Effect of Export Tax Rebate on Export Volume Evidence from China

by

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Abstract

As a commonly accepted international trade policy, export tax rebate plays a significant role in promoting China's export. Since implementing export tax rebate in 1985, China had enhanced its export volume by an average annual rate of 20% until 2012. So, exploring the accurate relation between export tax rebate and export volume, especially the effect of export tax rebate on export volume is very useful for authority to formulate appropriate policy.

This report reviews the historical evolvement of China's export tax rebate policy comprehensively and the related theories briefly. Then based on the theoretical analysis, this report launches an econometric model to explain the relation between the export tax rebate and export volume. The result shows that when the export tax rebate is improved by ¥1, the export volume will accordingly grow by $0.90 in long term and $0.67 in short term separately. It also reflects that export volume is dependent on export tax rebate seriously and China's export good is lack of competitiveness in international market except price advantage.

Key word: export, tax rebate, China

1. Chapter One： Introduction

1.1. Background

Since the reforms in 1978, Chinese economy had been growing phenomenally, from \$ 216 billion that year to \$8,349 billion in 2012, with an annual growth rate of 11.34%[1]. In theory, export, consumption and investment are considered the three major drivers of economy. During the development of China, export played an especially important role. The export volume in 1985 was ¥80.89 billion, yet, it rose to ¥12,935.93 billion in 2012(see Table 1.1), with 20.68% average annual growth rate, which was higher than the average annual GDP growth rate over the same period. China's share in world exports increased from 1.6% in 1985 to 11.2% in 2012[2], making China the second largest exporting country in the world. The share of export in GDP increased from 8% in 1985 to 25% in 2012[3]. No doubt that export had been the economic pillar of China's development and China became an export-oriented economy.

In order to keep growing in export, China's authority had to make effective measures to stimulate it. To encourage exports, the Chinese government formulated and implemented a series of trade promotion measures. These

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[1] The data of GDP is from http://data.stats.gov.cn and annual growth rate is calculated by author.
[2] Source: http://www.wto.org/
[3] All of the data is from http://data.stats.gov.cn and the share of export in GDP is calculated by author.

measures are "1) Common trade promotion measures. It includes government

subsidy and tax reduction and rebate; 2) Special trade promotion measures. The

government offers special subsidy to particular export enterprises; and 3) other

trade promotion measures. It includes concessional loan, exchange rate regulation,

launching free trade zone and other policies (Wei & LIN, 2006)".

Table 1.1 China's export volume from 1985 to 2012

Year	Export Volume		Year	Export Volume	
	Billion(RMB)	Annual Growth Rate		Billion(RMB)	Annual Growth Rate
1985	80.89		1999	1615.98	6.15%
1986	108.21	33.77%	2000	2063.44	27.69%
1987	147.00	35.85%	2001	2202.44	6.74%
1988	176.67	20.18%	2002	2694.79	22.35%
1989	195.61	10.72%	2003	3628.79	34.66%
1990	298.58	52.64%	2004	4910.33	35.32%
1991	382.71	28.18%	2005	6264.81	27.58%
1992	467.63	22.19%	2006	7759.72	23.86%
1993	528.48	13.01%	2007	9356.36	20.58%
1994	1042.18	97.20%	2008	10039.49	7.30%
1995	1245.18	19.48%	2009	8202.97	-18.29%
1996	1257.64	1.00%	2010	10702.28	30.47%
1997	1516.07	20.55%	2011	12324.06	15.15%
1998	1522.36	0.41%	2012	12935.93	4.96%

Source: ①National Bureau of Statistics of the People's Republic of China；
②Ministry of Commerce of the People's Republic of China

Of these measures, export tax rebate may be the most effective and lasting. Export

tax rebate refers to the money the tax administration authority returns to exporting enterprises for the indirect tax they has paid in the domestic production and distribution process. The indirect tax mainly includes value-add tax, which is imposed at each stage of the production process based on the amount of value added at that stage (Chandra & Long, 2013). A small part of consumption tax is also covered in the export tax rebate. In this paper, when tax is mentioned, it refers to value-added tax. In China, value-added tax is levied by three categories: a 17% basic rate applied to general goods, processing and repair service; a lower 13% rate applied to farm produce, feeds, chemical fertilizers, medication, household water consumption, printed books, and newspapers; and a 0% rate applied to export goods (State Administration of Taxation of the people's republic of China, 2012).

Export tax rebate also refers to the action of refunding the export tax. We will use these two terms interchangeably. In reality, export tax rebate is materialized by export tax rebates rate, so when we mention the changes of export tax rebate, what we mean is the changes of export tax rebates rate.

In international market, the taxation authority of every country imposed tax on imported goods as it did to its domestically-produced counterparts. No matter imported good had been taxed by its exporting country before export. It was fair to compete between native firms and foreign firms. But it also caused the double

taxation for the export goods. Thus, the main purpose of the export tax rebate policy is to avoid double taxation on export goods and to enhance a country's competitiveness in foreign markets. The export tax rebate policy is usually used as a means to help export goods enter foreign markets with prices not including tax, so as to promote the country's export and to regulate and control its economic operation (Ma D. , 2012). Export tax rebate is different from the export subsidy, although both of them are government's action aiming to promote export. Export subsidy is a government policy to encourage export of goods and discourage sale of goods on the domestic market through direct payments, low-cost loans, tax relief for exporters, or government-financed international advertising (WTO, 2003). Export tax rebate is accepted by the rules of the WTO so long as the tax rebate does not exceed the amount of tax paid to domestic tax authorities and is commonly adopted by most countries around the world. Yet, WTO prohibits most export subsidy. After entering WTO, China had abandoned most of export subsidy.

Since implementing export tax rebate policy in 1985, Chinese government had treated export tax rebate as an import trade promotion tool to expand its export volume and it indeed played a crucial role in promoting the export volume. With the increase of export volume and GDP, Chinese government could levy more tax and then it had more financial resources to support the export tax rebate. From

1985 to 2012, Chinese government had adjusted the export tax rebate rate for tens of times to match up with its export situation during different periods. The export tax rebate had been enlarged to ¥1042.89 billion in 2012 from ¥1.8 billion in 1985, with 26% average annual growth.

1.2. *Objectives*

In the future, in order to boost China's economy, Chinese government has to maintain or speed up the development pace of export. As an important trade promotion policy, export tax rebate should be paid more attention. On one hand, it should be efficient to promote export. On the other hand, it should not enlarge the fiscal burden for government. Thus, exploring the relationship between export volume and export tax rebate is important. In theory, the export tax rebate can improve a country's export volume. However, the more important thing is what extent it will cause? In order to control the export volume, the fluctuation of export volume caused by changes of export tax rebate is more important than the direction it causes. So, the core objective of this report is to obtain the accurately numerical relationship between export tax rebate and export volume, that is to say, how the export tax rebate affects export volume. When export tax rebate increase ¥1, what extent it will cause to the export volume. If we can make sure the relationship between export tax rebate, based on the conclusion, we can forecast the influence of adjusting exports tax rebate on export volume and make useful

suggestions to the export administration authority. In addition, we also want to know what other factors can affect the export volume and the extent of their influence.

1.3. *Data and Methodology*

1.3.1. Data

Because the export tax rebate was implemented since 1985 in China, all of the collected data was from 1985. Meanwhile, we started to prepare the report in 2013, so the latest data end in 2012. We launched 4 groups of time series, including export volume, export tax rebate, exchange rate, and external demand. We got the data of export volume and exchange rate from the website of National Bureau of Statistics of China and State Administration of Foreign Exchange. The data of export tax rebate was derived from Year Book of China's Finance in 2012 and website of Ministry of Finance of China. All of the data of external demand are from website of World Trade Organization. Compared with the export volume and external demand, the export tax rebate was much smaller. In order to narrow the gap among them and make the parameters calculated by econometrics software more accurate, the export volume and external demand were in unit of U.S. dollar and export tax rebate was in unit of RMB. Export tax rebate included not only the refunded value-added tax but also the consumption tax, although it is very minor component. The external demand was represented by the total import volume

around the world. U.S. dollar was the major settlement currency in China's international trades, so we reflected the exchange rate by the amount of RMB against $100.

