad DW = 1.922$$

In the vehicle FDI regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.828. The F-value and t-value have passed the significance tests. We could therefore use the vehicle FDI regression equation to forecast Chinese vehicle FDI.

Actually, other significant factors also affect China's automobile industry, include the changes of the global market investment environment and the changes of the domestic investment. The reason for uncertainty is the fact that each factor has varying levels of unpredictability.

Table 4-11
Investment in China's Automobile Industry (In billion RMB)

Year	Chinese		
	FDI	Government Investment	Total
1990	0.99	4.12	5.12
1991	1.41	5.89	7.31
1992	2.47	10.27	12.75
1993	3.95	16.42	20.38
1994	4.71	19.87	24.59
1995	4.14	19.68	23.83
1996	3.57	19.49	23.06
1997	4.27	19.55	23.82

Year	FDI	Chinese Government Investment	Total
1998	4.97	19.61	24.59
1999	5.07	19.39	24.48
2000	5.62	21.97	27.60
2001	6.20	23.88	30.09
2002	7.07	27.27	34.34
2003	7.79	29.79	37.57

Sources: *China Vehicle Yearbook 2004*, The Department of Automobiles under the Ministry of Engineering Industry of China, China Commercial Press, p. 456.

We establish simplest single-equation linear regression on vehicle FDI from 1990 to 2001. The linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u$$

Where the variable X denotes the WTO factor as the independent variable, Y denotes data of FDI for recent years as the dependent variables. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y . The result is $\beta_0 = 1.575$ and $\beta_1 = 0.442$.

$$Y = 0.442X + 1.575$$

(2.673) (2.924)

$R^2 = 0.897$ ARJR $^2 = 0.888$ F = 113.933 DW = 1.738

In the vehicle FDI regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.897. The F-value and t-value have passed the significance tests.

In other words, China's entry into the WTO contributes 0.442 billion RMB to the Chinese automobile FDI. Sources: from the Report on Chinese National Economy and Social Development Statistics 2002²⁹. The China's automobile

industry's GDP is 428.9 billion RMB. We estimate the effect of GDP by the increase of the Chinese automobile FDI, which caused by WTO is:

$$0.442 / 428.9 = 0.103\%.$$

We may come to the conclusion that the WTO factors could contribute the to GDP:

$$0.103\% - 2.862\% = -2.759\%.$$

4.5.3 Elasticity of automobile employment

As mentioned in chapter 3, we calculated the elasticity of automobile employment.

Table 4-12
Automobile Economic Growth, Automobile Employment Increase and Automobile Employment Elasticity

Year	Auto			
	industry GDP (in thousand RMB)	Auto industry Economic growth (in %)	Employment increase (in %)	Elasticity of employment(in %)
1989	34,712,750			
1990	46,807,960	34.8	-1.2	-0.0344
1991	65,419,960	41.3	4.4	0.1065
1992	103,451,630	58.5	14.5	0.2478
1993	141,280,360	36.9	2.1	0.0569
1994	169,357,450	19.8	1.5	0.0757
1995	204,266,810	20.7	0.5	0.0241
1996	233,314,520	14.2	-1.0	-0.0704
1997	273,147,550	17.1	1.0	0.0585
1998	298,759,310	9.1	-0.5	-0.0549
1999	341,063,630	14.4	-8.1	-0.5625

Year	Auto industry		Employment increase (in %)	Elasticity of employment(in %)
	GDP (in thousand RMB)	Economic growth (in %)		
2000	379,405,990	11.1	-1.0	-0.0900
2001	428,893,730	12.9	6.1	0.4728
2002	595,685,740	39.1	5.8	0.1483
2003	845,700,000	40.8	6.2	0.1629

Sources: *China Vehicle Yearbook 2004*, The Department of Automobiles under the Ministry of Engineering Industry of China, China Commercial Press, p. 498.

4.5.4 The Effects of China's entry into the WTO on employment in China's automobile industry

As previously mentioned, the contribution of China's entry into the WTO to economic growth in the automobile industry is 1.35%. The average value of elasticity of employment is 0.3784 from 1990 to 2003. Based on the average value, we calculate the effect on automobile employment of China's entry into the WTO since 2002.

Table 4-13
Forecast of Automobile Increase after China's Entry into the WTO

Year	$-2.759\% * 0.3784$	Number of those Employed (in thousands)	Decrease (in thousands)
2002	-1.04405%	1,890	19.7
2003	-1.04405%	1,870	19.5
2004	-1.04405%	1,850	19.3
2005	-1.04405%	1,831	19.2
2006	-1.04405%	1,812	19.0

Table 4-13 demonstrates that more than 19,000 automobile employment opportunities will be lost as a result of accession. Within the next 5 years,

more than 98,000 automobile employment opportunities will be lost as a result of accession.

4.5.5 The result analysis

Surprisingly, China's WTO accession did not have much influence on employment in China's automobile industry. The result is smaller than estimated by the Development Research Center of the State Council (DRC), PRC.³⁰

Why then does China's WTO accession not have much influence on employment in the automobile industry?

Firstly, as noted above, sums of domestic investment (funds from central government and local governments) will increase employment opportunities. If we calculate the effect of domestic investment on employment in the automobile industry, we can clearly understand why China's WTO accession does not have much influence on employment in the automobile industry.

We establish a simplest single-equation linear regression on domestic investment from 1990 to 2001. The linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u$$

where the variable X denotes the WTO factor as the independent variable, Y denotes data of domestic investment for recent years as the dependent variables. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y . The result is $\beta_0 = 17.976$ and $\beta_1 = 1.599$.

$$\begin{aligned} Y &= 1.599X + 17.976 \\ &(8.023) (5.231) \end{aligned}$$

$$R^2 = 0.843 \ ARJR^2 = 0.830 \ F = 64.371 \ DW = 1.998$$

In the domestic investment regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.843. The F-value and t-value have passed the significance tests.

And, as unlikely as it might have once seemed, the domestic investment regression equation portrays that the effect of domestic investment on employment in the automobile industry is almost 4 times the FDI's.

Secondly, as noted before, since 2000, the structure of China automobile industry had considerably changed. The size of China's automobile market has jumped dramatically. From 1990, automobile sales increased year by year. In particular, the rate of increase was 13.1%, 13%, 39% and 36.7% in 2000, 2001, 2002 and 2003, respectively. These factors provide increasing opportunities for employment in China's automobile industry.

In fact, the number of those employed in China's automobile industry increased from 1.89 million in 2001 to 2 million by 2002, and 2.08 million by 2003.

So, we are careful in concluding that the influence of China's WTO accession will reduce the total by 19,600 employment opportunities every year. Within the next 5 years, employment in the automobile industry will decrease by 98,000 jobs.

Arguably, the effect of the WTO is negative, but total of jobs in the automobile industry increased from 2000 due to expansion of investment and for market reasons.

4.6 Concluding comments

In this chapter, I discussed the influence of the WTO on employment in China's automobile industry.

Firstly, I discussed the status quo of China's automobile industry and China's commitment to the automobile industry. Secondly, I used the SPSS software to calculate the effects of the WTO on net imports and FDI. Furthermore, I used the elasticity of employment to calculate the effects of the WTO on employment in the China's automobile industry.

In conclusion, 19,600 jobs are lost each year. Within the next 5 years, automobile industry employment opportunities will be cut by 98,000 after China's WTO accession. Although the effect of the WTO is negative, the total of jobs in the automobile industry has increased since 2000, due to expansion of investment and for market reasons.

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<http://www.nanfangdaily.com.cn/southnews/qc/hydt/200501240712.asp>
- ¹⁸ WU, Kangping, *The Growth of China's Automobile Economy*, Economy and Science Press, 2002, p. 81.
- ¹⁹ Zhong,gong *China's WTO accession*, <http://stwto.shantou.gov.cn/zhuanti/hangye/qiche.htm> 2002/10/10
- ²⁰ Lardy, Nicholas R. *Integrating China Into The Global Economy*, Brookings Institution Press Washington, D. C. 2002, p. 109.
- ²¹ Guo, Guisha, *Chinese Industry after China's Entry into the WTO*, The Social Sciences Press, p. 105.
- ²² *The report of China's automobile development 2005*,
<http://www.qm365.com/hzdttx.aspx?xxid=7336&mc=2005+SEMA+SHOW%C0%AD%CB%B9%CE%AC%BC%D3%CB%B9%C6%FB%C5%E4%D5%B9>
- ²³ *China Economic News*, V21, p. 2-3

²⁴ Lardy, Nicholas R. *Integrating China Into The Global Economy*, Brookings Institution Press Washington, D. C. 2002, p. 128

²⁵ *China Vehicle Yearbook 2004* The Department of Automobile under the Ministry of Engineering Industry of China, China Commercial Press, p. 288

²⁶ Li, Xiao *The Change of China's Vehicle Import*, <http://www.drcent.com.cn/20040204/n224244176.shtml> 2004 /2/4

²⁷ G. Xu *The development of China's Automobile industry*, www.homeway.com.cn 2003.01.20

²⁸ National Bureau of Statistics of China *The Report of Chinese National Economy and Social Development Statistics 2004* 2004-02-26 13:19:21 www.drcent.com.cn

²⁹ National Bureau of Statistics of China *The Report on Chinese National Economy and Social Development Statistics 2004* 2004-02-26 13:19:21 www.drcent.com.cn

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Chapter 5

The Effects of China's Entry into the WTO on China's Textile and Apparel Industry Employment

Before becoming a WTO member, China's exports of textile and apparel grew rapidly during the 1990s. At its accession, it was already the world's largest producer and exporter of textile and apparel products¹. Since 1980, the huge favored trade balance of exports for textile and apparel products became a significant source of Chinese capital accumulation².

India is indeed envious of China's successful performance in the export of textile and apparel. Vardhman, in his paper "Growth of Chinese textile industry — Can India weave the same magic?" argued that the growth of China's textile industry reveals some interesting points, which may be used by Indian planners in policy formulation³.

The Multifiber Arrangement (MFA) and its successor, the Agreement on Textiles and Clothing (ATC) have distorted world trade in textiles and apparel in the long term. These agreements, contrary to the general WTO prohibition of the use of quantitative restrictions, have allowed industrialized countries to impose quotas on imports of these products.

The Uruguay Round Trade Agreement gradually liberalizes these quantitative restrictions on exports to WTO member states. They were eliminated at the end of 2004, ten years after the creation of the World Trade Organization. China's entry into the WTO will definitely have an effect on Chinese textile production and employment.

5.1 The history and status quo of China's textile and apparel industry

The textile and apparel industry is one of the pillar industries of China's economy. For a long time, it has played an important role in domestic clothing consumption, increasing exports, accumulating capital and providing services to other related industries. In 2002, the gross textile output value accounted for 5.75% of China's GDP and the gross output value of apparel and other fiber products accounted for 2.63% of China's GDP. There are 2.8 million employees in the textile industry⁴. In 2004, the textile and apparel trade balance was 78.25 billion USD in favor. In comparison, the total of China's net exports was 25 billion USD in favor in the same year⁵. Apparently, the net exports were the source of accumulating state capital.

Strikingly, the size-does-matter approach in the Chinese textile economy started its restructuring process in the early 1980s, focussing on building large-scale capacities in every segment. For example, the spinning capacity in China increased from 18 million spindles in 1980 to 55 million spindles in 2003. China's share in the world capacity for modern shuttle-less looms increased from 6 per cent to 15 per cent (three-fold) over the same period⁶.

Since the adoption of the policy of reform and opening to the outside world, the textile and apparel industry has grown rapidly, averaging a 13% increase per year, which basically sought to remedy the long-term problem of textile product supply shortage. On March 1, 1983, China cancelled the "Cloth Ticket" policy, which was rationing system restricting person from purchasing textile products. The outputs of the major textile and apparel products in 2002 were 9.912 million tons of chemical fibers, 8.5 million tons of yarn and 32.24 billion meters of cloth⁷. In 2004, the outputs of the major textile and apparel products were 11.89 million tons, 9.80 million tons and 36.68 billion meters, respectively⁸.

Table 5-1
Output of Major Textile Industrial Products

Year	Chemical Fiber (million tons)	Cloth (billion m)	Yarn (million tons)	Silk (thousand tons)
1994	2.80	21.13	4.89	106.4
1995	3.41	26.02	5.42	113.4
1996	3.75	20.91	5.12	94.9
1997	4.71	24.87	5.59	82.5
1998	5.10	24.10	5.42	67.7
1999	6.02	25.00	5.70	71.1
2000	6.94	27.70	6.57	75.4
2001	8.41	29.00	7.60	87.3
2002	9.91	32.24	8.50	98.2
2003	10.45	34.28	9.06	100.4
2004	11.89	36.68	9.80	104.2

Sources: *Chinese Statistic Yearbook 2003*, China statistic Press, p. 509.

Data of 2003, 2004 from the Ministry of Commerce of PRC. Department of Market Operation Regulation, *China's Textile and Apparel Industry*
<http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>

Most obviously, with the increase of output and capacity utilization, the textile and apparel industry leads the nation in its exports. The only exception occurred in 1998, when mechanical products ranked first. Textile and apparel exports have always been higher than imports from the same sector. The trade balance in favorer has increased from 11.04 billion USD in 1990 to 78.25 billion USD in 2004.

Table 5-2
The Imports and Exports of the Textile and Apparel Industry
(in billion USD)

Year	Exports	Imports	Difference	Year	Exports	Imports	Difference
1990	13.836	2.796	11.040	1998	42.889	12.444	30.445
1991	16.733	3.750	12.983	1999	43.112	12.778	30.334
1992	25.335	7.097	18.238	2000	52.078	13.046	39.032
1993	27.132	7.297	19.835	2001	53.278	13.720	39.558
1994	35.550	9.116	26.434	2002	62.684	14.039	48.645

Year	Exports	Imports	Difference	Year	Exports	Imports	Difference
1995	37.967	11.883	26.084	2003	76.68	15.89	60.79
1996	37.094	11.998	25.096	2004	95.10	16.85	78.25
1997	45.577	12.015	33.562				

Sources: *Chinese Statistic Yearbook 2003*, China statistic Press, p. 529

Data of 2003, 2004 from the Ministry of Commerce of PRC. Department of Market Operation Regulation *China's Textile and Apparel Industry*
<http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>

Less noticed, due to concerns that the textile industry is growing too quickly and that the international market may change, the Chinese government has restricted the production capacity of three products: cotton textiles, wool textiles and chemical fibers⁹. But during 1990s, these policies were not completely implemented for reasons of export growth. For instance, China's textile and apparel industry had 41.92 million cotton textile spindles in 1991, but still had 41.91 million cotton textile spindles in 1995¹⁰.

Beginning in the early 1990s, the industry went into the red for the first time. In an effort to raise productivity and curtail financial losses, the industry began to shed workers. The industry, long characterized by outdated equipment and high production costs, initiated a more radical restructuring, beginning in 1998 in response to Premier Zhu Rongji's order to cut the losses of state-owned firms.

Notably, the state closed more than 600 state-owned textile factories (one-fifth of the total), eliminated 9.4 million old cotton spindles, and laid off an additional 1.4 million workers by the end of 2000. In 1999, state-owned textile companies recorded a slight profit of 854 million RMB. In 2000, profits surged to 6.7 billion RMB¹¹. The reduced textile spindles in Shanghai, Tianjin and Beijing accounted for 50% of the total of the old textile spindles¹².

In pursuit of successful adjustment in the textile and apparel industry, the Chinese government bore a large brunt of the burden. They provided quasi-fiscal subsidies of 3 million RMB and 2 million RMB of discounted interest loans for the elimination of 1 million old textile spindles. Moreover, many

employees were laid off. Some of these entered the reemployment center (which gives each person a monthly sum 300 yuan (=40 USD) for a maximum of 3 years¹³).

Table 5-3
The Economic Benefit of Textile Companies

	1992	1993	1994	1995	1996	1997	1998	1999
Number of Firms	3682	3530	3428	3360	3067	2841	2621	2439
Red of Firms	1360	1571	1365	1628	1667	1449	1219	981
%	36.9	44.5	39.8	48.5	54.5	51.02	46.5	23.5
Red profits (100 million)	25.7	56.2	47.7	78.6	111.7	76.8	30.8	8.54**

Note: ** indicates: In 1999, state-owned textile companies recorded a slight profit of 854 million RMB

Sources: Li Yongzi *China Reports*, Social Science Press, 2001, p. 195.

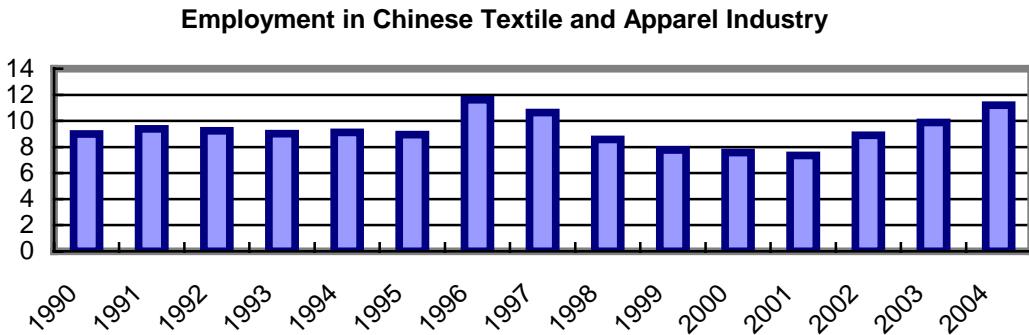
Table 5-4 depicts that the number of workers employed in the textile and apparel industry peaked in 1996 at 11.62 million. From 1996 to 2001, the number of employees decreased every year. Since accession, an extraordinary increase in jobs has taken place in the textile and apparel industry.

Table 5-4
Employment in China's Textile and Apparel Industry (in millions)

Year	Jobs	Year	Jobs	Year	Jobs
1990	9.0	1995	8.95	2000	7.58
1991	9.38	1996	11.60	2001	7.35
1992	9.24	1997	10.65	2002	8.90
1993	9.03	1998	8.59	2003	9.89
1994	9.13	1999	7.77	2004	11.20

Sources: *Chinese Statistic Yearbook 2003*, China statistic Press, p. 416.