1.3.2. <u>Methodology</u>

Quantitative research is the major approach in this report. Firstly, we conduct foundational analysis on the relationship between export tax rebate and export volume. From the joint tendency of these two indicators, we try to release the basic relationship between them. Secondly, we calculate the correlation coefficient of export tax rebate and export volume. Only the coefficient is large enough that the analysis between them is meaningful. Lastly, and most importantly, we conduct a cointegration analysis. We set the export volume as the dependent variable and the other three indicators as the independent variables. All of these tests and calculation is by statistics program, Eviews 7.0, which is very popular econometrics software.

1.4. Limitation

The emphasis of this article is the effect of export tax rebate on total export volume. It means other effects of export, for example social welfare, taxation, and the effect of export tax rebate on export structure are out of our concerns. Firstly, we don't consider the structure of export goods. In this report, we emphasize the effect of export tax rebate on total volume of export, yet, the export goods has

hundreds of thousands of kinds and export administration authority implements different export tax rebate rates on different products. In reality, export administration authority does not adjust all of these export tax rebate rates. If we want to render the analysis more accurate, we have to analyze the effect of export tax rebate on every industry and combine. But limited by the time and data source, we can't do it like that. Secondly, the sample, from 1985 to 2012, is not so sufficient to conduct regression analysis that may affect the accuracy of the parameter.

1.5.   Structure of this report

The structure of this paper is as follows. The next section briefly introduces the evolvement of export tax rebate in China, the function of export tax rebate in China, and existing problems of China's export tax rebate. The third chapter conducts a review of literatures related to the effect of export tax rebate on export volume. The fourth chapter operates basic analysis between export volume and export tax rebate based on the historical data and calculates the correlation coefficient; then analyzes the relation among export volume and other economic factors from the perspective of theory and conducts regression analysis. The fifth chapter interprets the result and findings gotten from analysis, makes some suggestion and concludes this paper.

2.   Chapter Two: Literature Review

The earliest theory about export tax rebate in the world appeared in On the Principles of Political Economy and Taxation, of which author was David Ricardo. He strongly opposed taxing exported goods and he thought it could lead to disadvantage and inefficiency in every aspects. In the great literature, An Inquiry into the Nature and Causes of the Wealth of Nations, Adam Smith wrote that the major aim of export tax rebate was to encourage international trade. In this report, our focus is the empirical study, so we conducted literature review mainly from the perspective of practice.

2.1.   Literatures about necessity of export tax rebate

As export tax rebate was not introduced into China until 1985 and China's taxation system was not ordered before fiscal reform in 1994, literatures on export tax rebate did not appear before 1998, four years later of executing fiscal reform in China.

Liu and Weng (1998) utilized a partial equilibrium model to analyze the effect of export tax rebate and found that rebate could expand domestic output and promote export. By analyzing the changes of export following adjustment of rebate rate and the proportion of export tax rebate in export volume, Yan, Xia, & Wang (2001) concluded that export tax rebate could promote export volume significantly, improvement of export would drive the whole economy, and then the growth of

economy would react to the export. However, not the entire economist thought the export tax rebate was necessary. By analyzing the time series 1985-2001, Liu (2005) pointed out that export tax rebate was a factor affecting China's export only in short term, and from the long-term perspective, it had no affluence in export.One of the prominent economists in China, Mao (2001) once stated that export tax rebate might not be necessary because of three disadvantages caused by it: 1) rebate would cause price distortion on export goods and ineffective sources allocation hence it was not beneficial for home and abroad consumer;2) rebate would lead to unfair competition among domestic companies and distort the domestic economic structure;3) rebate would cause numerous of cases of export tax rebate frauds. Yet, most economists disagreed with his opinions. Ma (2001) and Xu (2001) made several rounds of discussion with Mao. They argued that export tax rebate was the most effective trade promotion tool and rebate rate should be raised to equal to charge rate.

Chao, Chou, & Yu (2001) used a three-sector general equilibrium approach to build a theoretical model and capture the effect of export tax rebates on the development of down- and up-stream industries. By analyzing China's data from 1985 to 1998, they concluded that an export tax rebate policy could boost export and help expand upstream and downstream industries, but it would lead to rising unemployment, lower tax revenues, and a lower level of consumer surplus.

Foreign income and exchange rate volatility also contributed significantly to China's exports in the long run, but in the short run only the export tax rebate had the impact of promoting export volume. Chao et al. also used partial analysis to generate an export demand equation for empirical study, in which China's statistical data (1985–1998) and error correction model (ECM) were employed to examine the correlation between long-term export demand and the export tax rebate, real foreign income, and relative price index. But the short time series, small degree of freedom of data, and the relatively small sample size (n=14) made the empirical results lacking of interpretability. From the literatures mentioned above, we can conclude that 1) export tax rebate is necessary. Export tax rebate might cause negative influence to a country, but it was still beneficial for a country or society as a whole.2) the effect of export tax rebate is multiple. As shown in above literatures, the change of export tax rebate can lead to following change in other economic indexes, such as GDP, export and exchange rate.

2.2.   Literatures about relation between export rebate and export volume

Other scholars explored the relation between export rebate and export volume by different methods and reached different results. Zhang and Zhu (2005) concluded that there existed relation among export tax rebate, export performance and economic growth by the equation of gross domestic product. Chen (2006) developed a Cournot quantity competition model to examine the effect of export

tax rebate policy on export performance and conducted empirical analysis using the statistical data of China from 1985 to 2002. They drew the conclusion that when a government raised the export tax rebate rate, the output of final goods for export by the domestic firm increases, the profits of the domestic firm increases, and the optimum export rebate rate was positive and greater than 1%. Utilizing the statistic data from 1985 to 2004, Yang and Chen (2006) calculated the correlation coefficient between export tax rebates and export volume and contended that at the 1% significance level the adjustment of export tax rebate rate would directly influence China's export volume. Wang (2006) examined the impact of domestic tax rate, export tax rebate and exchange rate on export performance respectively by launching a Cournot model, and the author contended that the export tax rebate policy was the most effective among them followed by domestic tax rate and exchange rate in order. Wan (2007) researched the relation between export tax rebate and export performance, economic growth respectively utilizing the data from 1985-2003. The result was that export tax rebate made one-third contribution to China's export. Wang and Chen (2009) first made a single-variable empirical study on impact of the adjustment of export rebate rate on foreign trade in China. On this basis, a multi-variable empirical study was further made on impact of the variation of export rebate volume, exchange rate, price and GDP on export trade. The conclusion was that change of export rebate rate, exchange rate, price and

GDP by 1% would separately result in the change of export trade by 0.311%, 0.334%, 0.755% and 0.986%. Chandra & Long (2013) analyzed the correlation between value-added tax rebate and export volume using firm level panel data for 2000–2006.Their empirical findings demonstrated significant and large effect of rebate on export volume. On average, for each percentage point increase in the VAT rebate rate, the amount of exports increased by 13%, which was translated into an additional $4.70 of exports for each $1 of export tax rebates paid. As to the optimum rebate rate, there was not a commonly accepted answer. Yan and Chen (2003)proposed that that optimum rebate rate was in a position where the marginal growth rate of tax caused by export was equal to the marginal growth rate of rebate. By mathematic model, Chen (2004) reached the conclusion about optimum rebate rate which could equate the marginal contribution of entire export goods.