2004 data from the Ministry of Commerce of PRC. Department of Market Operation Regulation *China's Textile and Apparel Industry*
<http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>



5.2 Summarizes to issues of the effects of China's entry into the WTO on employment in the textile and apparel industry

With China's WTO accession, the world's major trading countries inevitably opened their market to China. Consequently, largely positive net exports led to tangible benefits for the increase in jobs in the textile and apparel industry.

The Development Research Center of the State Council (DRC), PRC, established two computable general equilibrium models (CGE) to investigate the issue of China's WTO accession (see Chapter 2). It analyzes the impact of China's entry into the WTO on other major countries' (regions') production and trade as well as the impact on trade relations between China and her main trading partners. Both models cover the period from 1995 to 2010.

The significant results of employment in the textile and apparel industry are summarized as follows:

The elimination of the MFA quota and the expansion of the world textile and clothing market will have important implications on the transformation of China's agricultural labor force. The expansion of the textile and clothing industries, which are typically labor intensive, will reduce the unemployment pressure that China faces today. The results indicate there will be an increase

of migration from agriculture to manufacturing activities by about 5.4 million people due to China's WTO entry¹⁴.

Table 5-5

The Textile and Apparel Industry's Output, Employment and Trade Changes following China's WTO accession (the base Year in 1995) from 1995 to 2010

	Output (in %)	Jobs change (in thousands)	Jobs change (in %)	Import (in %)	Export (in %)
Cotton	-12.6	-4982	-22.6	426.6	209.4
Wool	-3	-100	-37.5	86.6	-15.4
Textile	25.5	2825	23.6	85.7	63.8
Apparel	74	2610	52.3	124.4	214.1

Sources: The Development Research Center of the State Council (DRC), PRC. *China and World*, China Development Press, 2000, p. 89.

The Development Research Center of the State Council (DRC), PRC used the computable general equilibrium model to estimate the effects of trade liberalization on China's economic growth and foreign trade. Although these models are truly useful, they are limited. The shortcoming existed at computable general equilibrium models, which were discussed at Chapter 2.

5.3 Theory analysis

In this section, we investigate China's and the international textile and apparel industry competitive ability and China's textile and apparel industry in the international market.

International Competitive Ability (CC)

We discuss international competitive ability of China's textile and apparel industry.

The international competitive ability (CC) is given by:

$$CC = E-I / E+I$$

Where the variable E denotes the value of China's textile and apparel exports for a given year and I denote the value of textile and apparel imports for a given year.

During a period of industrial development, the increase of an industry's global competition ability will take place if exports are increased and imports are decreased. This is an export-oriented industry, whose CC approaches +1. When the industry enters the stage of recession, the industry's CC declines. This is an import-oriented industry, whose CC approaches -1.

Table 5-6
CC of the Textile and Apparel Industry

	1990	1995	1997	1998	2002
France	-0.28	-0.29	-0.34	-0.33	-0.35
Germany	-0.44	-0.53	-0.51	-0.48	-0.53
Italy	0.642	0.504	0.473	0.43	0.42
Hong kong	0.38	0.25	0.21	0.215	0.25
Korea	0.96	0.64	0.5	0.804	0.72
China	0.99	0.92	0.93	0.93	0.92

Source: Li pen *The effect of China's entry into the World Trade Organization on China's industry*, <http://www.ctei.gov.cn/2003.2.14>

Table 5-6 shows that the CC of China's textile and apparel industry almost approaches 1. The traditional textile and apparel countries, such as Germany and France, have experienced textile and apparel trade deficits.

In addition, the CC factors are classified as price factors and non-price factors. Price factors include labor costs, production costs, interest rates, exchange rates, price levels, etc. Non-price factors include product quality, post-sale service, design & package, enterprise credit, and so on.

Arguably, a significant share of apparel and textile exports are produced under processing contracts with foreign firms, and these firms are preparing

to shift additional production to China in anticipation of all quotas being phased out of in 2004 (Detailed discussion follows subsequently). Hong Kong firms, due to their geographic proximity and high local production costs, are well motivated to move much of their remaining apparel production to China after 2004. (See Table 5-7)

Table 5-7
The labor costs of the textile and apparel industry USD /hour

	1980	1996	2002
China	0.25	0.58	0.67
India	0.60	0.56	0.52
Hong Kong	1.91	4.90	5.83
Korea	0.78	5.65	8.44
Pakistan	0.34	0.44	0.74
Japan	4.35	24.31	29.17
US	6.37	12.26	15.32
Germany	10.16	21.94	22.59

Sources: Guo, Kesha, *The Situation of China's Industry*, Chinese Economic Management Press 2003, p. 267.

Allegedly, the principle of comparative advantage holds that each country will benefit if it specializes in the production and export of those goods that it can produce at relatively low cost. Conversely, each country will benefit if it imports those goods, which it produces at relatively high cost¹⁵. Indeed, trade according to comparative advantage provides mutual benefits to all countries.

The “Toyne” model

We now introduce the “Toyne” model, to evaluate six stages of textile levels of development, involving stages of burgeoning, initial textile exports, advanced textile production, golden, prime and recession. See table 5-8.

Table 5-8
The “Toyne” Model¹⁶

Burgeon	Workshop industry, producing simple cloth, supplying domestic consumption-oriented, pure textile export	African countries
Export stage	Labor-intensive clothes production, low quality of products	Nepal, Sri Lanka
Advanced textile production	Expanding textile production, both domestic- and export-oriented	Some developed South Asian countries
Golden stage	Large trade balance, improved fiber quality, large output	China, Taiwan
Prime Stage	Reduced employees, sophisticated and advanced products, capital-intensive production	Hong Kong, Italy, Japan
Recession	Rapidly reduced factories and employees, large trade deficit	England, France, US., Germany

5.4 Implications for the textile and apparel industry

On November 11, 2001, Shi, G., the Minister of Foreign Economics and Trade, signed the protocol of China's entry into the World Trade Organization, indicating that all legal procedures concerning entry had been completed. According to WTO regulations, China became a WTO member on December 11, 2001. Undoubtedly, the Agreement of Textiles and Clothing is the most beneficial agreement regarding China's WTO accession.

Under certain conditions set forth in the WTO agreement on safeguards, a country may impose quantitative restrictions on imports. This is a major departure from the most basic WTO principles of eliminating all quantitative trade restrictions. The conditions, which must be fulfilled before a country can impose import quotas, are usually rather rigorous. Under the term of the transitional product-specific safeguard clause in China's protocol of accession to the WTO, it is fairly easy for developed countries to impose restrictions on

goods from China. The injury standard in the transitional product-specific safeguard is low-market disruption, rather than serious injury.

China has agreed to allow WTO members to apply the terms of this transitional product-specific safeguard, which are far more onerous than those that have been imposed on any other country as a condition for WTO membership, for twelve years of period from the time of its accession. Only then will China be subject to the less onerous provisions of the World Trade Organization safeguard agreement.

Bilateral agreements between China and United States of America and some other advanced industrial countries are founded on the WTO Agreement of Textiles and Clothing (ATC), the successor to the Multifiber Arrangement. In a major departure from the principles of the WTO, the ATC allows countries to impose quotas on textiles and apparel imports. This textile safeguard, if fully implemented, would allow WTO members to limit the growth of Chinese textile and apparel imports to 7.5% per year. Chinese exporters have limited opportunities to retaliate.

Under U.S. trade law, defined as imports are increasing rapidly, either absolutely or relatively. Restrictions can be imposed even when total imports are not growing, but products from China are displacing those of other suppliers. Moreover, even in this case, when imports from China have only increased relatively, China cannot retaliate against the restrictions.

By mid-2005, fears that China is going to flood the world market with cheap textile exports have already inflamed tensions between Washington and Beijing because of worries about American manufacturing plants being closed and thousands of jobs being lost. Already, in January 2005, after global quotas were lifted, 12,200 jobs were lost in the United States apparel and textile industries, according to the American Bureau of Labor Statistics¹⁷.

The China Chamber of Commerce for Import & Export of Textiles (CCCT) has raised an alarm in the whole sector, calling on Chinese textile enterprises to

halt the further export of 6 categories under the US restriction. The latest data released by the US customs authority showed the US customs closed to Chinese cotton knit shirts and cotton/MMF underwear on July 5, cotton trousers on July 8. By July 13, 97.89 percent of MMF knit shirts had been filled and would soon face closed doors in 2005¹⁸.

It is reported that over 10,000 Chinese textile enterprises are being influenced by the quota limits imposed on Chinese textiles by the United States, according to the China Chamber of Commerce for Export and Import of Textiles. The influence on more than 60% of the enterprises is substantial and serious, the CCCT said¹⁹.

This process can be used to restrict textile and apparel imports from China until the end of 2008. Hence, although the countries that have maintained textile and apparel quotas on China before its entry have in principle agreed to phase out these quotas. On a case-by-case basis, they may continue to impose restrictions on these imports from China for 4 years beyond the time that the restrictions have been phased out completely for all other supplier countries. And countries that previously have not maintained quotas on Chinese textile and apparel products under the terms of the ATC are now free to impose them under the terms on which China entered the World Trade Organization.

The level to which China can obtain benefits from the agreement of textile and clothing is still a problem to define and much attention has been paid to this issue by both the theoretical and the practical world. Some scholars argued that the textile and apparel industry exports would become the major benefactor after China's WTO accession. China's textile and apparel industry is dependent upon the international market. The major obstacle faced by China's textile and apparel exports stems from the restrictive quotas by developed countries.

Meanwhile, China's export of textile and apparel products may be subject to the transition under the transitional protect-specific safeguard. Indeed there

are two reasons why it is likely that transitional protect-specific rather than the textile safeguard will be used to restrict the inflow of Chinese textile and apparel products.

1. The transitional protect-specific safeguard is available for 12 years after China's entry into the WTO, while the textile safeguard expires at the end of 2008.
2. There is no requirement to liberalize the transitional protect-specific safeguard over time. Once an import quota is fixed, it could remain in effect at the same level until the transitional protect-specific safeguard expires 12 years after entry.

Under the terms of its accession, China will benefit from the phase out of restrictions on trade in textiles and apparel. This change will give China the opportunity to significantly increase its share of the world market, especially in apparel products. However, compared with other labor-intensive products, such as footwear, its market share of world exports of textile and apparel has been restricted by quotas by the United States and a few other industrial countries²⁰. One good example of this was when in 2005, in the first month after the end of all quotas on textiles and apparel around the world, imports to the United States from China jumped about 75% and those to Europe by about 47.42%²¹, according to trade figures released by the Chinese government. The statistics bear some of the first evidence that China's booming textile and apparel trade, unhampered by quotas, could be prepared to dominate the global textile trade and add to trade tensions around the world²².

Because China has a strong comparative advantage in labor-intensive products, several studies estimate that its share of the world export market for textile and apparel products will rise as the quotas constraining its exports are liberalized and then eliminated. For instance, Will Martin, a World Bank economist, estimates that China's share of the world apparel market will jump

by more than one-quarter after it enters the WTO and restrictions are phased out, reaching 45% of world exports by the middle of the decade²³.

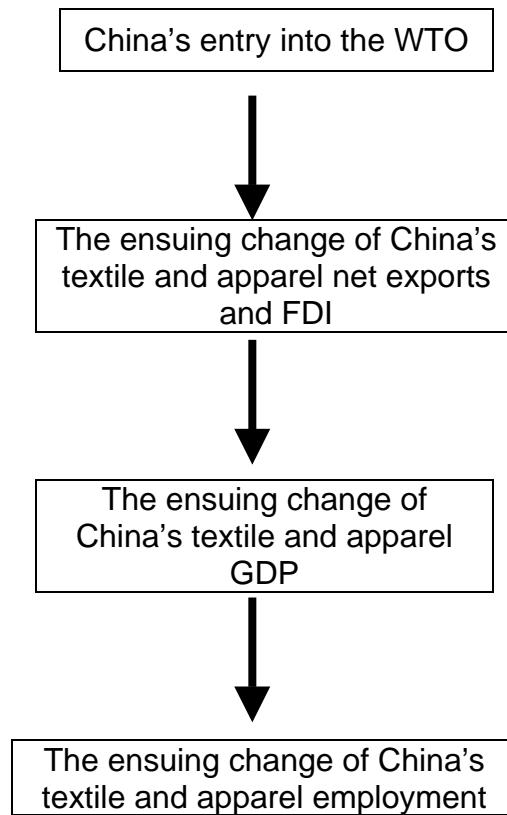
It is convincing that China's textile and apparel share of world exports will become larger and continue to increase rapidly. Many foreign enterprises play an important role in the Chinese textile and apparel industry. They expect that all the quotas will be phased out by 2008 and this will expedite transferring their excessive production capacity to China. Of course, when ATC is phased out, China's share of world textile exports will stagnate²⁴. China may become a much larger exporter of apparel products and a large net importer of textile products. The estimated result of net textile imports and net apparel exports is basically consistent with China's comparative advantage. Apparel products are more labor-intensive than textile products.

The fastest export growth of Chinese products belongs to labor-intensive sectors, such as textile, apparel, footwear, socks and toys. Although many of the important foreign markets have had import restrictions, the largest absolute gains have been in textile and apparel. China's footwear exports, which are merely restrained by a few importing countries, grew even more rapidly.

Also, after China's WTO accession, the global textile and apparel maker opened enterprises in China. For instance, the International Textile Group (ITG), the U.S. biggest textile group, announced it will join hands with a Hong Kong enterprise to set up a textile mill in Jiaxing, a city in east China's Zhejiang province, by investing 95 million US dollars. This is the largest investment project by ITG in areas outside North America, said the investor, adding that the Chinese market is more attractive with a huge potential²⁵.

5.5 The effects of China's entry to the WTO on employment in China's textile and apparel industry

The analytical approach is structured as follows:



A. Influence of the WTO on net exports of China's textile and apparel industry

The major factors affecting net exports of China's textile and apparel industry after China's WTO accession include Chinese GDP, government expenditure, textile and apparel import statutory tariffs, exchange rate changes, change in the Chinese government's textile policies and WTO rules.

Annual GDP growth and government expenditure will provide additional opportunities for textile and apparel imports. For instance, government expenditure was substantially increased to support textile exports and apparel tariff refunds from 1997 to 1999. The exchange rate also has a direct impact on textile and apparel exports. Finally, changes to Chinese textile and apparel industry policy from 1997 to 1999 also had an influence on China's textile and apparel net exports.

Based on the above-mentioned factors, we set up a multiple-variable equation to calculate each variable's effect on China's textile and apparel net exports.

1. China's GDP. (Table 3-17)
2. The gross output value of China's textile and apparel industry

Table 5-9
The Gross Output Value of China's Textile and Apparel Industry (in billion RMB)

Year	Gross output value of China's textile and apparel industry	Year	Gross output value of China's textile and apparel industry
1990	332	1997	714
1991	401	1998	684
1992	534	1999	742
1993	645	2000	798
1994	583	2001	823
1995	675	2002	948
1996	684	2003	1120

Sources: *China's Textile and Apparel Industry Statistical Yearbook 2004*, National Bureau of Statistics of China, p. 456.

Data of 2002, 2003 from Ministry of Commerce of PRC. Department of Market Operation Regulation, *China's Textile and Apparel Industry* <http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>

3. Chinese government expenditure.

Table 4-9 exhibits that the ascending tendency was observed in the annual growth of Chinese government expenditure.

4. Chinese currency exchange rate (Table 3-5)

5. From 1997 to 1999 Chinese industrial policies changed remarkably, which is why we put this policy factor into the equation.

6. The effect of China's entry to the WTO in 2002 on Chinese imports and exports (Table 5-2)

7. China's import statutory tariff for textile and apparel imports (Table 5-10)

Table 5-10
China's statutory tariff for textile and apparel

Year	Tariff (%)	Year	Tariff (%)
1990	49.5	1991	48.6
1992	45.5	1993	41.7
1994	41.5	1995	41.2
1996	29.5	1997	23.8
1998	23.6	1999	23.5
2000	22.5	2001	21.1
2002	17.6	2003	

Sources: *China's Textile and Apparel Industry Statistical Yearbook 2003*, National Bureau of Statistics of China, p. 289.

A. Imports

We establish the time-series model on the value of textile and apparel product imports. The simplest single-equation linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u,$$

where the variable X denotes the time factor as the independent variable, Y denotes value of imports in recent years as the dependent variables. The Y variable can be expressed in terms of a constant (β_0) and a slope (β_1) times the X variable. The constant is also referred to as the intercept, and the slope as the regression coefficient or β_1 coefficient. The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y . The result is $\beta_0 = 47.346$ and $\beta_1 = 9.029$.

$$Y = 47.346 + 9.029 X$$

(6.179) (8.333)

$$R^2 = 0.863 \text{ ADJR}^2 = 0.851 \text{ F} = 69.434 \text{ DW} = 1.576.$$

In the value of imports regression equation, the goodness of fit, namely, the coefficient of determination $R^2 = 0.863$. The F-value and t-value have passed the significance tests. We could therefore use the value of import regression equation to forecast the value of Chinese textile and apparel product imports. (Table 5-13)

B. Exports

A. We establish the time-series model on the value of textile and apparel exports. The simplest single-equation linear regression model is specified as:

$$Y = \beta_0 + \beta_1 X + u,$$

Where the variable X denotes time factor as the independent variable, Y denotes the value of textile and apparel exports of the past years as the dependent variables. The error term, u, is still considered to be a random variable that represents pure chance factors in the determination of Y. The result is $\beta_0 = -164.156$ and $\beta_1 = 35.880$.

$$Y = -164.156 + 35.880X$$

(-9.223) (14.255)

$$R^2 = 0.949 \text{ ADJR}^2 = 0.944 \text{ F} = 213.506 \text{ DW} = 1.683$$

In the value of exports regression equation, the goodness of fit, namely, the coefficient of determination $R^2 = 0.949$. The F-value and t-value have passed the significance tests. We could therefore use the value of export regression

equation to forecast the value of Chinese textile and apparel product exports. (Table 5-11)

Table 5-11

The forecast of value of imports and exports of textile and apparel (in billion USD)

Year	Imports	Exports	Difference
1990	2.796	13.836	11.040
1991	3.750	16.733	12.983
1992	7.097	25.335	18.238
1993	7.297	27.132	19.838
1994	9.116	35.550	26.434
1995	11.883	37.967	26.084
1996	11.998	37.094	25.099
1997	12.015	45.577	33.562
1998	12.444	42.889	30.455
1999	12.778	43.112	30.334
2000	13.046	52.078	38.032
2001	13.720	53.278	39.558
2002	14.039	62.684	48.638
2003	15.890	76.680	60.79
2004	16.850	95.100	78.25
2005*	18.2781	103.824	85.546
2006*	19.1810	117.413	98.232

Note: 2005*, 2006* are forecast data

Sources: 1990-2002 data from *Chinese Statistic Yearbook 2003*, China statistic Press, p. 529. 2003-2004 data from the Ministry of Commerce of PRC. Department of Market Operation Regulation, *China's Textile and Apparel Industry* <http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>

We employ the statistics software Eviews 5.0 to do Granger Causality Tests on all the above-mentioned 7 factors. We find that the gross output value of China's textile and apparel industry, the change of textile and apparel industry

policy, the import of textile and apparel statutory tariffs are not in relation to the net textile and apparel exports. The result is:

	F-statistics	Probability
The net textile and apparel exports do not Granger cause the gross output value of China's textile and apparel industry.	10.78346	0.0934
The gross output value of China's textile and apparel industry does not Granger cause the net textile and apparel exports.	1.55445	0.5822

	F-statistics	Probability
The net textile and apparel exports do not Granger cause the import of textile and apparel statutory tariffs.	10.9876	0.01876
The import of textile and apparel statutory tariffs do not Granger cause the net textile and apparel exports.	1.98788	0.62452

	F-statistics	Probability
The net textile and apparel exports do not Granger cause the change of textile and apparel industry policy.	12.1893	0.09838
The change of textile and apparel industry policy do not Granger cause the net textile and apparel exports.	1.87336	0.78234

We establish the multi-regression equation on China's net textile and apparel exports. The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + u,$$

where the variable Y is determined by three explanatory variables. The independent variables are Chinese government expenditure (X_1), Chinese currency exchange rate (X_2) and WTO (X_3), respectively. The dependent variables are China's net textile and apparel exports in recent years (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y .

We used the statistics software "SPSS 8.0" to obtain the linear regression equation. The result is:

$$Y = -30.024 + 1.094E-2 X_1 + 0.266t X_2 + 2.875 X_3$$

$$(-0.710) (5.424) (3.812) (1.815)$$

$$R^2 = 0.954 \text{ ADJ}R^2 = 0.939 \text{ F} = 62.612 \text{ DW} = 2.274.$$

In China's net textile and apparel exports regression equation, the goodness of fit, namely, the coefficient of determination $R^2 = 0.954$. The F-value and t-value have passed significance tests. We can therefore use this regression equation to forecast China's net textile and apparel exports. We estimate the effect of GDP by the increase of net exports, which could contribute 2.875 billion USD to the GDP.

From the Report of Chinese National Economy and Social Development Statistics 2002²⁶, we know that the total of China's textile and apparel industry GDP is 33,300 RMB per person. We estimate the effect of GDP by the increase of net exports, which was caused by the WTO:

$$2.875 \text{ billion} * \mathbf{8.27} / 33,300 = 714,000 \text{ persons.}$$

B. The effect of China's entry into the WTO on foreign direct investment.

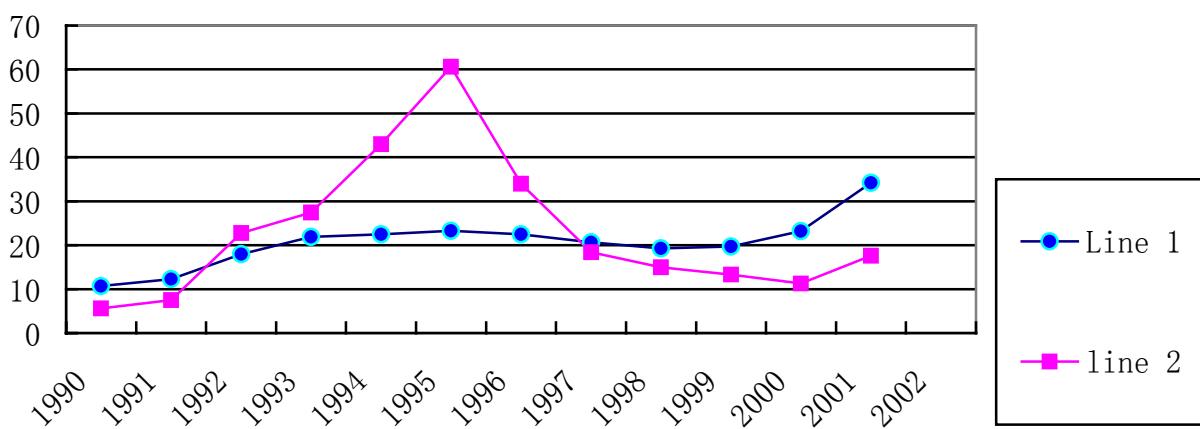
Table 5-12
Investment in the Chinese Textile and Apparel Industry

Year	FDI (in billion RMB)	Chinese Government
		Investment (in billion RMB)
1990	5.62	10.716
1991	7.55	12.310
1992	22.89	18.077
1993	27.45	21.990
1994	43.08	25.595
1995	60.61	23.127
1996	34.07	22.527

Year	FDI (in billion RMB)	Chinese Government Investment (in billion RMB)
1997	18.44	20.719
1998	15.05	19.387
1999	13.39	19.756
2000	11.33	23.244
2001	17.61	34.229

Sources: *The Foreign Investment in China: Investment in China by Large Transnational Companies*, The International Investment Research Center under the Academy of Chinese Social Sciences, Chinese Fiscal Economic Press, p. 348.

Table 5-12 portrays that both foreign direct investment has experienced a gradual increase since 1990, peaked in 1995 at 60.61 billion RMB. Beginning in the early 1990s, the whole industry went into the red. In 1997 the Chinese government announced a reform policy to reduce the number of old spindles, as discussed above. By 1999, the Chinese textile industry had begun to earn a profit²⁷.



Line1 Chinese government investment (in billion RMB)

Line 2 Foreign Direct Investment (in billion RMB)

We establish the multi-regression equation on FDI in China's textile and apparel industry. The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + u,$$

In which the variable Y is determined by five explanatory variables. The independent variables are the changes in China's textile and apparel industry policy (X_1), the WTO factor (X_2), changes of the domestic investment (X_3), before China's WTO accession, the WTO factor (X_4) and exchange rate of the RMB against convertible currency (X_5), respectively. The dependent variables are FDI in China's textile and apparel industry in recent years (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y .

We used the statistics software "SPSS 8.0" to obtain the linear regression equation. The result is:

$$\begin{aligned} Y = & -5.46 + 17.7 X_1 + 1.02 X_2 + 1.103 X_3 \\ & (-6.189) \quad (5.66) \quad (2.453) \quad (3.374) \\ & + 0.576 X_4 + 2.218 X_5 \\ & (3.952) \quad (6.835) \end{aligned}$$

$$R^2 = 0.973 \text{ ADJR}^2 = 0.951 \text{ DW} = 1.657$$

In the FDI of Chinese textile and apparel industry regression equation, the goodness of fit, namely, the coefficient of determination R^2 is 0.973. The F-value and t-value have passed significance tests. We can therefore use this regression equation to forecast FDI in the Chinese textile and apparel industry. We come to the conclusion that WTO factors could have contributed 1.02 billion RMB to the textile and apparel GDP.

From the Report of Chinese National Economy and Social Development Statistics 2002²⁸, the total of China's textile and apparel industry GDP was

33,300 RMB per person. We estimate the effect of GDP by the increase of the Chinese textile and apparel FDI, which is caused by WTO as:

$$1.02 \text{ billion RMB} / 33.3 \text{ thousand RMB} = 30,630 \text{ persons.}$$

We come to the conclusion, that WTO factors could create 744,630 jobs in the textile and apparel industry each year.

$$30,630 + 714,000 = 744,630$$

5.6 Concluding comments

According to our calculations, we forecast that employment in the textile and apparel industry **will increase** by 744,630 each year following China's WTO accession. By 2010 we estimate that China's entry into the WTO will have provided 5.92 million employment opportunities in the textile and apparel industry. This result is similar to the result achieved by Wang. Z, and Li. S, who, by using the general equilibrium models, come up with 5.4 million jobs created by 2010²⁹.

We argued:

Beginning in 1978, China has opened to the world, the relationships between China and other countries are becoming increasing close. Economic communication is gradually becoming more comprehensive. China's textile and apparel industry has experienced even faster development.

Since 1990, the number of workers employed in China's textile and apparel industry has increased and was peaking in 1996. When the overall loss in the Chinese textile and apparel industry began, the Chinese government changed its textile and apparel policies. As a result, the number of those employed decreased sharply.

After China's WTO accession, the global market opened to China's textile and apparel industry, which has a strong competitive advantage. For instance, "This is not a surprise," said Donald Brasher, president of Global Trade Information Services in Columbia, S.C., which tracks and releases trade figures from around the world, and was the first to publish China's official trade statistics. "We're going from a quota regime to a quota-free regime. And China is one of the most competitive producers. What do you expect?"³⁰. The textile and apparel industry has benefited substantially from accession. Over time, accession will lead to an invariable increase in jobs in the textile and apparel industry employment. Table 5-4 also exhibits that the total number of employees in the textile and apparel industry increased after accession.

In this chapter, I discussed the influence of the WTO on employment in China's textile and apparel industry. Firstly, I discussed the status quo of China's textile and apparel industry and China's commitment to the textile and apparel industry. Secondly, I used the SPSS software to calculate the effect of the WTO on net exports and FDI. In conclusion, after China's entry into the WTO, jobs in the textile and apparel industry will increase by 744,630 each year, Within the next 8 years, jobs in the textile and apparel industry will increase by 5.9 million.

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- ¹Li, Li, *Chinese Industry Report 2002*, Social Science Literature Press, December 2003, p. 198.
- ²Jiang, Fan, *Chinese Import and Export*, Chinese Economic Website, www.molss.com.cn, February 25, 2003.
- ³Vardhman Growth of Chinese textile industry — Can India weave the same magic? <http://www.universalgarments.com/detailnews.asp?nid=3055>
- ⁴*Chinese Statistic Yearbook 2003*, China Statistic Press, p. 465.
- ⁵Ministry of Commerce of PRC. Department of Market Operation Regulation *China's Textile and Apparel Industry*
<http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>
- ⁶Vardhman Growth of Chinese textile industry — Can India weave the same magic? <http://www.universalgarments.com/detailnews.asp?nid=3055>
- ⁷*Chinese Statistic Yearbook 2003*, China Statistic Press, p. 509.
- ⁸Ministry of Commerce of PRC. Department of Market Operation Regulation *China's Textile and Apparel Industry*
<http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>
- ⁹Yu, Yongzhi, *Chinese Industry Report 2001*, Social Science Literature Press, 2002, p. 192.
- ¹⁰Li, Li *Chinese Industry Report 2002*, Social Science Literature Press, December 2003, p. 288.
- ¹¹Zeng, Peiyan *Report on the Implement for National Economic and Social Development and the Draft 2000 Plan for Economic and Social Development* Peoples Daily, March 15, 2000
- ¹²Li, Li, *Chinese Industry Report 2002* Social Science Literature Press, December 2003, p. 204.
- ¹³Yu, Yongzhi, *Chinese Industry Report 2001*, Social Science Literature Press, 2002, p. 193.
- ¹⁴Wang, Zhi and LI, Shantong, *China and World* The China Development Research Center of the State Council China Development Press 2000, p. 5.
- ¹⁵Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press 2002, p. 688.
- ¹⁶Guo, Kesha, *Chinese Industry Development Situation*, Chinese Economic Management Press, 2003, p. 343.
- ¹⁷Barboza, David and Becker, Elizabeth *Free of Quota, China Textiles Flood the US* <http://www.globalpolicy.org/socecon/trade/2005/0310freeofquota.htm>
- ¹⁸China Chamber of Commerce for Export and Import of Textile (CCCT) *Textile producers urged to halt exporting 6 categories to US*
<http://app.ccpit.org/servlet/org>.
- ¹⁹China Chamber of Commerce for Export and Import of Textile (CCCT) *US Textile Quota Limits Affect 10,000 Chinese Enterprises*
http://app.ccpit.org/servlet/org.servlet.fronthomepage.org.en.OrgOrgSectionSubViewEnG?section_sub_id=1405
- ²⁰Gu, Qiang "Will Spring Come to the Textile Industry after Entering the WTO" *China Economic Times* February 2, 2000
- ²¹Ministry of Commerce of PRC. Department of Market Operation Regulation *China's Textile and Apparel Industry*
<http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>
- ²²Barboza, David and Becker, Elizabeth *Free of Quota, China Textiles Flood the US* <http://www.globalpolicy.org/socecon/trade/2005/0310freeofquota.htm>

²³ Lardy, Nicholas R. *Integrating China Into The Global Economy*, Brookings Institution Press Washington, D. C. 2002, p. 126.

²⁴ Lardy, Nicholas R. *Integrating China Into The Global Economy*, Bookings Institution Press Washington, D. C. 2002, p. 124.

²⁵ Xinhua *US largest textile group to set up a textile mill in E. China*
http://app.ccpit.org/servlet/org.servlet.fronthomepage.org.en.OrgOrgSectionSubViewEnG?section_sub_id=1415

²⁶National Bureau of Statistics of China *The Report of Chinese National Economy and Social Development Statistics 2004* 2004-02-26 13:19:21
www.drcent.com.cn

²⁷ Li, Yongzi *China Reports* Social science Press 2001, p. 195

²⁸National Bureau of Statistics of China *The Report of Chinese National Economy and Social Development Statistics 2004*, 2004-02-26 13:19:21
www.drcent.com.cn

²⁹ Wang, Zhi and LI, Shantong, *China and the World*, The China Development Research Center of the State Council China Development Press, 2000, p. 56.

³⁰ Barboza, David and Becker, Elizabeth *Free of Quota, China Textiles Flood the US*, <http://www.globalpolicy.org/socecon/trade/2005/0310freeofquota.htm>

Chapter 6

The Effects of China's Entry into the WTO on Employment in China's Financial Industry

With economic globalization, transnational banking corporations have vigorously expanded their global business operations and accelerated international capital flows. Since the end of 2001, China's entry into the WTO has marked a new stage for its opening to the outside world; China has continued to try by every possible means to expand its exports, absorb foreign capital and take a more active part in economic globalization. The Chinese financial industry has unceasingly sought to quicken and deepen their entry to the international economic market. The financial industry, particularly the banking sector, is the core of modern economy. Massive global economic change presents China's financial industry with new opportunities as well as challenges.

On the one hand, the introduction of a mechanism of competition has helped the Chinese financial market to move forward, i.e. by improving management effectiveness, the quality of services and the reliability performance, and by strengthening international competitive capacities. On the other hand, with the entry of foreign capital onto China's financial market, their huge capital base, scientific management and international experiences, have a substantial influence on China's financial industry, particularly on employment in the financial sector.

Their still remains unexplored an issue how to employ methods and techniques for quantitative image analysis of the WTO effect on employment in the Chinese financial sector. In this chapter, we employ statistical methods to estimate the effects on employment in China's financial industry.

6.1 Status quo and development perspectives of China's financial industry

6.1.1 China's banking sector

The primary role of banks and other financial institutions in a market economy is to serve as an intermediary between savers and investors, and to facilitate payments between economic units. Banks fulfill their intermediary function by taking deposits and lending funds to investors. Individuals, in theory, could provide their funds directly to entrepreneurs starting new businesses or to establish firms that wished to expand¹.

Great changes have taken place in the Chinese financial system, transforming it from a traditional banking infrastructure to a multi-channel financial system. In the new system, which is guided by the Central Bank, state-owned commercial banks and other multi-form financial institutions coexist. It is called the Chinese characteristics financial system. The new financial system plays a key role in the economic development of China. The empirical evidence suggests the periodization of China's banking sector. Since 1948, the following three stages of development may be distinguished:

(1) From 1949 to 1978

Since 1949, the People's Bank of China has shouldered the important responsibility of financial administration, issuance of paper money and monopolizing national financial businesses. From 1954 to 1978, almost all-financial activities were run by the People's Bank of China. This bank, with a vast network of over 15,000 branches, subbranches, and offices, dominated China's financial landscape².

The P.B. of China controlled almost four-fifths of all deposits in banks and credit cooperatives and was the source of 93% of all loans by financial institutions in 1978³. In short, China had a monobank system typical of centrally planned economies, in which one bank operated simultaneously as both the central bank and the sole commercial bank⁴.

(2) From 1979 to 1993

Far more institutional significant changes started to occur in the mid-1980s. A number of new banks and an array of non-bank financial institutions were created. In September 1983, the People's Bank of China established itself as the central bank and began to control currency and interest rates and adjust the financial structure by adopting such financial tools as deposit provisions, discount rates, interest rates and central bank loans.

Since the initiation of economic reforms in 1979, China has become one of the world's fastest growing economies⁵. Notably, since the introduction of economic reforms, China's economy has grown substantially faster than in the period of 1949-1978. In the following period, Chinese officials indicated a desire to strengthen and reform its banking system. The four large state-owned commercial banks (SOCBs) were created as follows: the Bank of China (BoC), the Industrial and Commercial Bank of China (ICCB), the China Construction Bank (CCB) and the Agricultural Bank of China (ABC). The four large state-owned commercial banks serve two major functions: 1. As independent legal entities, they could provide many financial services; 2. They were required to channel a significant part of their lending in support of state policy objectives. The support of state policy objectives inevitably contributing to unfavorable trends in their financial performance.