All of these scholars agreed that: 1) export tax rebate was strongly correlated with export volume and the correlation was positive, that was to say, incremental export tax rebate (namely increase in export tax rebate rate) would lead to growth of export volume. A scholar thought the effect was only effective in short term and inefficient in long term; 2) the extent of export volume caused by adjustment of export tax rebate rate was in debate. Parts of scholars believed it was certain, yet others thought it depended on the whole economic situation; 3) from the

perspective of some authorities, export tax rebate was the major power to drive

growth of export volume and the contribution percentage it made was up to 60%.

Other authorities believed export tax rebate was just one of the many factors that

might influence export volume; 4) all of the scholars thought export tax rebate

was not the only factor that can affect export performance. Several variables were

added into the regression equation, such as GDP, exchange rate, price, domestic

tax rate and so on.

Most of the researches were convincible, yet, they were not unquestionable. The

existing problems were as follows. 1) The short time series, small degree of

freedom of data, and the relatively small sample size made the empirical results

lack of interpretability. Most of the literatures were finished before 2006 and few

were written in latest 5 years, so data used by scholars was generally from 1985 to

2002 or so. It made the sample size small, just 18, and the time series short.

Meanwhile, after 2002, China's government adjusted export tax rebate rate for

several times, so it provided more chances to precisely examine the relation

between export tax rebate and export volume. 2) As an important variable,

external demand was not considered in most literatures. From the perspective of

global market, China's export was the supply side. According to the basic

economic knowledge, supply and demand affluences each other and both of them

determine the equilibrium jointly. External demand plays a very important role in

China's export. China's export performance in global financial crisis in 2008

could support this point strongly. Yet, most of the literature didn't consider the

important variable, external demand. So it makes the regression equation

inconclusive. 3) Regression analysis in part of literatures was incomplete. The

effect of export tax rebate in long term is different from that of in short term.

However, most literatures only analyzed the effect in long term and didn't

consider it in short term. Actually, the authority paid more attention to its

short-term effect when they make decision on export tax rebate policy. So the

regression result might be confusing for them.

2.3.   *Literatures about the alternative relation between export tax rebate and*

exchange rate in export

Some economists once analyzed the role of export tax rebate and RMB exchange

rate in promoting export. Long (1998) analyzed the economic effect of export tax

rebate policy and currency depreciation, and concluded that both increase of export

tax rebate rate and depreciation of currency would cause positive influence on

export volume, GDP and domestic tax revenues. Their adjustment by one

percentage would lead to the same economic effect. Yet, with the same research

method, Chen (2000) got a different result of economic analysis that the effect of 1%

depreciation in RMB was equal to that of 0.92% increase in rebate rate. Tang (2002)

also agreed with the relations between export tax rebate and exchange rate, but he

thought it would be harmful to export if rebate rate was lowered to cease the pressure of RMB appreciation. With the method of cointegration and regression analysis, Chen and Huang (2003) examined the effect of export tax rebate policy from 1985 to 2002 and believed that export tax rebate policy positively affected China's export volume by effective exchange rate; thereby it promoted the China's export in both short and long term. They believed that the effect of increasing export tax rebate rate was same with the RMB depreciation. Xu (2005), Tang and Du (2005) also owned the same opinion. From the above literatures, we can know that it is commonly accepted that there exists alternative relation between export tax rebate and exchange rate in theory, but different export tax rebate rates are implemented for differ exported goods and exchange rate is for all of the export goods, so export tax rebate policy cannot be replaced by adjustment of exchange rate. The most difficult thing is how to coordinate the relation between them.

2.4. Literatures about effect of export tax rebate on export structure

Meanwhile, economists explored the effect of export tax rebate on export structure. Zhang (2004) stated that the adjustment of export tax rebate rate would cause change of export structure. Zhang (2006) found that adjustment of export tax rebate could optimize the export structure and enhance competitiveness of China's goods in global trade. Dong and Chen (2004), Fan (2009), and Wang (2011) analyzed the effect of export tax rebate by industry utilizing different theories and

empirical methods. All of them thought export tax rebate could cause various influences to different industries, and the effect was always positive. Currently, one of the major functions of export tax rebate was to optimize export structure, hence, to upgrade industrial structure.

In this essay, we focus on the effect of export tax rate on export volume. As to its other effects, for example, on export structure, on unemployment ratio, on social welfare and so on are out of our concern. Although a lot of analyses about effect of export tax rebate on export performance have been conducted, they look not perfect. To remedy the issues in previous literatures, we upgrade data, adjust variable and employ proper techniques for analysis so that it can render our analysis more convincible.

3. Chapter Three: China's Export Tax Rebate

3.1. *Evolution of China's export tax rebate policy*

3.1.1. 1949-1984

During this period, China carried out centralized planned economy and the modern taxation system was not yet established. Although there was export tax rebate policy, essentially, it was export subsidy.

3.1.2. 1985—1993

China's export tax rebate policy was introduced to the fiscal system in line with imposing tax on import goods in April 1985. At that time, the coverage of rebate includes value-added tax, product tax, turnover tax and consumption tax. Because the previous tax system was based on the planned economy, export tax rebate was a little disordered and it was often revised at the original stage. In 1988, the principle of full refund was established, which meant all of the circulation tax would be refunded. From the beginning of export tax rebate to 1988, the central government financed the export tax rebate. Because of the heavy fiscal burden for central government, it covered the export tax rebate by 90:10 together with local governments from 1988. In the following year, the proportion was adjusted to 80:20. In 1992 and 1993, three rebate rates, 3%, 10%, 14%, were set by product categories and the average export tax rebate rate was 11.2% (Zhang Q. , 2010).

3.1.3. 1994-1997

In 1994, Chinese government implemented a significant tax system reform. The greatest contribution of this reform was abolishing the industrial and commercial standard tax and introducing new value-added tax. The reform also created new central-provincial fiscal relations, the so-called tax assignment system. This reform marked the establishment of China's modern tax system. China's Provisional Statute for Value-added Tax also stipulates a zero tax rate for exported goods; its Provisional Statute for Consumption Tax stipulated a consumption tax exemption for taxable consumer goods designated for export (Chen, MAI, & YU, 2006). Chinese government drafted the Regulations Governing Export Tax Rebate (Exemption), which specified the refund or exemption of value-added tax and consumption tax for export goods. The rebate rate was raised to 17% and 13%, which meant the total tax levied during domestic production and circulation would be rebated. The average rebate rate was up to 16.13%. Yet, with the drastic growth of export from $91.74 billion in 1993 to $121.01 billion in 1994, total export tax rebate reached ¥45 billion and huge budget deficit was created. There was an additional ¥30 billion worth of export tax rebate deferred to the first quarter of 1995. The central government's export tax rebate obligation was therefore too large to fulfill. Consequently, Chinese government lowered the rebate rate. The new export tax rebate rate would be 14% for export goods that

were receiving a 17% VAT rebate, and 10% for those receiving a 13% VAT rebate. The average export tax rebate rate was reduced by 3.7 percentages to 12.90%. However, even with the decreased rate, the central government's budget in 1995 for the export tax rebate (¥50 billion) still could not cover all the tax rebate requests (¥90 billion). Thus, the State Council further reduced the export tax rebate rate as of January 1996. From July 1995, for export good that was receiving a 14% VAT rebate, the rate was further reduced to 9%, and for those receiving a 10% VAT rebate, the rate was further reduced to only 6%. For agricultural products and coal, the rebate remained unchanged at 3%. After this adjustment, the average rebate rate was 8.29%, 4.6 percentages lees than previous period. The lower rebate certainly reduced the central government's fiscal burden, but they had a negative impact on China's export. In 1996, export volume grew by a mere 1.5% (as mentioned earlier, the average annual growth rate of export from 1985 to 2012 had been 17%). In 1997, besides the effect of Asian Financial Crisis, the growth rate of export was only 0.5%, which was the lowest since 1985.