From 1987 to 1991, the People's Bank of China approved the establishment of several regional banks, joint stock banks and national level comprehensive

banks. Examples of this are the Bank of Communications, the China International Trust and Investment Company Industrial Bank (CITIC), the Everbright Bank, Huaxia Bank, and the Minsheng Bank. In the mid-1980s, several non-bank financial institutions began to emerge. These included urban credit cooperatives, trust and investment companies, etc.

(3). From 1994 till present

At the end of 1994, the Chinese government decided to establish policy banks to separate policy business from the four large state-owned commercial banks. The China Imports and Exports Credit Bank, the China National Development Bank, and the Agricultural Development Bank of China were created. The People's Bank substantiated its function as the central bank. Specifically, the People's Bank is in charge of issuing currency, managing credit, setting interest rates, promulgating credit targets, and adjusting the flow of funds across banks in different localities.

Besides fiscal stimulus, monetary loosening, and export promotion measures to prevent a further slowdown in economic growth, China's leaders renewed and in certain respects stepped up their commitment to structural reforms, especially in the financial sector⁶. The government injected 270 billion RMB into the largest state-owned commercial banks to shore up their sagging capital base in 1998 and reorganized the branch structure of the central bank along supraprovincial lines in an attempt to insulate banks from political pressure for lending to support local projects. At the end of 1998, the Central Bank set up 9 supraprovincial branches, namely, the branches of Shanghai, Tianjing, Shenyang, Nanjing, Jinan, Wuhan, Guangzhou, Chengdu, and Xian.

In 1999, four state-owned asset management companies were set up, namely, the Huarong Asset Management Company, Changcheng Asset Management Company, Dongfang Asset Management Company, Xinda Asset Management

Company. They were responsible for ridding the non-performing assets of the four large state-owned commercial banks.

By the end of 2000, 1.4 trillion RMB of the non-performing assets held by the big four banks were transferred to the asset management companies (AMC) affiliated with the four largest state-owned commercial banks. Nicholas R. Lardy argued: "It is very difficult to transform insolvent, unprofitable financial institutions and make them operate on genuinely commercial terms"⁷.

Quite to note, in which China's four large state-owned commercial banks possessed a large portion of the banking market, financial dominance was not changed fundamentally at the reform period. On June 2001, the total deposits in the four large state-owned commercial banks accounted for 87.93% of total national deposits and 88.29% of total national loans. The monopoly status enjoyed by the four largest state-owned commercial banks will not be changed in the near future⁸.

The Chinese government gradually opened its financial market to the world. In 1979, the Japanese Import and Export Bank set up an agency in Beijing. Since then, 31 foreign financial institutions have opened their agencies in China. In August 1990, the State Council approved Shanghai as the first city to import foreign financial institutions. In 1992, many other cities were approved by the State Council to import foreign financial business corporations, including Dalian, Tianjing, Qingdao, Nanjing, Fuzhou and Guangzhou. In December 1996, the People's Bank of China announced that foreign financial institutions could open RMB business.

Initially, the regulator licensed them to provide domestic currency services only for wholly foreign-owned and joint venture firms, excluding to Chinese companies and households. By the end of 2001, 177 foreign institutions (excluding foreign insurance corporations) had opened business locations in 23 Chinese cities. 25

foreign banks were allowed to do RMB business, 19 in Shanghai and 6 in Shenzhen. There were 248 foreign bank agencies in China. Total foreign currency loans amounted to 2182.1 billion US dollars, and the deposit balance was 519.8 billion US dollars⁹. Table 6-1 shows that the total assets of foreign banks have experienced substantial growth following China's entry into the WTO¹⁰.

**Table 6-1
Foreign Bank Presence in China**

Year	Number of institutions	Assets	
		RMB(in billion)	Percent of total financial assets of China (in %)
1991	45	22.8	
1992	79	30.5	
1993	87	43.7	
1994	99	102.1	0.9
1995	135	159.8	1.2
1996	147	248.6	1.6
1997	161	314.0	1.9
1998	173	283.0	1.7
1999	177	263.1	1.5
2000	177	287.3	1.5
2001	179	320.2	1.5
2002	181	388.7	1.5
2003	196	449.0	1.6
2004	205	572.2	1.8

Sources: Nicholas R. Lardy *Integrating China into the Global Economy*, Brookings Institution Press Washington, D.C. 2002, p. 115. *Almanac of China's Finance and Banking 2001*, *Almanac of China's Finance and Banking Press 2002*, p. 148.

Data of 2001, 2002, 2003, 2004 from Financial sector FDI in Asia: Brief Overview
<http://business.sohu.com/20050630/n226144752.shtml>

6.1.2 China's securities sector

The origins of China's securities sector lie in the establishment, in the early 1990s, of two stock exchanges in Shanghai and Shenzhen. In October 1992, the Security Commission (SC) and the Chinese Security Supervisory Committee (CSSC) were founded. Despite its rapid growth, China's securities sector was still a tiny player from a global perspective.

In May 1995, the government promulgated the Law of Commercial Banks, stipulating the principle that the banking sector should be separated from the securities sector. In 1998, the government decided to remove the Security Commission (SC), whose functions and responsibilities were placed in the charge of the Chinese Security Supervisory Committee (CSSC). With the rapid development in the last decade, the securities market in China began to mature (Please see the following table).

Nonetheless, China's securities market is still small compared to international securities markets. By the end of 2000, the total assets of Chinese securities companies were 260 billion RMB¹¹. After 4 years of development, at the end of 2004, the total assets of Chinese securities companies amounted to 329.37 billion RMB¹².

Table 6-2
Trading Summary for Stocks

Year	No. of listed companies	Total market capitalization (in billion RMB)	Total negotiable market capitalization (in billion RMB)	Total turnover (in billion RMB)
1991	14	10.9	4.0	4.3
1992	53	104.8	21.7	68.1
1993	183	353.1	86.1	375.4
1994	291	369.0	96.8	812.7

Year	No. of listed companies	Total market capitalization (in billion RMB)	Total negotiable market capitalization (in billion RMB)	Total turnover (in billion RMB)
1995	323	347.4	93.8	403.5
1996	530	984.2	286.6	2,133.2
1997	745	1,752.9	520.4	3,072.1
1998	851	1,950.5	574.5	2,354.4
1999	947	2,647.1	821.3	3,131.9
2000	1,086	4,809.0	1,608.7	6,082.6
2001	1,160	4,352.2	1,446.3	3,830.5
2002	1,224	383,291.2	124,845.5	279,904.6
2003	1,287	424,577.2	131,785.2	321,152.7

Sources: *Almanac of China's Finance and Banking*, Almanac of China's Finance and Banking Press 2004, p. 123.

6.1.3 China's insurance sector

The late start did not prevent the Chinese insurance industry from flourishing. Chinese insurance premium revenue increased from 23.9 billion RMB in 1991 to 388 billion RMB in 2003. The premium revenue always increased faster than GDP growth. The percentages of growth were 14.5%, 32.15%, 25.4% and 27.1% in 2000, 2001, 2002 and 2003, respectively¹³. The insurance depth (insurance premium revenue/GDP) increased from 0.90% in 1990 to 3.4% in 2004. The insurance density (insurance premium per capita) increased from 22.02 RMB in 1991 to 322 RMB in 2004¹⁴. At the same time, there were only 30 insured categories in the 1980s, but that has presently increased substantially to over 1000 categories.

Before 1986, the People's Insurance Corporation of China (PICC) enjoyed monopoly status in China's insurance market. After that, the State Council

promulgated to liberalize and deregulate the insurance market. This led to the establishment of a specialized state-owned agricultural insurer, the Xinjiang Beintuan Insurance Corporation, and two joint stock insurance companies (China Pacific Insurance Company and Ping'an Insurance Company).

By the end of 2001, there were 52 insurance companies, 5 state-owned companies, 15 joint stock composite companies, 19 Sino-foreign joint ventures and 13 agencies of foreign funded corporations.

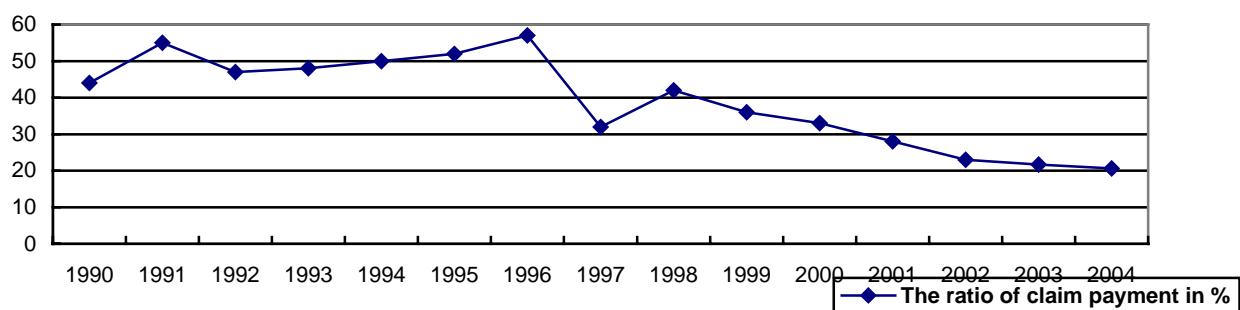
Table 6-3
Economic and Technical Indicators of Insurance Companies Funded by Chinese and Foreign Capital

Year	Premium (in billion RMB)	Claim and Payment (in billion RMB)	Payment (in)
1990	15.5	6.8	44
1991	20.9	11.4	55
1992	33.5	15.9	47
1993	37.6	18.0	48
1994	45.6	23.0	50
1995	45.3	23.6	52
1996	53.8	30.5	57
1997	77.2	24.7	32
1998	125.5	53.1	42
1999	140.6	50.8	36
2000	159.8	52.6	33
2001	210.9	59.7	28
2002	305.4	70.7	23
2003	388.0	84.1	21.7
2004	431.8	88.9	20.6

Sources: *China Statistical Yearbook 2003*, National Bureau of Statistics of China 2004, p. 699. Data of 2003 and 2004 from: *China Window: Rules Revised for WTO*
<http://www.people.com.cn/GB/jingji/1040/2332674.html>

Table 6-3 portrays that Chinese insurance premium revenues have been increasing from year to year, but the ratio of claim payment has been declining every year. Unsurprisingly, from an investment point of view, this phenomenon demonstrated that the investment channels of China's insurance companies were not running smoothly. The result suggested that they had to decrease the ratio of claim payment to increase profits.

By comparison, the ratio of claim payment in the global market is much higher than that in China's market. For instance, in the 1990s, the British and German insurance ratios of claim payment were over 80% and 95%, respectively. Some of the ratio of British insurance corporations claim payment could reach 105% by smart investment⁵.



Sources: *China Statistical Yearbook 2003* National Bureau of Statistics of China 2004, p. 699.

As an extraordinary performance, the Chinese insurance sector has seen fast and vigorous development. Yet, in contrast to the world average level, the Chinese insurance sector still has a long way to go. Generally, the following two indexes are used to evaluate a country's insurance development:

One Country's Premium Revenue

$$\text{Insurance Depth} = \frac{\text{One Country's Premium Revenue}}{\text{GDP}}$$

One Country's Premium Revenue

$$\text{Insurance Density} = \frac{\text{One Country's Premium Revenue}}{\text{Country's Population}}$$

In 2002, premium revenue/GDP was 1.8% (insurance depth), premium per capita was 127.70 RMB (15.4 dollars) insurance density, whereas the global average insurance depth was 7.44% and insurance density 271 RMB.

Table 6-4
Comparison of Insurance Development between China and World Level

	Insurance depth	Insurance density
China	1.8%	15.4
Average world insurance	7.44%	271

Sources: *China Financial Outlook 2003*, People's Bank of China 2004, p. 93.

At the end of 1992, the People's Bank of China approved the first foreign funded insurance corporation, an American insurance company, to enter the Chinese insurance market. By the end of May 2004, 32 foreign insurance companies were operating in China in both life and nonlife areas¹⁵.

6.1.4. China's Financial System

In 20 years of development, China has striven to improve its financial system, which is composed of financial supervisory departments, banks, insurance companies, securities companies and other non-financial institutions.

(1) Financial supervisory departments

There are four financial supervisory departments: the People's Bank of China, China National Bureau of Foreign Currency Exchange, China Stock Supervisory Committee and China Insurance Regulatory Committee.

(2) Banking System

(3) Capital market system

(4) Insurance market system

(5) Other non-financial institutions

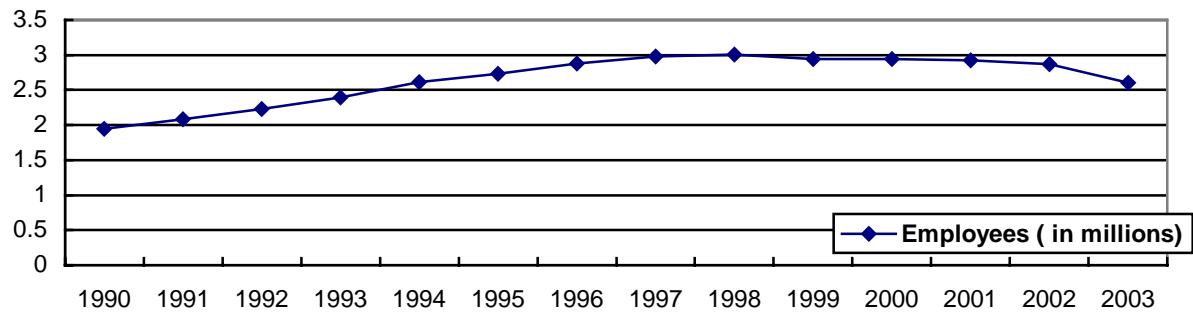
6.1.5. Employment in China's financial industry

Employment in China's financial industry increased from 1.95 million in 1990 to 2.98 million in 1997, peaking at 3.01 million in 1998, after which the number began to decline. From 1998 to 2003, the total number of persons employed decreased by 410,000.

Table 6-5
Employment in the financial industry (in millions)

Year	Employees	Year	Employees
1990	1.95	1998	3.01
1991	2.08	1999	2.94
1992	2.23	2000	2.94
1993	2.39	2001	2.92
1994	2.61	2002	2.87
1995	2.73	2003	2.60
1996	2.88		
1997	2.98		

Sources: *China Labor Statistic Yearbook* China Statistic Press 2004, p. 212.



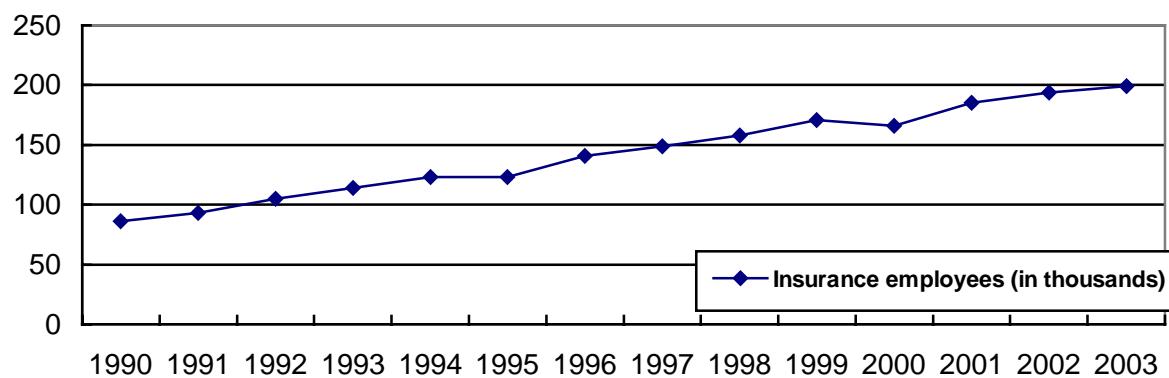
(1). Employment in the insurance sector

From 1998 to 2003, employment in the insurance sector increased from 158,000 to 199,000.

Table 6-6
Employment in the insurance sector (in thousands)

Year	Employees	Year	Employees
1990	86	1998	158
1991	93	1999	171
1992	105	2000	166
1993	114	2001	185
1994	123	2002	194
1995	123	2003	199
1996	141		
1997	149		

Sources: 1995-2003 data from *China Yearbook 2004*, China Statistic Press p. 457. Data from 1994 to 1990 were from *Almanac of China's Finance and Banking* Almanac of China's Finance and Banking Press 1995, p. 533.



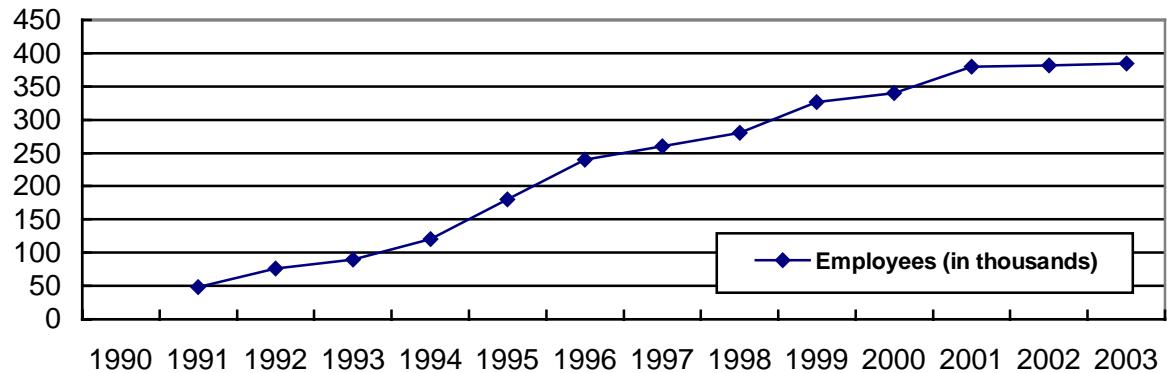
(2). Employment in the securities sector

Employment in the securities sector increased from 48,000 in 1991 to 384,000 in 2003.

Table 6-7
Employment in the Securities Sector (in thousands)

Year	Employees	Year	Employees
1990		1998	280
1991	48	1999	327
1992	76	2000	340
1993	90	2001	380
1994	120	2002	382
1995	180	2003	384
1996	240		
1997	260		

Source: *Almanac of China's Finance and Banking*, Almanac of China's Finance and Banking Press 2002, p. 478



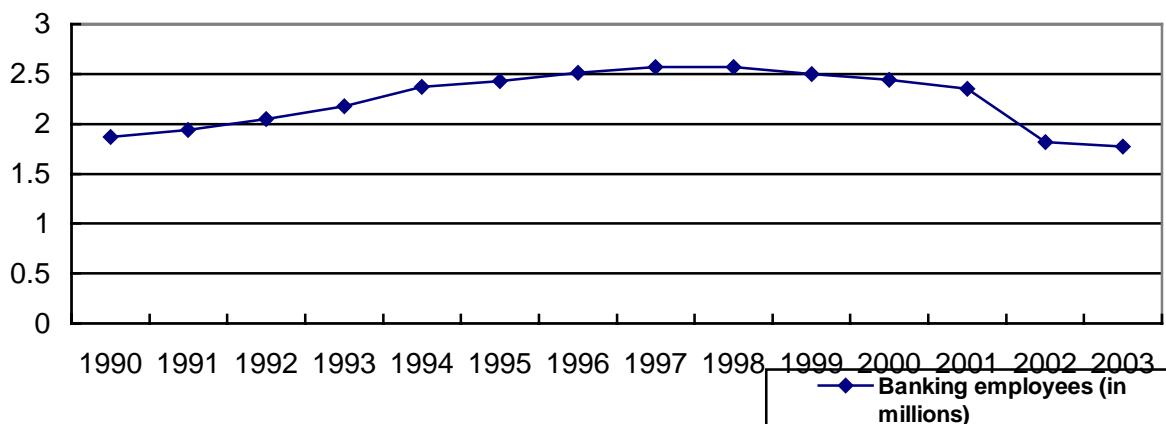
(3). Employment in the banking sector

Employment in the banking sector increased from 1.87 million in 1990 to 2.57 million in 1997, peaking at 2.57 million in 1998, after which the number of employees began to decline.

Table 6-8
Employment in China's banking Industry (in millions)

Year	Employees	Year	Employees
1990	1.87	1998	2.57
1991	1.94	1999	2.50
1992	2.05	2000	2.44
1993	2.18	2001	2.35
1994	2.37	2002	1.82
1995	2.43	2003	1.77
1996	2.51		
1997	2.57		

Sources: *Almanac of China's Finance and Banking*, Almanac of China's Finance Banking Press 2004, p. 188.



From 1998 to 2003, 800,000 jobs were lost in the banking sector. Why did this happen? From which banks did employees lose their jobs?

A. Employment and institutional changes at the Bank of China (BoC)

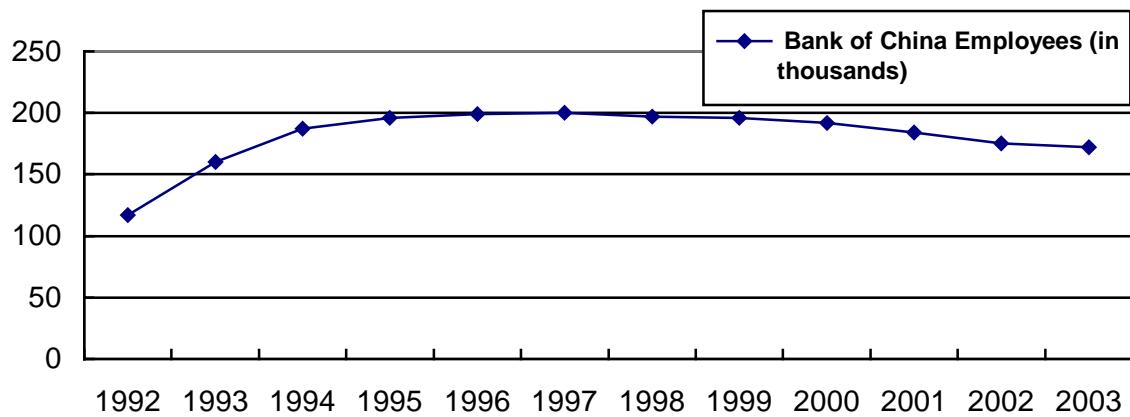
The number of employees at the Bank of China, the nation's largest foreign exchange and trade finance bank, peaked in 1998 at 200,000. The number of institutions at the Bank of China peaked in 1998 at 15,000. Since then, both have fallen significantly from 1998 to 2003. The number of employees at the Bank of China decreased by 28,200, and the number of institutions at the Bank of China decreased by 3,400.

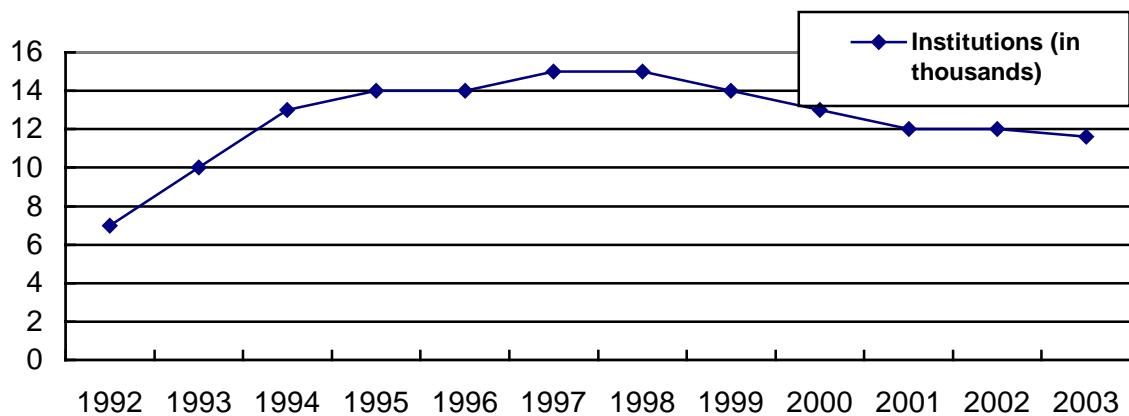
Table 6-9
Number of Institutions and Persons Employment at the Bank of China (BoC)
 (in thousands)

Year	Number of Employees	Number of Institutions
1992	117	7

Year	Number of Employees	Number of Institutions
1993	160	10
1994	187	13
1995	196	14
1996	199	14
1997	200	15
1998	197	15
1999	196	14
2000	192	13
2001	184	12
2002	174.9	12
2003	171.8	11.6

Sources: *Almanac of China's Finance and Banking*, Almanac of China's Finance Banking Press 2004, p. 189





B. Employment and institutional changes at the Industrial and Commercial Bank of China (ICBC)

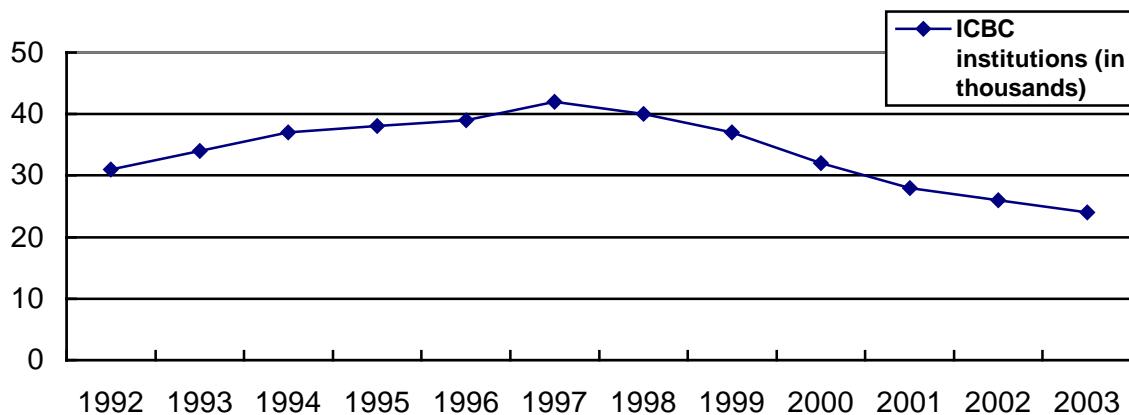
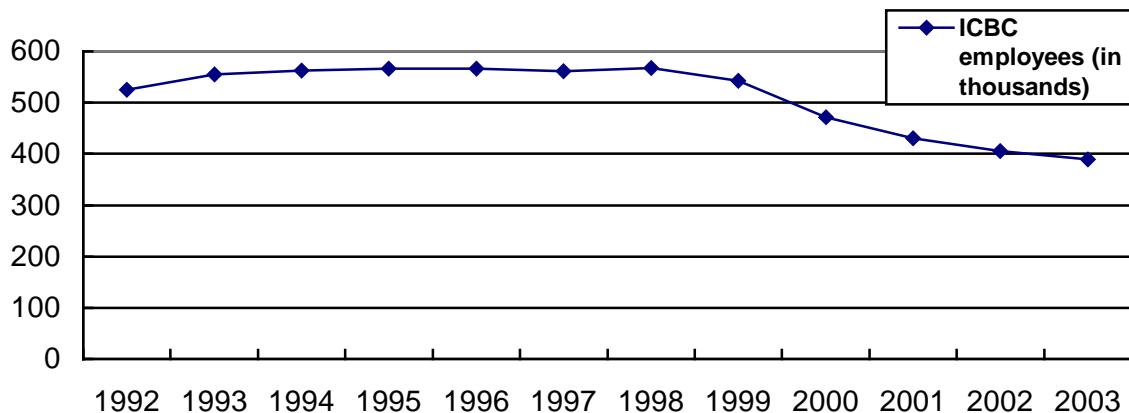
The Industrial and Commercial Bank of China is the largest bank in China with regard to total assets, total number of employees and total number of customers. The number of employees peaked at 567,000 in 1998. The number of institutions at the Industrial and Commercial Bank of China peaked at 42,000 in 1997. Since then, both have fallen remarkably from 1998 to 2003. Employees at the Industrial and Commercial Bank of China decreased by 178,000, whereas the numbers of institutions at the Industrial and Commercial Bank of China decreased by 18,000.

Table 6-10
Number of Institutions and Persons Employed at the Industrial and Commercial Bank of China (in thousands)

Year	Number of Employees	Number of Institutions
1992	525	31
1993	555	34
1994	562	37
1995	566	38

Year	Number of Employees	Number of Institutions
1996	566	39
1997	561	42
1998	567	40
1999	542	37
2000	471	32
2001	430	28
2002	405	26
2003	389	24

Sources: *Almanac of China's Finance and Banking*, Almanac of China's Finance Banking Press 2004, p. 189.



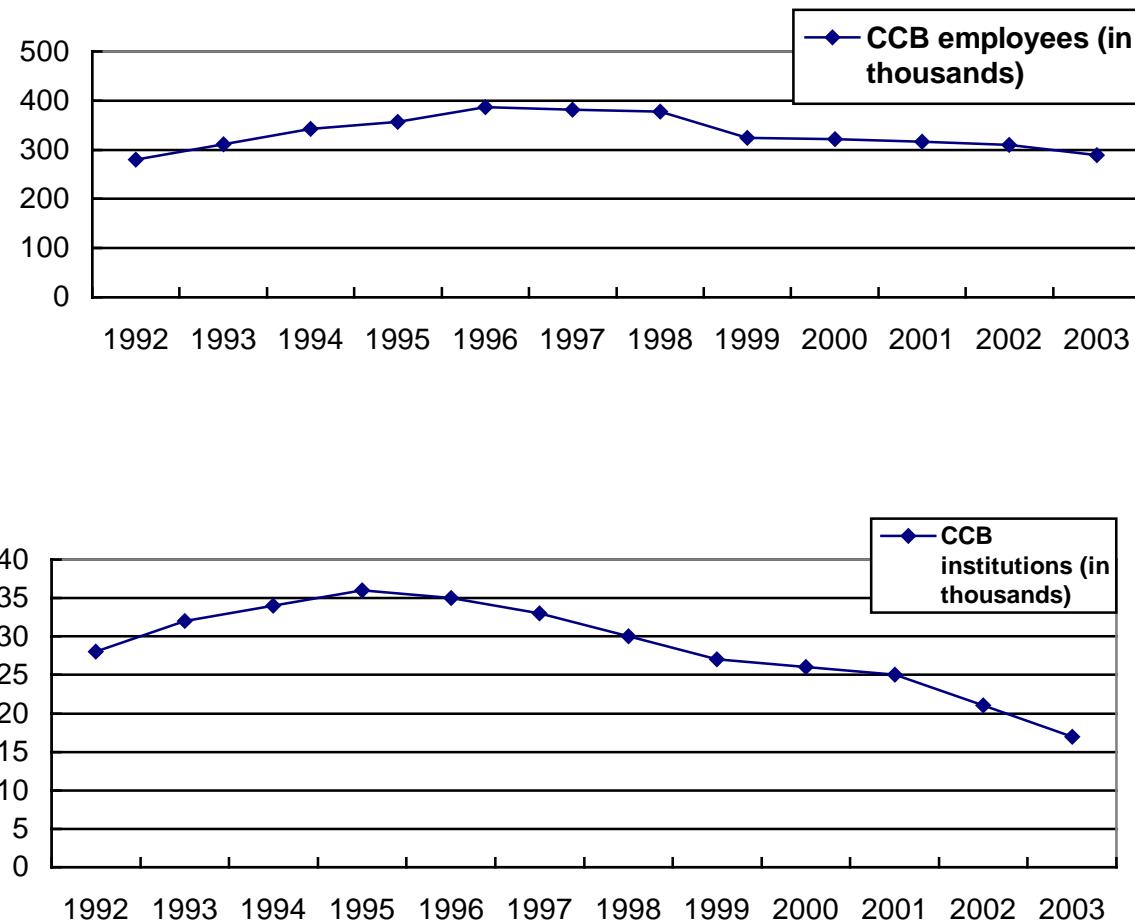
C. Employment and institutional changes at the China Construction Bank

The China Construction Bank (CCB) specializes in medium to long-term credit for long-term specialized projects, such as infrastructure projects and urban housing development. Their number of employees peaked at 432,000 in 1999, and the number of institutions at the China Construction Bank peaked at 36,000 in 1995. Since then, both have fallen considerably from 1999 to 2003. The number of employees at the China Construction Bank decreased in this period by 89,000.

**Table 6-11
Number of Institutions and Persons Employed at the China Construction Bank (CCB) (in thousands)**

Year	Number of Employees	Number of Institutions
1992	280	28
1993	311	32
1994	343	34
1995	357	36
1996	387	35
1997	382	33
1998	378	30
1999	432	27
2000	427	26
2001	419	25
2002	406	22
2003	343	17

Sources: *Almanac of China's Finance and Banking*, Almanac of China's Finance Banking Press 2004, p. 190.



D. Employment and institutional changes at the Agricultural Bank of China (ABC)

The Agricultural Bank of China (ABC) is one of the four largest state-owned banks in China and one of the Global 500. Their number of employees peaked at 565,000 in 1995, and its number of institutions peaked at 67,000 in 1995. Since then, both have fallen extraordinarily from 1998 to 2003, while the number of employees at the Agricultural Bank of China decreased by 13,000.

Table 6-12
Number of Institutions and Persons Employed at the Agricultural Bank of China (ABC) (in thousands)

Year	Number of Employees	Number of Institutions
1992	503	56
1993	536	59
1994	553	64
1995	565	67
1996	539	66
1997	537	64
1998	524	58
1999	528	56
2000	510	51
2001	490	44
2002	490	44
2003	511	36

Sources: *Almanac of China's Finance and Banking*, Almanac of China's Finance Banking Press 2004, p. 191

As is shown by the above data, 800,000 jobs were cut in the banking system (28,300 jobs of which were at the Bank of China, 178,000 at ICBC, 89,000 at CCB and 13,000 at ABC) from 1998 to 2003. What happened at the four large state-owned commercial banks?

6.2 Changes in employment in the financial industry (empirical estimates)

Before China WTO accession, employment in its financial industry peaked in 1998 at 3.01 million. Subsequently, it fell by about 2.9% annually. From 1998 to 2003, the employment in its financial sector decreased by 410,000. Employment

in China's securities sector increased by 104,000 and employment in the insurance sector increased by 41,000. Conversely, employment in China's banking industry decreased by 800,000.

Based on empirical estimation and theoretical reasoning, I speculate about modifications to employment in China's financial industry, which are influenced by the economic environment, and discuss to what extent policymakers were effectively responsible for this evolution.

(1) Government policy

In the spring of 1998, the Chinese government announced a wide-ranging package of reforms to the structure of both government institutions and state industries. Of the many stated objectives, two stand out. First, the aim was to reduce the cost of government by closing or merging ministries and government departments and dismissing excess staff. Second, the aim was to more clearly separate the functions of government from those of the commercial management of industrial enterprises. A third objective was also implicit in the reforms: to improve the effectiveness of government¹⁶.

From 1998, the Chinese government began to reduce government staff within all its segments. This was embodied in the State Council Document #120 [1998], which required that the central government and local governments (including provincial and municipal governments) begin reforms by reducing government institutions and staff.

Bearing out this perspective, the People's Bank of China promulgated "The Reform of State-Owned Commercial Banks". By the end of 2001, the four state-owned commercial banks had cut 44,000 branches, and 240,000 employees had lost their jobs¹⁷.