3.1.4. 1998-2003

Facing the pressure resulting from the 1997 financial turmoil in neighboring countries, China didn't depreciate its currency. Instead, in order to counter the negative impact of the crisis and promote export, Chinese government increased the export tax rebate rate for various products nine times from early 1998 to the

end of 1999. Four-tiered rebate system from July 1, 1999 (17%, 15%, 13%, and 5%) was implemented by product category. The average rebate rate jumped to 15.11%. At the same time, the State Administration of Taxation increased the export tax rebate budget quota for 1999 from ¥57 billion to ¥63.6 billion. The effect of these policies became evident in 2000 with China's export increasing by 27.8%. Being effectively stimulated by export tax rebate policy, export volume grown sharply from 2000 to 2003, by 20% annually. In the span from 1998 to 2002, the average annual growth rate of export tax rebate was 27%, compared with the 17% growth rate of fiscal revenues. During this period, the entire export tax rebate was undertaken by the central government. So, the China's government had to face the huge budget deficit again. China's accumulated approved export tax rebate that had not been refunded to enterprises totaled ¥144 billion in 2001, ¥200 billion in 2002, and ¥277 billion in 2003. Chinese central government budget deficit reached ¥309.687 billion in 2002.

3.1.5. 2004-2007

A new export tax rebate policy was started from the beginning of 2004. It included: adjusting the structure of export tax rebate rate; setting up a new bearing mechanism for central and local government; guaranteeing refunding funds in time and adjusting export structure. From that point, Chinese government started to utilize export tax rebate as a tool to optimize its export structure.

Because the export tax rebate was too big to fulfill, Chinese government implemented an average 3% reduction of export tax rebate rates, from 15.11% to 12.11% in 2004. Although the rebate rate was reduced, the rate of these products with high technology and value-added was increased. It was useful to optimize the export structure. After this round of adjustment, a five-rate system, i.e., 17%, 13%, 11%, 8%, and 5% was implemented since 2004. At the same time, a new export rebate mechanism featuring with the joint burden between the central and local governments was built. Ever since 2004, with the actual rebate index in 2003 as the base number, the extra refundable tax shall be jointly borne by the central and local governments in the proportion of 75:25, which was changed to 92.5:7.5 in 2005 (State administration of Taxation, 2012). The effect of decreasing rebate rate was obvious. In the span of 2004 to 2006, the export grown by an average rate of 25%, compared with 20% from 2000 to 2003. In 2007, Chinese government operated a new export tax rebate adjustment. To restrain the huge trade surplus and ease the pressure of the continuing RMB appreciation, Chinese government cancelled part of export tax rebate for 10 kinds of products which are featured with high energy consumption, high pollution and resource consumption. At the same time, rebate rate for part of export goods was decreased from 13% to 5%.

3.1.6. <u>2008-2009</u>

With the outbreak of the global financial crisis in 2008 which was considered the

most serious in the last decades, China's export suffered from a harsh winter in 2008. China's export growth stood at 21.9% in the first half of 2008. Yet, it started to decline in June 2008 and in November, exports declined by 2.2%. A large number of export-driven companies were forced to shut down due to declining orders from abroad since the latter half of 2008. Because of high dependence on export, Chinese economy began to decline. In the first quarter of 2008, China recorded growth of 11.3%, but a year later the growth dropped to 6.6% (Bejing Review, 2013). From August 2008 to 2010, Chinese government continuously improved its export tax rebate for 7 times. Especially, the rebate rate for labor-intensive products, for example garment, was increased to 16%. As of June 2009, a six-rate system, i.e., 5%, 9%, 13%, 15%, 16%, 17% was implemented. The average rebate rate stood up at 13.55%. However, the sharp growth of rebate rate couldn't stop the decline the China's export which dropped by 16% in 2009.

3.1.7. <u>2010 -2012</u>

In this period, the adjustment of export tax rebate policy was minute. In 2010, the influence of global financial crisis had been weak and the China's export was back to position before crisis. Chinese government adjusted its export structure by canceling or reducing export tax rebate on little part of export goods.

3.2. *Function of export tax rebate*

3.2.1. <u>Enlarging export and boosting economy.</u>

Strengthening competitive of domestic products and consequently enlarging export was the first and most import function of export tax rebate. Since the implementation of export tax rebate in 1985, China's export kept a very fast speed. Except 1996, 1998 and 2009, the annual growth rate exceeded 10% in the last two decades. Even in 2009 when the financial crisis affected the global economy seriously, the decrease rate of export was 16% in China, which was better than the average rate of 23% in the world. With the development of export, Chinese economy was improved by foreign trade multiplier. In the span of 1985 and 2012, the average growth rate of China's GDP was 9%, compared with 2% of global growth rate during the same period. In 1985, China was ranked in 9th in the world in term of GDP, yet, as of 2012, China had been the third largest economy. In the flourish of China's economy, export played an important role. The export tax rebate ceased the economy from descending and stabilized the domestic economic situation. The degree of dependence of economy on export was 9.0% in 1985, yet, it rose up to 47% in 2012. In fact, export made great contribution by export tax rebate policy. As estimated, the GDP would grow by 0.3% when the rebate rate was raised by 1%. Moreover, the function of export tax rebate on economy was diverse. In different contexts, different rebate policies were made as a tool to control the macro economy. For example, in 1994, the aim of adjustment of export

tax rebate policy to promote export and economy; in 1996, its aim was to alleviate the fiscal burden; in 2004, its aim was to smooth the trade surplus.

3.2.2. Obtaining foreign exchange

Obtaining foreign exchange also was the original function of China's export tax rebate policy. Foreign exchange was an import source to develop a country's economy and corporate with other countries. Yet, there were not enough foreign exchanges for China and that limited the development of China. In 1985, the foreign exchange reserve was $2.64 billion. With the significant growth of export, the China's foreign exchange reserve rose to $3,311.5 billion in 2012, which was the biggest around the world, with an average rate of 30%. With huge amount of foreign exchange reserve, Chinese government could play more important role in international affairs, including dealing with financial crisis, providing donations to other countries and taking part in the globalization. At the same time, it was also beneficial to stabilize the valuation of RMB.

3.2.3. Optimizing industrial structure

Since the tax reform in 1994, optimizing the structure of export goods became a major function of export tax rebate. By formulating different rebate rates, government could adjust the export structure deliberately. With the impact of export tax rebate, the export structure had changed a lot from 1994 to 2012(see Chart3.1and Chart 3.2). In 1994, clothing and textiles took a proportion of 43%

and it declined to 17% in 2012. Adversely, the proportion of machinery and transport equipment rose to 65% in 2012 from 27% in 1994. The ratio of other primary products, for example food and fuels also decreased. Moreover, export was in the end of industry chain and it would affect the downstream and upstream industry, so the changes of export structure led to the adjustment of domestic industrial structure. As demonstrated in Figure 3.1, the proportion of primary industry in the whole economy had declined by half from in 1994 to 2012, yet, the ratio of tertiary industry in GDP had rose to 45% in 2012 from 35% in 1994. It was beneficial for China to upgrade the industrial structure, keep economy sustainable development and improve competitiveness in international market.