(2). Economic reasons

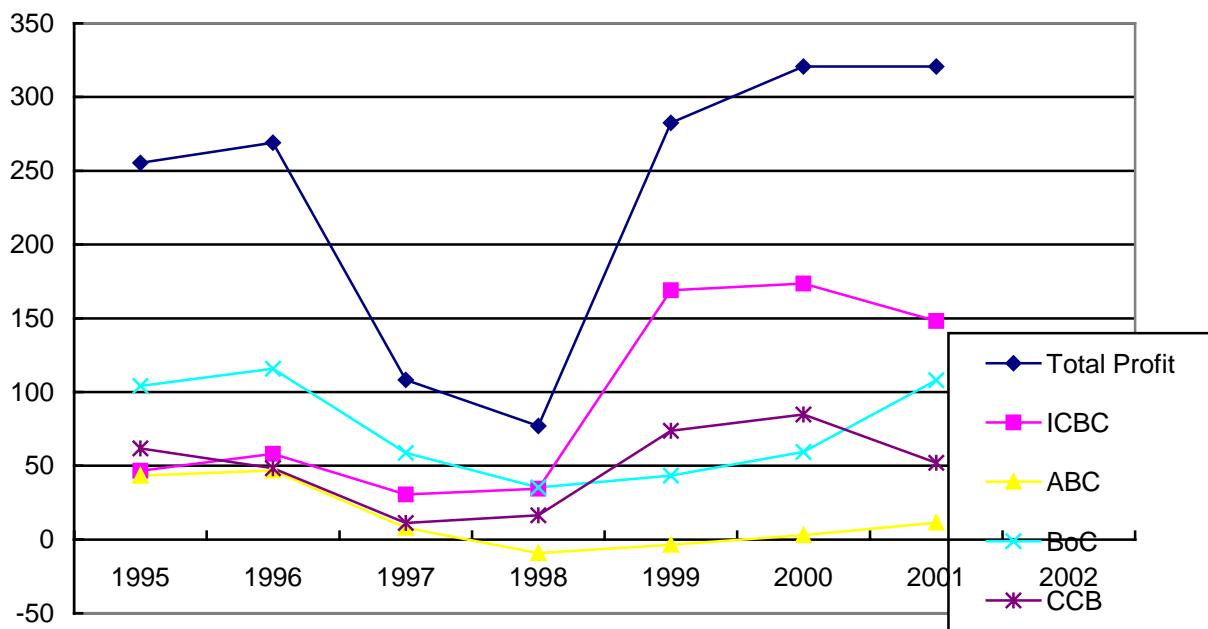
In 1995, the profits of the four large state-owned commercial banks began to decline. Table 6-13 depicts that since economic reforms and the constitutional transition of 1998, the profits of the four large state-owned commercial banks have increased.

Table 6-13
Income before Tax of China's State-Owned Commercial Banks (in billions)

Year	Total Income	ICBC	ABC	BoC	CCB
1995	25.54	4.67	4.34	10.40	6.17
1996	26.90	5.81	4.68	11.57	4.83
1997	10.82	3.05	0.78	5.87	1.12
1998	7.70	3.45	-0.91	3.52	1.64
1999	28.24	16.89	-0.35	4.34	7.37
2000	32.07	17.35	0.30	5.94	8.48
2001	32.06	14.81	1.15	10.81	5.19

Sources: 1995-1999 data *Almanac Of China's Finance and Banking* 2002, p. 12; 2000-2001 ICBC Data *Almanac Of China's Finance and Banking* 2002, p. 547; 2000-2001 ABC Data *Almanac Of China's Finance and Banking* 2002, p. 547; 2000-2001 BoC Data *Almanac Of China's Finance and Banking* 2002, p. 548; 2000-2001 CCB Data *Almanac Of China's Finance and Banking* 2002, p. 549 Almanac of China's Finance Banking Press

Diagram: Income before Tax of China's State-Owned Commercial Banks



The graph demonstrates that before the reforms of 1998, the income before tax of every state-owned commercial bank declined; since 1998, the income before tax of every state-owned commercial bank has increased.

(3). Empirical estimates

In accordance with Simon Kuznet's labor force transfer theory, we then used empirical estimates to investigate the change of China's financial industry labor force.

$$F_i/G_i = T_i/O_i : T/O$$

If $F_i/G_i=1$, this sector's productivity is at the same level as the national average productivity. In other words, employees in other sector will not move to this sector, or vice versa. If $F_i/G_i<1$, this sector's productivity is smaller than the national average productivity. In other words, employees in this sector will move to the

other sectors. If $Fi/Gi > 1$, this sector's productivity is more than the national average productivity. Employees from other sectors will move to this sector.

Table 6-14

Ratio of China's Banking Employees to Total Chinese Financial Sector Employees in 2001 (Gi) (in %)

ICBC	ABC	BoC	CCB
14.7	16.7	6.3	10.8

Sources: Data on employment at the four state-owned commercial banks from *Almanac of China's Finance and Banking*, Almanac of China's Finance Banking Press, p. 188-191; data on total employment in the China's financial sector from the *China Labor Yearbook 2002*, Chinese Statistics Press, p. 233.

Table 6-15

2001 Added Value of Four State-owned Commercial Banks (in billions YMB)

ICBC	ABC	BoC	CCB
22.95	17.06	12.34	38.63

Source: *Almanac of China's Finance and Banking 2002*, Almanac of China's Finance Banking Press, p. 246

Table 6-16

Ratio of 2001 Added Value of the Four State-owned Commercial Banks to China's Financial Sector (Fi) (in %)

ICBC	ABC	BoC	CCB
4.4	3.3	2.4	7.4

Source: The data on added value of China's financial industry from China Yearbook 2002, Table C0305

Table 6-17

Fi/Gi in 2001 (in %)

ICBC	ABC	BoC	CCB
0.30	0.20	0.38	0.68

Table 6-17 highlights that the four state-owned commercial banks, i.e. $Fi/Gi < 1$, in other words, productivity at all the four large state-owned commercial banks was lower than the average productivity of China's financial industry in 2001.

Productivity in China's securities and insurance industry is much higher than that of the banking sector. But the data of added value of the securities and insurance sector are not available in the China Statistics Yearbook and Almanac of China's Finance and Banking. From this reason, we only use data from the Pian'an insurance company for empirical estimates.

Table 6-18

Fi/Gi of China Ping'an Insurance Ltd. (CPL) 2001 (in %)

CPL Added Value (Billion YMB)	CPL Fi	CPL Employees	CPL Gi	Fi/Gi
7.46	1.429	26256	0.89	1.6

Sources: *Almanac of China's Finance and Banking 2002*, CD version, Almanac of China's Finance Banking Press, p. 645, Tables 605 and 659b

Table 6-18 portrays that CPL's $Fi/Gi > 1$, indicating that CPL's productivity is higher than the average productivity of China's financial industry, and that CPL is not under any pressure to lay off employees.

6.3 Summaries of issues regarding the effects of China's entry into the WTO on employment in China's financial industry

How has China's accession to the WTO affected on the country's financial industry? In general, the key outcomes represent one of the most widely debated topics among economists and policymakers. It is therefore crucial to investigate the effects on China's financial industry when evaluating the impact of China's accession to the WTO on employment in that industry.

The bulk of the empirical studies finds a significantly negative effect after China's WTO accession: Firstly, Zhao, X., a Chinese economist, argued: "Within five years after China's WTO accession, foreign banks will have a 20% - 40% share in the foreign currency market and 10%-15% of China's domestic currency market"¹⁸. Secondly, Ping, X., a Chinese economist, noted: "Foreign banks will increase their share of the domestic currency market more than 15% within 5 years after China's WTO accession"¹⁹. Apparently, overly pessimistic viewpoints are distorted world views.

And, as unlikely as it might have once seemed, it is very hard to imagine that foreign banks will share 10-15% of the Chinese domestic currency market. In other words, if foreign banks share 10-15% of the Chinese domestic currency market, they will have 1255.5-1883.3 billion RMB domestic currency deposits in 2006²⁰.

From an optimistic viewpoint: Nicholas R. Lardy forecasted that within 5 years after China's WTO accession, the share of financial assets controlled by foreign banks did not rise above 2 to 3 percent of China's total financial assets, and could even be somewhat lower²¹. (Detailed discussion follows subsequently.)

Strikingly, the estimation implies only a most modest reduction in the flow of new domestic currency deposits going into domestic banks. The domestic banks and other financial institutions may be faced with slightly less deposits. Nicholas R. Lardy pointed out that foreign banks might even wish to expand their RMB business very quickly. The reason is simple: foreign banks have difficulties finding a sufficient number of additional creditworthy borrowers, because most of China's firms have no accounting records and other audited financial information required to satisfy foreign banks²². In fact, it is telling that such records and information must be generally available at most Chinese enterprises. Apparently,

Nicholas R. Lardy argued that these records and information do not correspond to the international bank institutions' accounting standards.

6.4 China's commitments on financial services

On December 11, 2001, China became a member of the World Trade Organization. The first critical service sector that was opened by the negotiation leading to China's accession to the WTO was financial services²³. China committed itself to substantially open its markets in banking, insurance, securities, fund management, and other financial services²⁴.

A. China's Banking Sector

With China's WTO accession, China is required to gradually ease all restrictions on foreign banks.

The number of cities where foreign banks can offer domestic currency services systematically increased, and in January 2005 all geographic restrictions on where foreign banks can offer domestic currency services were lifted. As of January 2005, there are no numerical limits on the number of foreign banks that may be licensed. The scopes of business that can be offered by foreign banks are also widening gradually.

In 2004, foreign banks were able to take deposits, make loans, and offer other currency services to Chinese individuals. In 2006, foreign banks will also enjoy full national treatment.

B. China's Insurance Sector

The market opening in the insurance sector is similarly wide. China will gradually phase out most of the existing restrictions on foreign insurance companies.

Since accession, the China Insurance Regulatory Committee has been required to consider only prudential criteria when licensing insurance companies, meaning the numerical limitations that have long prevailed are being swept away. Geographic restrictions, and those regarding the scope of business are also being phased out.

Unlike in banking, however, the government does not allow the full ownership in the insurance industry. A foreign firm may only have 51 percent equity share of nonlife insurance businesses.

C. China's Securities Sector

China's commitment in the securities sector is less far-reaching than in the banking and insurance sectors.

1. Foreign-invested securities firms can deal in Class B-shares.
2. Foreign ownership is limited to one-third in securities operations, with no provision for any increase over time. And foreign-invested securities firms are not allowed to participate in the business of trading Class A-shares.
3. Since accession, foreign-invested securities firms have been allowed to establish businesses in any location.

6.5 The effects of China's entry into the WTO on the country's financial industry

The financial industry is the most sensitive and complex economic sector in the economic system. Its operation and development depends upon many factors.

6.5.1 China's banking sector

First, we identify WTO's effects on China's banking sector. Currently, the Chinese banking system is composed of four types of banking: (1) state-owned commercial banks; (2) other commercial banks; (3) city commercial banks; (4) and the Central Bank. Among the four types of banks, other commercial banks have no or little historical burden. The assets of other commercial banks account for a very small share of the total of Chinese commercial banking assets. The Central Bank is only a supervisory department. For this reason, we will focus on the four state-owned commercial banks to estimate the effects of China's entry into the WTO on the country's financial industry. Arguably, the ICBC, ABC, BoC and CCB occupy a special status or enjoy a monopoly/oligopoly position in terms of savings, deposits market and assets for whole country financial services.

- 1) Perhaps the greatest challenge China will face in services is in the financial sector²⁵. The challenge will be formidable in banking because of the weakness of domestic institutions, particularly the four large state-owned commercial banks²⁶. After China's WTO accession, foreign banks were allowed to expand their domestic business to include Chinese firms and Chinese households. The competitive advantage of foreign banks may be significant. China's domestic banks will be faced with the risk of a reduced market share. A case in point is that in March 2003, two years after China entered the WTO, Nanjing Ericsson Panda Ltd repaid 1.99 billion RMB loans to the Nanjing Branch of Transportation Bank of China and the Nanjing Branch of ICBC, and closed their account. They transferred all their bank accounts to the Shanghai Branch of the CitiBank²⁷.
- 2) Due to defects, inefficient and lower quality services, China's four large state-owned commercial banks have to dismiss workers and decrease their institutions.

- 3) After China's entry into the WTO, Chinese banks have had to face the problem of losing talented human resources. Foreign banks attract many talented and key Chinese employees who are very important human resources at China's four large state-owned commercial banks.
- 4) In 1998, the Chinese financial industry began to state a new policy of separate operations and separate management, which obviously differs in principle from global financial industry. The enforcement of this policy further contributed to worsen the efficiency of China's state-owned commercial banks. In 2000, in order to successfully meet the challenge of implementing its WTO commitments, the People's Bank of China decided to change from its policy of separate operations to combined operations.

Ironically, the foreign bank share of the Chinese market decreased from 1.56% in 2003 to 1.4% in 2004. The percentage of the foreign bank share of the Chinese market was 1.6% in 2002. Conversely, the ratio was 2% before China's WTO accession in 2001²⁸. In retrospect, the Chinese banking market is the same as Nicholas R. Lardy forecasted before. Although foreign banks do not drain off a large enough share of the deposit market to threaten China's state-owned commercial banks, Chinese banks still face serious competition. While China's banking sector may incur more adjustment costs, China's banking industry will not collapse²⁹.

6.5.2 China's securities sector

(1). Currently, China's securities market includes Class A- and Class B-shares. Since accession, foreign-invested securities firms can deal directly in Class B-shares. But they will not be allowed to participate in business of trading Class A-shares. Hence, by the end of 2005, the total turnover of the Class B-shares market will increase twice as much as in 2001³⁰.

(2). With China's entry into the WTO, this problem will remain since China's government uses the securities market in order to channel funds to debt-ridden state-owned enterprises.

6.5.3 China's insurance sector

The insurance sector is known for its mismanagement in China. After China's WTO accession, foreign capital has expanded its business into the insurance market, leading to the loss of shares for the Chinese state-owned insurance industry. Perhaps the best example of this is that, in 2004, the percentage of the foreign insurance companies' share of the Shenzhen insurance market was 8.54%, which rose by less than 2% compared to 2003³¹.

When foreign financial institutions entered the Chinese market, they initially have chosen the insurance market because insurance services play a vital role in international trade. Great Britain, for instance, depends to a large degree upon exports of insurance products to achieve a balance of foreign trade³².

A total of thirty-seven foreign insurance companies had begun operations in China by the end of 2004, showing an average 30% annual growth over the past 20 years or more. Although they hold less than 3% of the market, the growth of foreign insurers has been accelerating in recent years, particularly in relatively wealthy coastal areas such as Shanghai and Shenzhen.

Strikingly, the management methodologies and products used by foreign insurance companies have undoubtedly given a lift to the Chinese insurance industry, which is still in an early phase of development. China has a 1.3 trillion USD savings pool. Only around 5% of Chinese households have homeowner insurance, while motor vehicle coverage was just 30% at the end of 2004³³.

6.6 The effects of China's entry into the WTO on employment in its financial industry

1. Banking sector: Tables 6-9, 6-10, 6-11 and 6-12 show that the number of employees at the four large state-owned commercial banks declined after China's WTO accession. Foreign banks then began to be seen as a way of absorbing excess labor demand. It is a less noted fact that foreign banks are expanding, but they only have a limited capacity to absorb the labor force. For instance, in 2001, there were merely 2000 Chinese employees in foreign banks, which, compared to the total effect of WTO accession on Chinese financial employment, could be seen as negligible. For this reason, we only employ the data from the four large state-owned commercial banks to estimate the effect of China's entry into WTO has had on employment in China's banking sector.
2. Securities sector and Insurance sector: More and more foreign securities and insurance businesses have entered the Chinese market, resulting in the faster development of the Chinese securities and insurance industries. Furthermore, Chinese securities and insurance's $F_i/G_i > 1$, namely, productivity of securities and insurance, is higher than the average Chinese financial productivity. Therefore, these two industries would provide more employment opportunities.

We use the above data to set up a multi-regression model to estimate the effect the WTO has had on employment in China's securities and insurance sector.

6.6.1 The effects of China's entry into the WTO on employment in China's banking sector

We establish the multi-regression equation on employment in four large state-owned commercial banks. The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + u$$

in which the variable Y is determined by five explanatory variables. The independent variables are WTO (X_1), total assets (X_2), the number of bank branches (X_3), the adequacy of capital (X_4) and self-owned capital (X_5), respectively. The dependent variables are employment at the four large state-owned commercial banks (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y .

We used the statistics software “SPSS 8.0” to obtain the linear regression equation. The result is:

$$Y = 74.571 - 7.1 X_1 + 0.0001596 X_2 + 5.493 X_3$$

(7.243) (-1.83) (4.301) (7.992)

$$R^2 = 0.957 \text{ ADJ}R^2 = 0.941 \text{ DW }= 1.898.$$

In regression equation for employment in the four large state-owned commercial banks, the goodness of fit, namely, the coefficient of determination R^2 , is 0.957. The F-value and t-value have passed the significance tests. We can use this regression equation to forecast the effect the WTO has had on employment in China's banking sector.

The equation does not involve self-owned capital and the adequacy of capital because they did not pass the significance tests, indicating that the self-owned capital and the adequacy of capital do not relate to employees in China's banking sector.

In the equation, as noted above, the effect the WTO has had on employment in the four large state-owned commercial banks is negative. Quantitatively, 71,000 jobs will be lost in China's banking sector each year due to its entry into WTO.

6.6.2 The effects of China's entry into the WTO on employment in China's insurance sector

We establish the multi-regression equation on employment in the insurance sector. The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + u,$$

in which the variable Y is determined by four explanatory variables. The independent variables are WTO (X_1), claim and payment (X_2), insurance premium revenue (X_3) and the ratio of payment (X_4), respectively. The dependent variables are employment in the insurance sector (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y .

We used the statistics software "SPSS 8.0" to obtain the linear regression equation. The result is:

$$Y = 9.845 + 1.829 X_1 + 0.01025 X_2 \\ (19.047) (2.458) (6.037)$$

$$R^2 = 0.950 \text{ ADJR}^2 = 0.938 \text{ DW} = 1.943.$$

As we can see, in the insurance employment regression equation, the goodness of fit, namely, the coefficient of determination R^2 , is 0.950. The F-value and t-value have passed the significance tests. We can use this regression equation to forecast the effect the WTO has had on employment in the insurance sector. In the equation, the WTO's effect is positive. Quantitatively, 18,290 jobs will be created in China's insurance sector each year due to country's entry into the WTO.

The equation does not involve insurance premium revenue and the ratio of payment. This is because they did not pass the significance tests, indicating that insurance premium revenue and the ratio of payment do not relate to employment in the insurance sector.

6.6.3 The effects of China's entry into the WTO on employment in China's securities sector

We establish the multi-regression equation on employment in the securities sector. The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + u$$

in which the variable Y is determined by six explanatory variables. The independent variables are the number of listed securities companies (X_1), WTO (X_2), stock market depression since 2000 (X_3), total market capitalization (X_4), total negotiable market capitalization (X_5) and total turnover (X_6), respectively. The dependent variables are employment in the securities sector (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y .

We used the statistics software "SPSS 8.0" to obtain the linear regression equation. The result is:

$$Y = 4.041 + 0.0365 X_1 + 0.096 X_2 - 2.874 X_3
(3.125) (9.356) (2.42) (-1.589)$$

$$R^2 = 0.987 \text{ ADJ}R^2 = 0.982 \text{ DW} = 1.972.$$

As we can see, in the securities employment regression equation, the goodness of fit, namely, the coefficient of determination R^2 , is 0.987. The F-value and t-value have passed the significance tests. We can use this regression equation to predict the WTO's effect on employment in the securities sector. In the equation, the WTO's effect is positive. Quantitatively, 960 jobs will be created in the securities sector each year.

The equation does not involve total market capitalization, total negotiable market capitalization and total turnover. This is because they did not pass the significance tests, indicating that they do not relate to employment in the securities sector.

6.7 Concluding comments and analysis of results

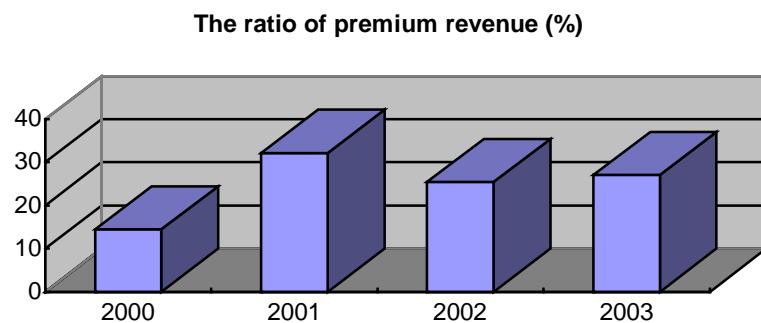
According to our calculation, the effect of China's entry into the WTO has led to the loss of 51,750 jobs in the country's financial industry:

$$-71,000 + 18,290 + 960 = -51,750$$

The number of employees at the four large state-owned commercial banks will decline following China's WTO accession. Although foreign banks are expanding, they only have a limited capacity to absorb the labor force. The result shows that employment in the banking sector will decline by 71,000 following China's WTO accession. Table 6-8 depicts that employees in the banking sector declines from year to year.

More and more foreign securities and insurance businesses have entered the Chinese market, resulting in the faster development of the Chinese securities and insurance industries. The result shows that employment in the securities and insurance sectors will increase by 19,250 following China's WTO accession.

As mentioned above, the insurance market has been expanding rapidly since China's WTO accession. The rate of premium revenue growth was 14.5%, 32.15%, 25.4% and 27.1% in 2000, 2001, 2002 and 2003, respectively. Tables 6-6 and 6-7 show that employees in the securities and insurance sectors have experienced a significant increase since China's WTO accession.



In this chapter, I discussed the influence of the WTO on employment in China's financial industry. First, we introduced the status quo of the financial industry. I used the structure theory of Simon Kuznets to make an empirical estimate to explain why the four large state-owned commercial banks have cut employment from 1998 to 2002. Then, I introduced China's WTO commitments on the financial industry and analyzed the effect the WTO has on the banking, insurance, and securities sector, respectively. Finally, I analyzed the effect the WTO has on employment in the banking, insurance, and securities sector, respectively. It was calculated that China's entry into the WTO has led to the loss 51,750 jobs in the country's financial industry.

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Chapter 7

Aggregate Analysis of the Effects of China's Entry into the WTO on Employment and Conclusion

7.1 Introduction

There is no doubt that unemployment has become an issue in which the widespread concern of policymakers has attracted considerable public attention. The unemployment rate is seen usually as a sign of social health as well as indicators of economic or labor market performance. As discussed in chapter 1, China is likely to experience the most serious unemployment pressures it has ever faced. Official unemployment data, which is published by the Chinese government, did not provide much insight into the profile of its status quo.

After 15 years of long and arduous negotiations between China and the members of the World Trade Organization (WTO), on November 12, 2001, at the Trade Ministerial meeting in Doha, Qatar, trade ministers from 142 member countries at the WTO summit unanimously approved membership for China¹. China's entry into the WTO occurred after lengthy negotiations, in which China had to satisfy its trading partners, most notably by making broader and deeper commitments. As argued by Nicholas R. Lardy: "China's WTO commitments, on market access and on rules-based issues, far surpass those made by founding members of the World Trade Organization and, in some cases, go beyond those made by countries that have joined the organization since its founding in 1995.²"

After three years since accession, in retrospect, China's membership of the World Trade Organization has significant implications for its economic growth, domestic reform and integration into the global economy. For instance, under the transitional product-specific safeguard, China's automobile industry has developed rapidly; the domestic automobile market has expanded satisfactorily. At the beginning of 2005, China's textile and apparel industry enjoyed significantly favor of quota liberation³. China's insurance market has flourished in tandem with foreign fund insurance companies, and continues to provide job opportunities to the unemployed in recent years.

There is little doubt that China now leads the world in the production of televisionsets, refrigerators, cameras, bicycles, motorbikes, desktop computers, computer cables and other components, microwave ovens, DVD players, cell phones, cigarette lighters, cotton textiles, and countless other manufactured products. Furthermore, China's lead is growing at an accelerating pace⁴.

Notably, China's urban and rural areas still face heavy employment pressure, brought about by the newly emerging labor force. Simultaneously, China has had to face considerable short-term economic costs for its entry to the WTO, in the form of broader and deeper commitments. China's entry into the WTO inevitably affected its employment. Yet, the impact of its direction and size has been argued in both theoretical and empirical studies. How has China's accession to the WTO affected its labor market? How has China's accession to the WTO affected employment in its various industrial sectors?

Thoroughly researched and logically outlined, this chapter is organized into three parts: First of all, it summarizes the issues the effect of China's entry into the WTO made on China's labor market. Secondly, we estimate the effects of

China's entry into the WTO on unemployment. Thirdly, on the basis of the analysis made, we reach a conclusion.

7.2 Summaries of issues regarding the effect of China's entry into the WTO on the country's labor market.

How much has the employment increased or decreased since China's WTO accession? The results which theoretical economists and political scientists have obtained differ widely with regard to the effects on China's labor market.

There are two optimistic viewpoints:

Firstly, we will present a research project carried out at the International Labor Organization (ILO) and the Association for International Exchange of Personnel of China (AIEP) in 1999. Following China's entry into the WTO, the rate of GDP will increase by 3% each year, leading to an increase in value of more than 300 million USD. They argued that 400,000 jobs would be created for each 1% increase in the GDP⁵. i.e. that 1.2 million jobs would be created each year after China's entry into the WTO.

Secondly, the Minister of Labor and Social Security of the PRC, Chen, N. pointed out that one of the reports by the Ministry of Labor and Social Security of the PRC had shown: "From 2000 to 2010, if the rate of GDP increases one percentage point, the elasticity of employment will increase 50% more than in the 90's, reaching 0.15. Total employment will increase by 0.15 percentage points, namely, 4.5 million jobs will be created after China's entry into the WTO.⁶"

The pessimistic viewpoints:

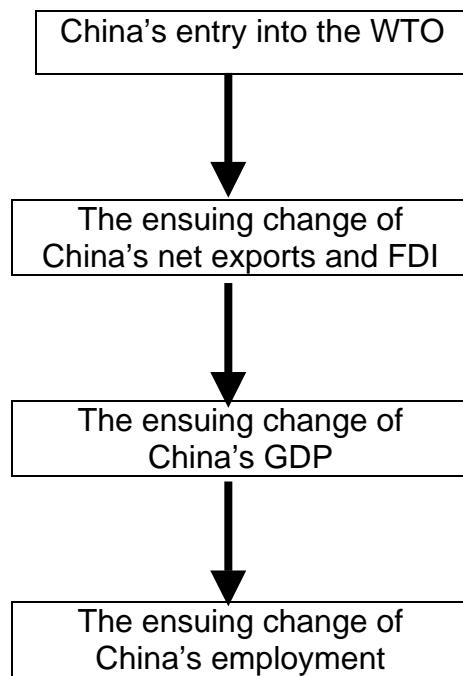
Nicholas R. Lardy argued: "After China's accession to the WTO, China's agriculture market will become more opened, which previously had a significant trade barrier. 1.1 million farmers have lost their jobs and the production of the relevant export product will decrease by 30%."⁷

Strikingly, in the long term, China's WTO accession has promoted economic growth and has provided the opportunity for China to merge into the global economy. In a further analysis, China's entry into the WTO does not only accelerate foreign trade co-operation and exchange-it also provides innovative ways to absorb foreign investment, adjusted economic structure, stimulated economy and business expansion. Conversely, in the short run, China's entry will inevitably lead to considerable economic costs at the beginning. It is an inevitable and unavoidable fact that some enterprises will merge and others will go bankrupt. Most obviously, it is possible that total employment will fall and unemployment will increase in many economic sectors.

As unlikely as it might once have seemed, China's extraordinary performance is met with heartfelt gratitude three years after its entry into the WTO. The rate of GDP growth was 7.9%, 9.3% and 9.5% in 2002, 2003 and 2004, respectively. China's GDP for the first half of 2005 reached 6,742.2 billion YMB (812.3 billion USD), a year-on-year increase of 9.5%⁸. Employment in the automobile industry and the textile and apparel industry has increased. Despite the fact that employment has substantially declined in the banking sector, the hugely profitable expansion in the insurance sector and securities sector has created new employment opportunities, which will be discussed in detail shortly.

7.3 Framework

What then is the effect on employment following China's accession into the WTO? We employ aggregate analysis to investigate the effect of China's entry into the WTO on employment. The analytical approach is structured as follows:



7.4 Aggregate analysis of the effects of China's WTO accession on employment

7.4.1 The effect of China's entry into the WTO on net exports

Table 7-1
Import and Export (in billion RMB)

Year	Total of Imports and Exports	Total of Exports	Total of Imports	Difference
1952	6.46	2.71	3.75	-1.04
1957	10.45	5.45	5.00	0.45
1962	8.09	4.71	3.38	1.33
1965	11.84	6.31	5.53	0.78
1970	11.29	5.68	5.61	0.07
1975	29.04	14.30	14.74	-.44
1978	35.50	16.76	18.74	-1.98

Year	Total of Imports and Exports	Total of Exports	Total of Imports	Difference
1980	57.00	27.12	29.88	-2.76
1985	206.67	80.89	125.78	-44.89
1986	258.04	108.21	149.83	-41.62
1987	308.42	147.00	161.42	-14.42
1988	382.18	176.67	205.51	-28.84
1989	415.59	195.60	219.99	-24.39
1990	556.01	298.58	257.43	41.15
1991	722.58	382.71	339.87	42.84
1992	911.96	467.63	444.33	23.30
1993	1,127.10	528.48	598.62	-70.14
1994	2,038.19	1,042.18	996.01	46.17
1995	2,349.99	1,245.18	1,104.81	140.37
1996	2,413.38	1,257.64	1,155.74	101.90
1997	2,696.72	1,516.07	1,180.65	335.42
1998	2,685.77	1,523.16	1,162.61	360.55
1999	2,689.63	1,615.98	1,373.65	242.33
2000	3,927.42	2,063.52	1,863.90	199.62
2001	4,219.67	2,203.36	2,016.30	187.06
2002	5,137.82	2,694.79	2,443.03	251.76
2003	8,510.01	4,382.22	4,127.79	254.43
2004	9,549.71	4,907.09	4,642.62	264.47

Sources: *China Yearbook 2004* China Statistic Press, p. 653

Data of 2004 from: *China Daily Online*

http://english.people.com.cn/200501/28/eng20050128_172209.html

We believe that the major factors affecting net exports following China's WTO accession include the WTO, the Asian crisis, Chinese inflation, China export duties refund, China's exchange rate, China's GDP, etc.

We use the above-mentioned Granger causality tests on various factors and

China's net exports, and found that only the WTO, the Asian crisis and Chinese inflation have an influence on China's net exports.

We establish the multi-regression equation on China's net exports. The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + u,$$

in which the variable Y is determined by three explanatory variables. The independent variables are WTO (X_1), the Asia crisis (X_2) and Chinese inflation (X_3), respectively. The dependent variables are China's net exports in recent years (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y .

We used the statistics software "SPSS 8.0" to obtain the linear regression equation. The result is:

$$Y = 523.772 + 155.034 X_1 + 1342.407 X_2 - 77.891 X_3$$

(3.165) (8.892) (4.775) (-5.328)

$$R^2 = 0.951 \text{ ADJ}R^2 = 0.94 \text{ DW} = 1.715 \text{ F} = 90.334 \text{ DW} = 1.878.$$

In the value of China's net export regression equation, the goodness of fit, namely, the coefficient of determination R^2 , is 0.951. The F-value and t-value passed the significance tests. Hence, we were able to use this regression equation to forecast the effects of China's WTO accession on net exports.

China's entry into the WTO contributes 155.034 billion RMB to the country's net exports. Sources: from the Report on Chinese National Economy and Social Development Statistics 2002⁹. The total GDP is 9,593.3 billion RMB. We estimate the increase of GDP due to the increase of net exports caused by the

WTO to be:

$$155.034 / 9,593.3 = 1.615\%.$$

7.4.2 The effect of China's entry into the WTO on FDI

Table 7-2
Foreign direct investment in recent years (in billion USD)

Year	The account of		
	foreign investment (in thousands)	Total foreign investment	Utilized foreign capital
1979-1983	1,392	7.742	1.802
1984	1,856	2.651	1.258
1985	3,073	5.932	1.661
1986	1,498	2.834	1.874
1987	2,233	3.709	2.314
1988	5,945	5.297	3.194
1989	5,779	5.600	3.392
1990	7,273	6.596	3.487
1991	12,978	11.977	4.366
1992	48,764	58.124	11.007
1993	83,437	111.436	27.515
1994	47,549	82.680	33.767
1995	37,011	91.282	37.521
1996	24,556	73.277	41.725
1997	21,001	51.004	45.257
1998	19,799	52.102	45.463
1999	16,918	41.223	40.319
2000	22,347	62.380	40.715
2001	26,139	62.900	46.800
2002	34,171	82.768	52.743

Year	The account of foreign investment (in thousands)		
		Total foreign investment	Utilized foreign capital
2003	43,008	94.868	58.045

Sources: *China Statistic Yearbook 2004* China Statistic Press, p. 653.

We believe that the major factors affecting foreign direct investment (FDI) following China's WTO accession include the WTO, the Asian crisis, Chinese inflation, China's export duties refund, China's exchange rate, etc.

We use the above-mentioned Granger Causality Tests on various factors and China's foreign direct investment, and found that the WTO, the Asian crisis, Chinese inflation and China's GDP have an influence on China's foreign direct investment.

We establish the multi-regression equation on China's foreign direct investment. The multi-regression model is specified as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + u,$$

in which the variable Y is determined by four explanatory variables. The independent variables are China's GDP (X_1), the Asia crisis (X_2), Chinese inflation (X_3) and the WTO (X_4), respectively. The dependent variables are China's foreign direct investment in recent years (Y). The error term, u , is still considered to be a random variable that represents pure chance factors in the determination of Y .

We used the statistics software "SPSS 8.0" to obtain the linear regression equation. The result is

$$Y = -125.715 - 3 X_1 + 55.509 X_2 + 7.531 X_3 + 7.093 X_4$$

(-6.318) (-20.136) (1.912) (5.021) (2.355)

$$R^2 = 0.984 \text{ ADJR}^2 = 0.979 F = 200.877 DW = 1.659.$$

In the value of China's FDI regression equation, the goodness of fit, namely, the coefficient of determination R^2 , is 0.984. The F-value and t-value passed the significance tests. Hence, we were able to use this regression equation to forecast the effect of China's WTO accession on foreign direct investment.

China's entry into the WTO contributes 7.093 billion USD to the country's foreign direct investment. Sources: from the Report on Chinese National Economy and Social Development Statistics 2002¹⁰. The total GDP is 9,593.3 billion RMB. We estimate the increase of GDP due to China's foreign direct investment caused by the WTO to be:

$$7.093 * 8.27 / 9,593.3 = 0.611\%$$

We obtain the conclusion that WTO factors could contribute to the GDP of the country by:

$$1.615\% + 0.611\% = 2.226\%.$$

Following China's WTO accession, WTO's factors could contribute 2.226% growth in GDP. Apparently, the result has not completely reflected the effects of China's entry into the WTO. This is for the following reasons:

Firstly, the opening of the commercial and capital markets are gradual processes. The transitional product-specific safeguard is a major exception to the nondiscrimination principle that is at the core of the World Trade

Organization and its predecessor organization, the General Agreement on Tariffs and Trade. Perhaps the best example of this is China's textile and apparel industry. Under the principal of the transitional product-specific safeguard, the trade partners could restrict textile and apparel imports from China for the existence and threat of market disruption. Allegedly, China's foreign trade will grow and flourish in the coming years after all restrictions, such as the tariff barrier and non-tariff barrier, have been phased out. There are strong reasons to support the assumption that GDP growth will accelerate in the future.