Chart3.1 Export structure in 1994
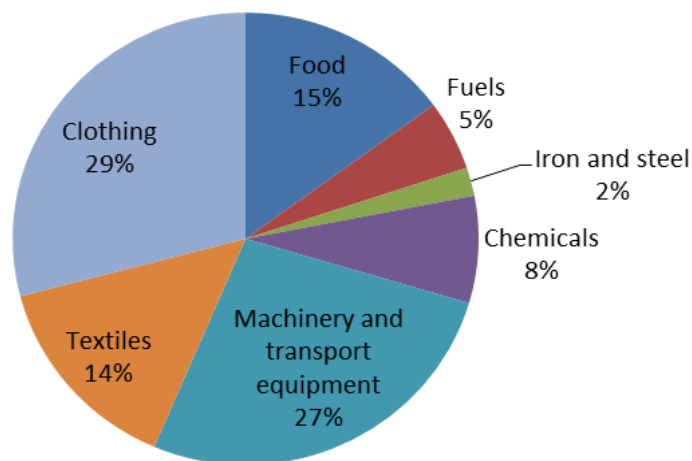
Source: World Trade Organization, http://www.wto.org/

Chart 3.2 Export structure in 2012
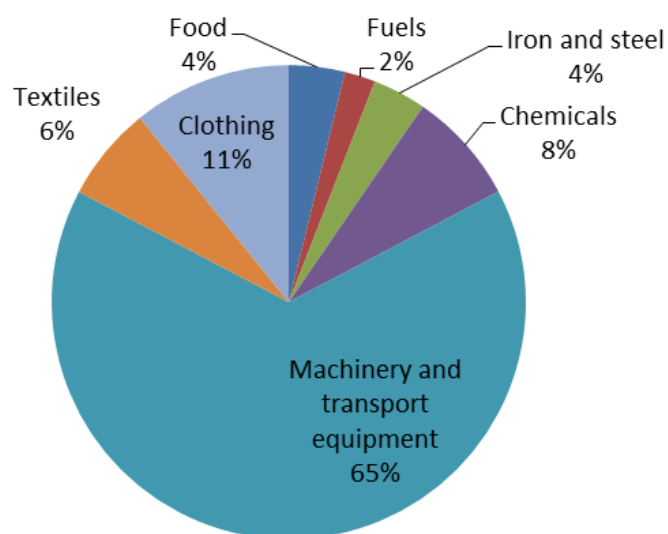
Source: World Trade Organization, http://www.wto.org/

Figure 3.1 The proportion of every industry in GDP from 1994 to 2010
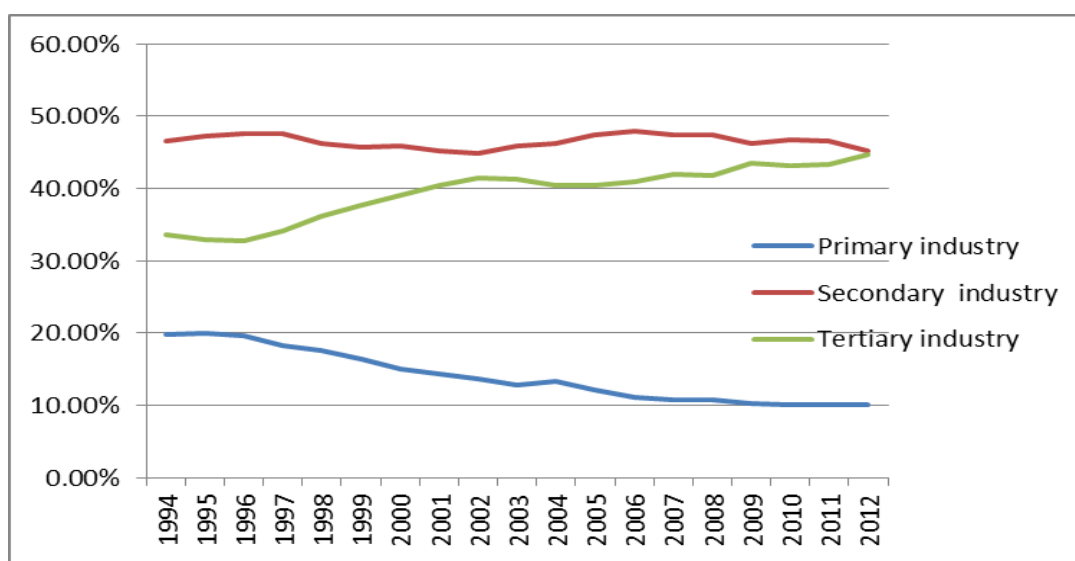
Source: National Bureau of Statistics of the People's Republic of China,
http://data.stats.gov.cn/

3.3. *Existing problems in China's export tax rebate policy*

3.3.1. Lack of stability

As we elucidated in the first part of this chapter, as an important tool of state

macro-control, China's export tax rebate policy, including rebate rate, coverage and bearing mechanism had been adjusted for approximate 30 times, average more than 1 time a year. It was implemented for different purposes in the context of that time and was full of flexibility. It indeed made great contribution to the export, even to the Chinese economy. Yet, the instability caused negative impact on export enterprises, especially for the small and medium enterprises. For them, export tax rebate was the major source of profits. On one hand, the fluctuation of export tax rebate might cause risk to them, even lead to bankruptcy. In labor-intensive industry, for example garment industry, the average profit rate merely was 2%-3%. Once the decrease of rebate rate exceeds that, most companies had to close down. Moreover, the labor-intensive industry took a big proportion in export volume, which was 20%[4] in 2012. On the other hand, it was difficult to make long term plan for them. So it might be not beneficial for the stability of Chinese economy as a whole.

3.3.2. Crowing fiscal resource on social welfare

With the significant growth of export volume, it had been a heavy fiscal burden for Chinese government. The ratio of export tax rebate in fiscal revenue was up to its peak, 13%, in 2004. Although, it declined in recent years, it still exceeded 10%.

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[4] http://www.chinairr.org/view/V10/201307/05-137701.html

Meanwhile the proportion of export tax rebate to expenditure was up to 50% in 2012. Although, export tax rate was positive to the whole economy via increasing fiscal revenues in long term, it caused fiscal dilemma to government in short term. In order to fulfill the demand of export tax rebate, government had to occupy the fiscal resources allocated on social welfare, including education, medical treatment, transportation and others. Chinese government might not undertake its function successfully. So, from the perspective of short term, export tax rebate was not beneficial for the whole society.

3.3.3. Ineffective export tax rebate mechanism

Export tax rebate involved several government departments, including Tax Administration, Custom, Administration of Foreign Exchange and Ministry of Finance. There was not an effective cooperation mechanism among them, so, on one hand, export tax rebate fraud was rampant; on the other hand, law-abiding enterprises had to face the convoluted tax rebate procedures or wait for the refund for a considerable time. Because of the imperfection of tax rebate procedure, some unlawful enterprises bilked the government out of rebate money with fake VAT invoices. As estimated, the amount of export tax rebate fraud was up to ¥30 billion every year，which was 10% of the export tax rebate currently. However, most of the law-abiding enterprises had to wait 3 to 4 months before receiving the refunded money.

4. Chapter Four Empirical analysis

4.1. Basic analysis

In this part, we analyze the relation between export volume and export tax rebate from different perspectives. Firstly, we describe the quantitative changes of export volume and export tax rebate, and then try to explain the relation between theirs changes. Secondly, we emphasize their growth rates and explore the reasons inside the difference between them. Lastly, we will calculate the correlation coefficient between export volume and export tax rebate.