Secondly, the international trade theory has a J-Curve effect, which China's WTO accession may not entirely affect foreign trade in the short term. A further argument is, it has only been three years since China was admitted to the WTO, hence, there is insufficient data available to make analytical assessments and forecasts.

Thirdly, in the regression equation of net exports and the foreign direct investment, the goodness of fit, namely, these coefficients of determination R^2 are only 0.984 and 0.936. The F-value and t-value have passed the significance tests. The predictive valuation, however, is not perfect.

7.4.3 Elasticity of employment

We propose the analysis of the elasticity of employment. Elasticity of employment is calculated from the rate of growth employment and economic growth in the given year. It is the change of employment against economic growth. The formula is:

Elasticity of employment = The rate of employment increase /The rate of

economic growth

In simple terms, if the economy increases by one percentage point, the demand of employment will increase several percentage points. We assume that the elasticity of employment is fixed, if the rate of economic growth rises, the rate of employment must also increase. We assume that economic growth is fixed, if the elasticity of employment rises, the rate of employment must rise¹¹.

The relationship between growth of GDP and the rate of unemployment had been well considered by Okun's Law¹². Okun's Law postulates an inverse relationship between movements of unemployment and the real gross domestic product (GDP). It states that for every 2 percent that GDP falls relative to potential GDP, the unemployment rate rises about 1 percentage point¹³. Okun's Law provides the vital link between the output market and the labor market. It describes the association between short-run movements in real GDP and changes in unemployment¹⁴.

Another important consequence of Okun's Law is that actual GDP must grow as rapidly as the potential GDP just to keep unemployment from rising. In a sense, GDP has to keep running just to keep unemployment in the same place. The Okun coefficient is the difference between the rate of actual economic growth (Ya) and the rate of economic growth, which could maintain an unchangeable rate of unemployment (Yu) against the rate of unemployment (DU). The formula is:

$$K = (Y_a - Y_u) / DU$$

Hence, the Okun coefficient and the elasticity of employment actually explain the same problems. The difference is simply the method of calculation.

7.4.4 Employment forecast

Based on the effects of China's accession on GDP, we employ the elasticity of employment to estimate the change of employment after China's entry into the WTO.

(1) Explanation of statistical data.

Before discussing and estimating the change of employment following accession, we need to explain the data. The National Bureau of Statistics of China (NBS) has two types of employment data: one is the usual labor statistics data, and the other one is the census data. The first are the small-scale statistics; the second represent statistics on the large-scale.

In the Chinese Statistics Yearbook, employment statistics data are different from the usual labor statistics, and the 3rd census (1982), 4th census (1990) and 5th census (2000). For instance, the difference between the two data was 7.2 million in 1990. The main reason is that the definition of the employed population is different. Employed persons are defined as people who have been working for over 16 days in the month prior to the time of the census. In the labor statistics, however the employed population is defined as those people working all year round. Furthermore, the starting age is 16 years old in the usual labor statistics¹⁵, one year older than in the census. As previously discussed in chapter 1, we employ the Chinese Statistics Yearbook data to estimate the elasticity of employment and the change of employment following China's entry into the WTO.

(2) Analysis of the elasticity of employment and forecast of the change of employment

Table 7-3 demonstrates that the elasticity of employment underwent an obvious change in 1991. After 1991, the elasticity of employment declined, then recovered from 1992 to 1997. After 1997, the elasticity of employment revealed no obvious trend.

Table 7-3
Economic growth, employment increase and elasticity of employment

Year	Economic growth (GDP) (%)	The rate of employment increase (%)	Elasticity of employment
1978	11.7	1.69	0.1440
1979	7.6	2.07	0.2725
1980	7.8	2.72	0.3489
1981	5.2	3.24	0.6229
1982	9.3	3.41	0.3665
1983	11.1	3.05	0.2744
1984	15.3	3.16	0.2068
1985	13.2	3.63	0.2751
1986	8.5	3.15	0.3701
1987	11.5	2.88	0.2502
1988	11.3	2.93	0.2595
1989	4.2	2.38	0.5659
1990	4.2	2.19	0.5224
1991	9.1	2.70	0.2972
1992	14.1	1.28	0.0906

Year	Economic growth (GDP) (%)	The rate of employment increase (%)	Elasticity of employment
1993	13.1	1.21	0.0922
1994	12.6	1.25	0.0990
1995	9	1.18	0.1309
1996	9.8	1.22	0.1247
1997	8.5	1.21	0.1422
1998	7.8	0.80	0.1025
1999	7.6	0.71	0.0995
2000	8.0	0.80	0.1000
2001	7.3	1.30	0.1781
2002	7.9	1.34	0.1700
2003	9.3	1.67	0.1796

Source: *Chinese Statistics Yearbook 2002* China Statistic Press, p. 522

Data of 2002, 2003 from China's Daily *China's GDP grows 9.5 percent in first half year*
http://english.people.com.cn/200507/20/eng20050720_197220.html

As previously estimated, the contribution to economic growth due to China's entry into the WTO is 2.226%. On the basis of the labor force in 2001 (730.25 million persons), we estimate the change of employment five years after China's WTO accession. From the distribution of the elasticity of employment from 1992 to 2001, the average of the elasticity of employment was 0.1159. In 2001, it was 0.1781. On the basis of data in 2001 and average data, we obtain the effect on employment of China's entry into the WTO since 2002.

Table7-4

The forecast of employment change after China's entry into the WTO

Year	2.226%* 0.1159	Increase of Employees (in millions)	2.226%* 0.1781	Increase of Employees (in millions)
2002	0.3539%	2.58	0.4025%	2.83
2003	0.3539%	2.61	0.4025%	2.86
2004	0.3539%	2.64	0.4025%	2.89
2005	0.3539%	2.68	0.4025%	2.93
2006	0.3539%	2.73	0.4025%	2.96
2007	0.3539%	2.78	0.4025%	2.99

Table 7-4 shows that on the basis of the average of the elasticity of employment from 1992 to 2001, 2.58 million jobs will be created each year following China's entry into the WTO. On the basis of the elasticity of employment in 2001, 2.83 million jobs will be created each year following China's entry into the WTO.

7.5 Analysis of the results

Allegedly, the effect of China's entry into the WTO on employment was that it increased by between 2.58 million and 2.99 million each year. Why then does China's entry into the WTO not have much influence on its economic growth and employment?

Arguably, since China opened its economy and adopted market reforms in 1978, its relations with other countries became increasingly close. In actual fact, China's entry into the WTO does not mean that the country's closed economy immediately changed into an open market economy. It is a gradual process. China's entry into the WTO is not a suddenly changing process, so that we can safely believe that China's entry into the WTO started by opening the door to the outside world in 1978. On the other hand, the tendency that

China followed to join in the global economy is irreversible and has been intensified by its entry to the WTO.

To analyze further, once the restriction of the transitional product-specific safeguards phased out, China's economy will accelerate in the coming years.

The aggregate data of past years also demonstrates this phenomenon.

Some experts argue that we can not simply employ the national income equation to investigate the effect of foreign trade on the national economy.

Export also affects consumption, investment, government expenditure and imports. If we want to measure how foreign trade impacts the national economy, the indirect effects should also be considered. In the paper *Exports and China's Economic Growth*, Y. Lin, noted that it is an underestimation of the contribution to economic growth to only consider net exports when we measure the direct effects on national economic growth. Exports and imports still play a different role in the economic process¹⁶. Not only does an increase in exports directly promote economic growth, it also has an effect on consumption, investment, government expenditure and imports. In other words, net exports stimulate economic growth directly or indirectly, and both should be considered. Y. Lin, estimated that if foreign trade grows by 10%, GDP could rise by 1%.

On the basis of the above-mentioned conclusion, China's entry into the WTO may promote GDP growth by 2.26%. In the sense of Y. Lin, , when considering both the direct and indirect effects on the economy, China's WTO accession will probably bring about a rise in GDP of 4.52% each year. This results in between 5 million and 6 million jobs being created each year following China's entry into the WTO. This data substantiates that it does not change fundamentally our conclusion.

China's WTO accession has not seriously affected the country's employment. The main reason is that the foreign trade and investment have not seriously affected the elasticity of employment.

Table 7-3 demonstrates that China's elasticity of employment is lower than that of developed countries. For instance, the elasticity of employment is about 0.5 in the U.S., and Australia's is 0.47%¹⁷. Why is the elasticity of employment in China so low?

Strikingly, since 1978 when China started reforming, the government set out its model as an effective target to pay attention to heavy industries. Almost all heavy industries are capital intensive, unable to provide further employment opportunities. Hence, the elasticity of employment was not able to reach a high level.

In addition, fulfilled policy of "cutting down employment and increasing economic development" after 1990 also contributed tremendously to the reduction of the elasticity of employment in the late 1990s.

7.6 Conclusion

After 3 years since its accession, China has gradually let down its trade barriers and allowed increased foreign participation in its markets. Although the increasing competition has forced inefficient enterprises to close down, it has also prompted domestic companies to speed up reforms and improve efficiency. China's entry into the World Trade Organization is a strategic choice of importance for China to actively participate in economic globalization, which successfully stimulated China's economy to perform extraordinarily.

From the perspective of the financial industry, the foreign bank share of the

Chinese market has not increased as much as predicted by some economists. It decreased from 1.56% in 2003 to 1.4% in 2004. The rate of the foreign bank share of the Chinese market was 1.6% in 2002, and was 2% before China's WTO accession in 2001¹⁸. Conversely, the insurance market has substantially expanded since China's WTO accession. The rate of premium revenue growth was 14.5%, 32.15%, 25.4% and 27.1% in 2000, 2001, 2002 and 2003, respectively.

From the perspective of the automobile industry, automobile sales increased year by year from 1990. In particular, the rate of increase was 13.1%, 13%, 39% and 36.7% in 2000, 2001, 2002 and 2003, respectively. The import of automobiles was, however, still a substantial concern for policymakers and the public. 153,000 and 172,683 vehicles were imported in 2003 and 2004, respectively, representing an increase of 13.5% and 12.9%, respectively¹⁹. Apparently, the import of vehicles met its WTO commitments on accession. This bears out the perspective that a transitional product-specific safeguard is necessary for this "infant industry".

From the perspective of the textile and apparel industry, net exports have led to rapid expansion, and have increasingly become the most important source of capital accumulation in China. In 2004, the textile and apparel trade balance was 78.25 billion USD in favor. In comparison, the total of China's net exports was 25 billion USD in favor in the same year. Another example of this is when in 2005, in the first month after the ending of all quotas on textiles and apparel around the world, exports to the United States and Europe from China jumped about 75% and 47.42%, respectively²⁰. The successful performance of China's textile and apparel industry is enough to induce envy in other developing countries.

Simultaneously, China's WTO accession has inevitably influenced the

country's labor market. Based on empirical estimation and theoretical reasoning, 321,000 jobs will be lost in the agricultural sector each year. More than 19,000 automobile employment opportunities will be lost as a result of accession. Employment in the textile and apparel industry, however, will increase by 744,630 jobs each year following China's WTO accession, but 51,750 jobs will be lost in China's financial sector each year. The final results are shown in Table 7-5, which depicts that, compared with total employment in four sectors, the rate of change was acceptable.

Table 7-5
The change of employment following China's WTO accession each year

	Increase or decrease	Change of employees
Agricultural industry	Decrease	0.1%
Automobile industry	Decrease	1%
Textile and apparel industry	Increase	10.1%
Financial industry	Decrease	1.7%
Total employment	Increase	0.35%-0.40%

Arguably, under China's WTO commitments, the country has gradually opened its automobile market since accession. The constant increase of net imports for automobile products definitely reduces employment opportunities in the automobile industry. Actually, the number of employees in the automobile industry has slightly jumped for the domestic automobile market since accession. The number of employees was 1.78 million, 1.89 million, 2.00 million and 2.08 million in 2000, 2001, 2002 and 2003, respectively.

Notably, the number of employees in the agricultural industry has not decreased seriously since China's WTO accession. As already noted in chapter 3, largely in response to relative price changes, farmers were already moving out of land-intensive horticultural crops. Given its factor endowments, China has a strong comparative advantage in the production of many fruits and vegetables.

In particular, the employment issue for the financial industry is more complex to investigate. The continuous loss of jobs in the banking sector could not be avoided for industry policy and economic reasons. In chapter 6, empirical estimations show that the change of China's banking industry labor force is significantly positively related to the profit those banks earn. The four large state-owned commercial banks show $F_i/G_i < 1$. In other words, the productivity of all the four large state-owned commercial banks was lower than the average productivity of China's financial industry. There is little doubt that these banks are under pressure to cut employment in order to compete with international banking. Conversely, an extraordinary increase of employment has taken place in the insurance sector since 1990.

Unsurprisingly, the textile and apparel industry is one of the pillar industries of China's economy. Following China's WTO accession, the world's major trading countries inevitably opened their markets to China. Consequently, largely positive net exports led to tangible benefits for the increase of jobs in the textile and apparel industry. This expansion of net exports has substantially contributed to an increase of employment in this sector. In actual fact, the number of employees was 7.35 million, 8.90 million, 9.89 million and 11.20 million in 2001, 2002, 2003 and 2004, respectively.

Having assessed China's labor market, it has shown that total employment increased every year. The only exceptional reduction occurred in 1996, when

China completely implemented the policy of “cutting down employment and increasing economic development”. Table 7-6 depicts that total employment increased slightly after China’s WTO accession. In addition, the official unemployment data, which has not given much insight into the profile of Chinese unemployment, but also bear out this perspective. As previously discussed in chapter 1, Table 1-1 portrays that the rate of unemployment in the cities and towns fell slightly from 4.3% in 2003 to 4.2% in 2004.

Table 7-6
Total employment in China (in millions)

Year	Employees	Year	Employees
1978	401	1979	410
1980	423	1981	437
1982	452	1983	464
1984	482	1985	499
1986	513	1987	528
1988	543	1989	553
1990	639	1991	647
1992	655	1993	664
1994	672	1995	689
1996	688	1997	696
1998	700	1999	706
2002	712	2001	730
2002	737	2003	744
2004	755		

Source: China Labor Statistical Yearbook 2004

http://www.molss.gov.cn/index_tongji.htm

The data from 1978 to 1980 are from Faping He (2003) *Struktur und Funktionsweise des Chinesischen Arbeitsmarktes* Peter Lang GmbH Europaeischer Verlag der Wissenschaften, p. 219

In conclusion, the effects of China's WTO accession have not significantly influenced employment in the agricultural industry, the automobile industry, the financial industry and total employment. Most obviously, the impact on employment in the textile and apparel industry has had a more positive influence, since its trade partners have had to fulfil obligations.

- ¹ Liu, Wenghua, *Circumvention of the Conflict between the WTO & Labour Legal System of China*, China City Publishing House, January 2001, p. 51.
- ² Lardy, Nicholas R. *Integrating China into the Global Economy*, Brookings Institution Press Washington D.C. 2001, p.104
- ³ Ministry of Commerce of PRC. Department of Market Operation Regulation *China's Textile and Apparel Industry*,
<http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>
- ⁴ Levinson, Mark *U.S.-China Trade: Preparations for the Joint Commission on Commerce and Trade Subcommittee on Commerce, Trade, and Consumer Protection*, March 31, 2004
<http://energycommerce.house.gov/108/Hearings/03312004hearing1239/Levinson1920.htm>
- ⁵ Cai, Fang *The report of Chinese Population and Labor Problem*, Social sciences literature Press, 2002.
- ⁶ Chen, Nin *China's WTO Accession*, www.sina.com.cn/2002.11.09/index.html
- ⁷ "The Chinese labor security Newpapper"2001/4/21 China's entry into WTO
- ⁸ China's Daily *China's GDP grows 9.5 percent in first half year*
http://english.people.com.cn/200507/20/eng20050720_197220.html
- ⁹National Bureau of Statistics of China *The Report on Chinese, National Economy and Social Development Statistics 2004* 2004-02-26 13:19:21
www.drcnt.com.cn
- ¹⁰National Bureau of Statistics of China *The Report on Chinese National Economy and Social Development Statistics 2004* 2004-02-26 13:19:21
www.drcnt.com.cn
- ¹¹ Burgess, John and Green, Roy *A Policy Program for Growth, Jobs and the Current Account* Journal of Australian Political Economy, 1997vol. p. 40.
- ¹² Okun, A. M. (1970), *The Political Economy of Prosperity*, Norton, New York.
- ¹³ Samuelson, Paul A. and Nordhaus, William D. *Economics sixteenth edition*, China Machine Press, July 1998, p. 565.
- ¹⁴ Samuelson, Paul A. and Nordhaus, *Economics sixteenth edition*, China Machine Press, July 1998, p. 566.
- ¹⁵ *Chinese Statistic Yearbook 2003*, China Statistic Press, p. 28.
- ¹⁶ Lin, Yifu (2002) *Exports and China Economic Growth: Demand Direction Analysis*, China Economic Press, p. 123
- ¹⁷ Bell, Stephen *The Unemployment Crisis in Australia---Which Way Out?* Cambridge University Press, 2000, p. 233
- ¹⁸ Financial sector FDI in Asia: Brief Overview
<http://business.sohu.com/20050630/n226144752.shtml>
- ¹⁹ The report of China's automobile development 2005
<http://www.nanfangdaily.com.cn/southnews/qc/hydt/200501240712.asp>
- ²⁰ Ministry of Commerce of PRC. Department of Market Operation Regulation *China's Textile and Apparel Industry*
<http://scyxs.mofcom.gov.cn/aarticle/c/200505/20050500102994.html>

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Erklaerung/ Declaration

Ich versichere, dass ich die Arbeit selbststaendig und ohne Benutzung anderer, als der angegebenen Hilfsmittel Angefertigt habe.

Alle Stellen, die woertlich oder sinngemaess aus Veroeffentlichungen entnommen sind, sind als solche kenntlich gemacht.

I hereby declare that I have completed the doctoral thesis independently and only used the indicated resources.