4.1.1. Numerical analysis

Figure 4.1   Comparison of export volume and export tax rebate
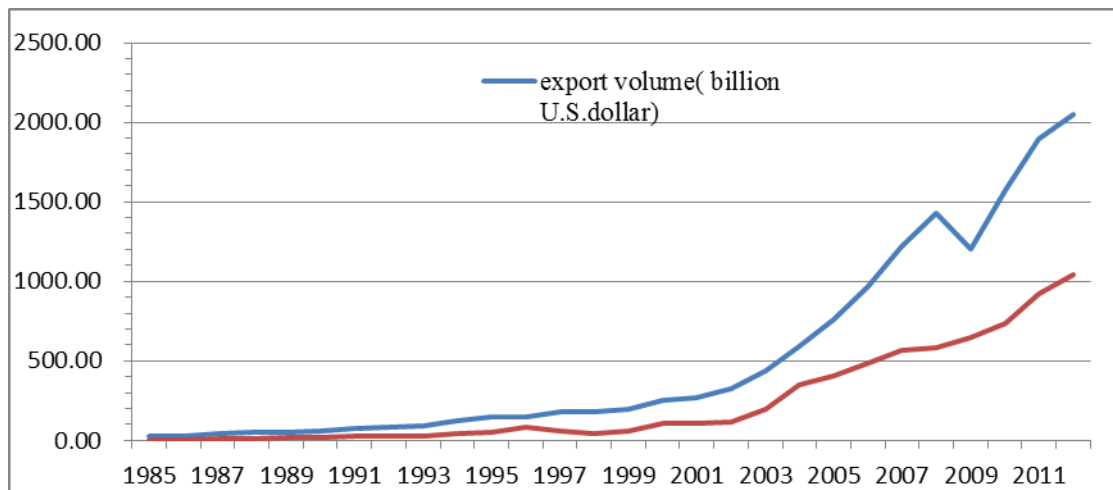
Source: ①National Bureau of Statistics of the People's Republic of China；
②Ministry of Commerce of the People's Republic of China

As shown in Figure 4.1, export volume and export tax rebate experienced a similar tendency from 1985 to 2012. Before the fiscal reform in 1994, both of export volume and export tax rebate grew slowly and quantity of them were low

level，$91,74 billion and ¥29.97 billion separately in 1993. After the fiscal reform in 1994, export volume and export tax rebate started to rise rapidly. In 1998, affected by the Asian Financial Crisis, export volume merely increased to $183.71 billion from $182.79 billion in 1997 and export tax rebate even declined to ¥42.43 billion from ¥55.50 billion in 1997. Entering into the 21st century, both of them increased sharply. In 2012, export volume and export tax rebate stepped on the peak, $2048.71 billion and ¥1042.89 billion separately.

However, differences existed between them. In 2009, with the deterioration of global financial crisis, China's export plunged to $1201.61 billion from $1430.69 billion in 2008. In order to the stabiles the economy, Chinese government adjusted up the export tax rebate in the latter half of 2008. So, contrast to the decrease of export volume, the change of export tax rebate climbed to ¥648.66 billion from ¥586.59 billion in 2008. In addition, the gap between the two indicators was getting larger and larger. On the one side, it was the influence of RMB depreciation. In 1985, the exchange rate of $100 against RMB was ¥293.66, yet, it has been ¥631.25 in 2012. On the other side, it was because of the opposite adjustment of export tax rebate to export volume. When the export performed well, in order to alleviate the fiscal burden, Chinese government was prone to decrease the export tax rebate, for example in 1994, 1995 and 2010. Only when the export slid seriously, Chinese government would adjust it up. The whole situation of

China from 1985 to 2012 was positive, so the average export rebate rate was lowered. Consequently, it led the export tax rebate to grow faster than export volume.

As shown in Figure 4.2, the growth of export volume and export tax rebate was in line in several periods, for example, 1993-1995, 1998-2008. In other periods, they distinguished from each other. After a stronger beginning in 1986, almost 140%, the annual growth rate of export tax rebate dropped continuingly from 1986 to 1990. Because of the adjustment of export tax rebate rate from 1990 to 1996, the annual growth rate of export tax rebate changed accordingly. After the minus growth in 1997, it restarted to grow companied with fluctuation. From 2005 to 2012, the annual growth rate of export tax rebates was in comparatively stable stage. Compared with annual growth rate of export tax rebate, the annual growth rate of export volume was more changeless, which fluctuated around 20%, except in 2008 with minus. The crest of export growth appeared in 1994, 2000, 2004 and 2010 and its trough appeared in 1996, 1998 and 2009. Most of them followed the adjustment of rebate rate, for example, in 1994, 1998, 2004. Obviously, export was affected by adjustment of rebate rate. But, there was exception. The crest in 2009 was the result of global financial crisis. In a word, the sharp fluctuation of export was coincident with the adjustment of rebate rate, but, other factors also affected export volume.

Figure 4.2 Comparison of annual growth rate of export volume and export tax rebate
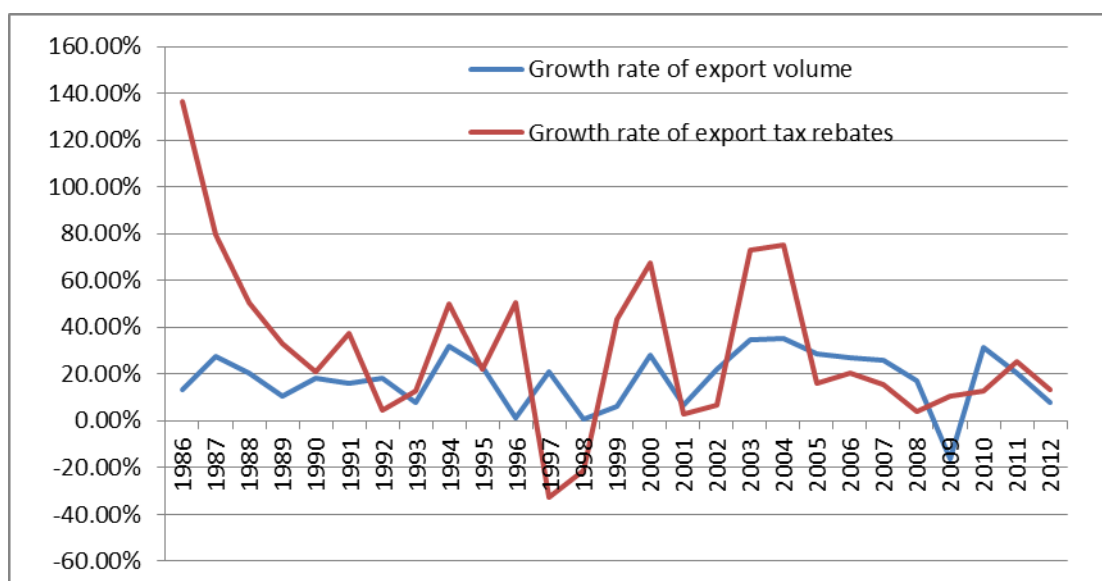
Source: ①National Bureau of Statistics of the People's Republic of China；
②Ministry of Commerce of the People's Republic of China

By analyzing the tendency between export volume and export tax rebate, growth rate of them, we can conclude that: 1) there exists correlation between export volume and export tax rebate. As to the accurate correlation coefficient, it needs further examination.2) export tax rebate is not the only factor affecting export volume, which is determined by several factors together.

4.1.2. Correlation coefficient

Export tax rebate can lower the cost of export goods and increase the profits of export firms. So, in order to meet the international market demand, on one hand, export firms will invest more money on expanding produce; on the other hand, more firms will be attracted to the export industry. At last, the export volume will be increased. By the Eviews 7.0, we calculate the correlation coefficient between

export tax rebates and export volume is 0.993998. As shown in Figure 4.3, correlation between export tax rebate and export volume is significant.

Figure 4.3 Scatter of export volume and export tax rebate
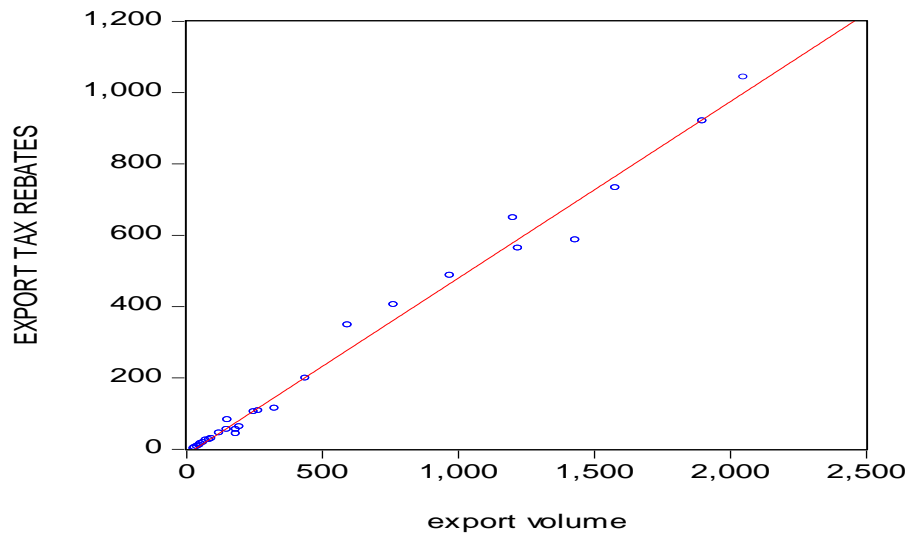
4.2. *Empirical analysis*

In this part, we demonstrate how export tax rebate influences the export volume by empirical analysis. Before operating regression analysis, we have to examine whether the 4 groups of time series are stationary or otherwise. Usually, the economic time series is non-stationary, so we have to test their cointegration. Only when cointegration exists among them, we can conduct regression analysis. After the cointegration test, we calculate the parameters in the regression equation by Ordinary Least Squares. By explaining the parameters, we know how the independent variables influence the dependent variable, export volume. Yet, the regression equation we get can just reflect the effect of independent variables on

export volume in long term. In order to reveal the relationship among economic indicator comprehensively and make the conclusion more useful, we launch another regression equation by Error Correction Model. Then we get how the export tax rebate affects the export volume in short term. In the stationary test and cointegration test, Augmented Dickey–Fuller test is utilized commonly.

4.2.1. <u>Regression model</u>

In our opinion, export volume, is affected by external demand, supply side and equilibrium price. In supply side, China has shifted from a Seller's Market to a Buyer's Market since the reform and opening in 1978 and had been in its overproduction (Chen Y. , 2012). Export made contribution to domestic product; yet, GDP had no influence in export volume. From the perspective of dynamic analysis, external demand and price are the critical factors to determine the equilibrium point. So, in our regression model, GDP is out of consideration. At the premise of fixed cost, price is impacted by assistance from government and exchange rate. Chinese government had dropped export subsidy after entering into WTO, so export tax rebate becomes the only assistance from government. It is represented by the annual amount of export tax rebate. As to the exchange rate, because the U.S. dollar is the major global settlement currency, we select the exchange rate of RMB to U.S. dollar as the indicator to reflect the level of exchange rate. In external demand side, it is represented by the total international

import volume around the world.

We set our export volume model as follows:

$$EV_t = \alpha + \beta_1 EXTARE_t + \beta_2 EXDEMAND_t + \beta_3 EXRA_t + \varepsilon_t$$

EV represents the export volume, α is the constant, EXTARE represents the export tax rebate, EXDEMAND represents the external demand, EXRA represents the exchange rate of RMB against U.S. dollar, β_1, β_2 andβ_3 are parameters, ε_t is the error term.

4.2.2. <u>Data</u>

Table 4.1 Time series of variables from 1985 to 2012

	Export Volume (Billion Dollar)	Export Tax Rebates (Billion RMB)	Exchange Rate (100 Dollar)	External Demand (Billion Dollar)
1985	27.35	1.80	293.66	1954.00
1986	30.94	4.26	345.28	2138.00
1987	39.44	7.65	372.21	2516.00
1988	47.52	11.50	372.21	2869.00
1989	52.54	15.31	376.51	3098.00
1990	62.09	18.56	478.32	3449.00
1991	71.91	25.46	532.33	3516.00
1992	84.94	26.59	551.46	3516.00
1993	91.74	29.97	576.20	3783.00
1994	121.01	45.01	861.87	4327.00
1995	148.78	54.98	835.10	5166.00

1996	151.05	82.77	831.42	5404.00
1997	182.79	55.50	828.98	5593.00
1998	183.71	43.63	827.91	5503.00
1999	194.93	62.67	827.83	5714.00
2000	249.20	105.00	827.84	6459.00
2001	266.10	108.00	827.70	6195.00
2002	325.60	115.00	827.70	6495.00
2003	438.23	198.86	827.70	7589.00
2004	593.33	348.41	827.68	9222.00
2005	761.95	404.89	819.17	10508.00
2006	968.98	487.71	797.18	12130.00
2007	1220.46	563.50	760.40	14023.00
2008	1430.69	586.59	694.51	16160.00
2009	1201.61	648.66	683.10	12554.00
2010	1577.75	732.73	676.95	15283.00
2011	1898.38	920.48	645.88	18319.00
2012	2048.71	1042.89	631.25	18401.00

Sources: ①Finance Year Book of China in 2013; ② National Bureau of Statistics of the People's Republic of China, http://data.stats.gov.cn, ③World Trade Organization, http://www.wto.org/ ; ④Ministry of Commerce of the People's Republic of China

Considering the export tax rebate is the major independent variable in this report, we have to guarantee that the time series of export tax rebate is meaningful and comparable. Before 1985, the China's export tax rebates mechanism was totally different from now and the export volume and export tax rebate was not significant compared with years from 1985, so we select the time series from 1985 to 2012 as our sample. All of the data are shown in Table 4.1.

4.2.3. Stationary test

Because all of the variables are time series, we have to operate the stationary test

on the time series. Only the data pass the stationary test that can we conduct

regression analysis, or else there exist spurious regression among variables. In this

report, we conduct stationary test by ADF[5] in Eviews 7.0. The result of stationary

test is shown in Table 4.2.

Table 4.2 Result of stationary test on variables

Variables	ADF Statistic	1% Level	5% Level	10% Level	p-value	Result
EV	0.138325	-4.339330	-3.587527	-3.229230	0.9960	N
Δ	-4.809208	-4.374307	-3.603202	-3.2238054	0.0038	S
EXTARE	1.514375	-4.339330	-3.587527	-3.229230	1.0000	N
Δ	-3.538609	-4.356068	-3.595026	-3.233456	0.0559	S[6]
EXDEMAND	-1.409517	-4.339330	-3.587527	-3.229230	0.8448	N
Δ	-5.652670	-4.374307	-3.603202	-3.238054	0.0006	S
ER	-0.774530	-4.39330	-3.587527	-3.229230	0.9558	N
Δ	-5.424873	-4.356068	-3.595026	-3.233456	0.0009	S

According to the graphic shape, both intercept and trend are included in test

equation. Based on the result of stationary test on variables, we can conclude that

all of the variables are I (1) stationary at the significance of 5% level,

cointegration relationship may exist among variables.

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5 Augmented Dickey-Fuller Test Equation

[6] At the 5% level, the t-statistic is more than critical value, yet it's very close, so, in this report we regard it has no unit root and rejects the hypothesis. The time series is I (1) stationary at 5% level.

4.2.4. Cointegration test

Table 4.3 Result of cointegration test on variables

Sample (adjusted): 1987 2012

Included observations: 26 after adjustments

Trend assumption: Linear deterministic trend

Series: EV EXDEMAND EXTARE EXRA

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

| Hypothesized | | Trace | 0.05 | |
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.689521	57.75586	47.85613	0.0045
At most 1	0.551117	27.34526	29.79707	0.0935
At most 2	0.159642	6.519458	15.49471	0.6341
At most 3	0.073945	1.997359	3.841466	0.1576

Trace test indicates 1 cointegration eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Hypothesized | | Max-Eigen | 0.05 | |
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.689521	30.41060	27.58434	0.0211
At most 1	0.551117	20.82580	21.13162	0.0551
At most 2	0.159642	4.522099	14.26460	0.8005
At most 3	0.073945	1.997359	3.841466	0.1576

Max-eigenvalue test indicates 1 cointegration eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Cointegration refers to a linear combination of non-stationary variables. When several variables are stationary at the same difference level, only if cointegration exists among them, we can conduct regression analysis. The EG cointegration test only can be utilized in cointegration test on double variables, so we use the Johansen test by Eviews 7.0. The result of cointegration test is shown as follows in Table 4.3

It shows that there is a cointegration relationship among the variables. The model we set is meaningful and we can operate the regression analysis.

4.2.5. <u>Error correction model</u>

The above model reflects the long-term equilibrium among variables, and in order to comprehensively reflect the relation among variables, a short-term equilibrium equation also should be in our consideration. So the Error Correction Model can be utilized. We make a bunch of orders to the variables:

$\Delta EV_t = EV_t - EV_{t-1}$ $\Delta EXDEMAND_t = EXDEMAND_t - EXDEMAND_{t-1}$

$\Delta EXTARE = EXTARE_t - EXTARE_{t-1}$ $\Delta EXRA_t = EXRA_t - EXRA_{t-1}$

Then the short-term regression equation is set as follows:

$\Delta EV_t = \alpha + \beta 1 \Delta EXTARE + \Delta EXDEMAND_t + \Delta EXRA_t + \varepsilon_{t-1}$

The regression equation, reflecting the relationship among variables, can demonstrate the short-term effect of export tax rebate on export volume more

accurately.

4.2.6. Result of regression

By Eviews 7.0, we can get the two regression equations.

Long-term:

EV=-39.616538+0.9017335*EXTARE+ 0.070271113*EXDEMAND-0.2875291*EXRA

The regression result is shown in Table 4.4and Chart 4.1.

Table 4.4 Estimation of long- term regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-39.61654	28.80122	-1.375516	0.1817
EXTARE	0.901734	0.144706	6.231477	0.0000
EXDEMAND	0.070271	0.009177	7.657573	0.0000
EXRA	-0.287529	0.057762	-4.977790	0.0000
R-squared	0.996540	Mean dependent var		516.8475
Adjusted R-squared	0.996108	S.D. dependent var		617.3759
S.E. of regression	38.51536	Akaike info criterion		10.27155
Sum squared resid	35602.39	Schwarz criterion		10.46187
Log likelihood	-139.8018	Hannan-Quinn criter.		10.32974
F-statistic	2304.458	Durbin-Watson stat		1.312813
Prob(F-statistic)	0.000000			

Chart 4.1 Goodness of regression in long term
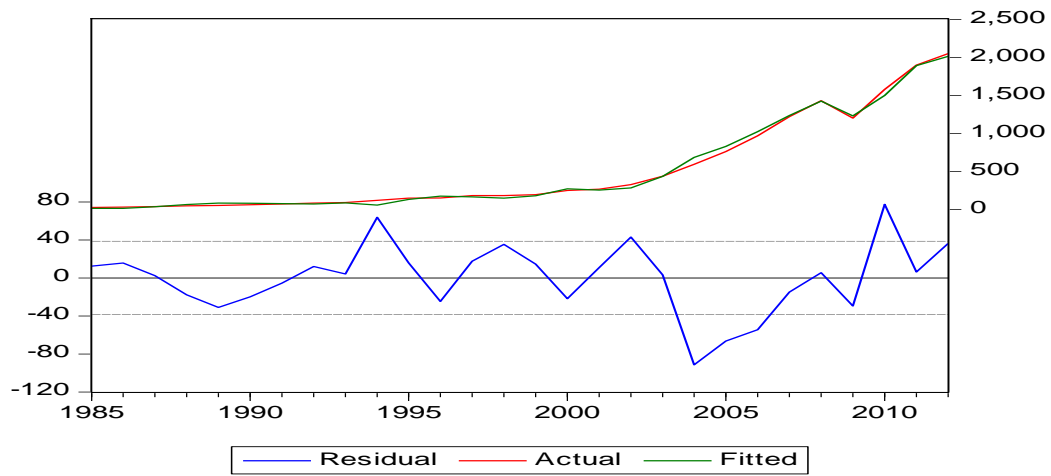
Short-term:

D(EV)=1.9502274+0.07753687*D(EXDEMAND)-0.1783710*D(EXRA)+

0.67200980*D(EXTARE) - 0.55020166*RESID01(-1)

The regression result is shown in Table 4.5and Chart 4.2.
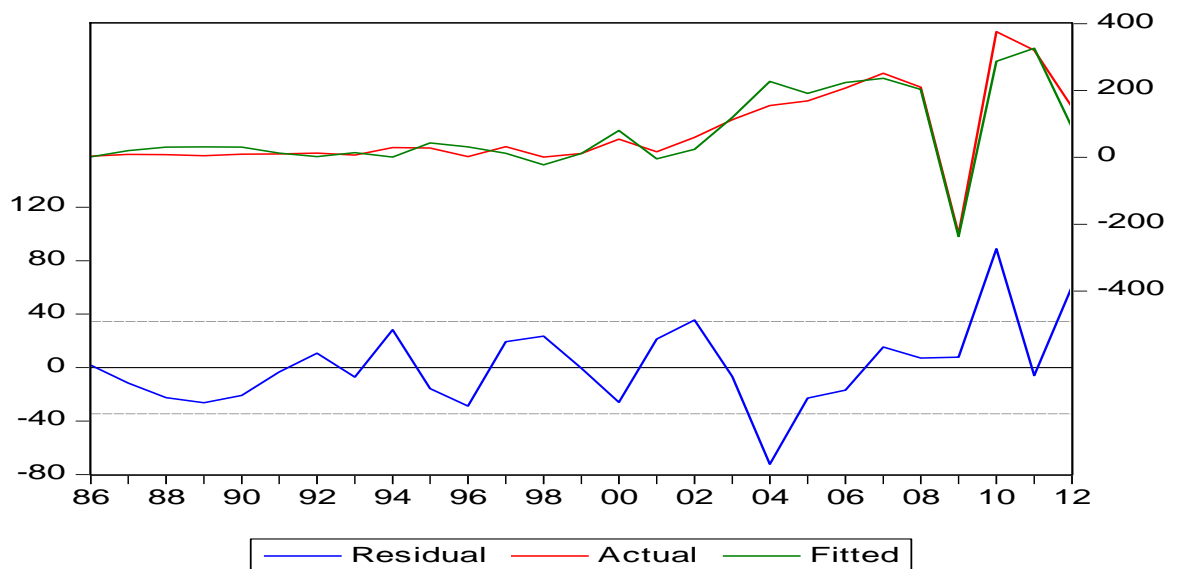
Chart 4.2 Goodness of regression in short term

Table 4.5 Estimation of short-term regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.950227	8.99099	0.216931	0.8303
D(EXDEMAND)	0.077537	0.006369	12.17495	0.0000
D(EXRA)	-0.178371	0.112180	-1.590049	0.1261
D(EXTARE)	0.672010	0.153592	4.375291	0.0002
RESID01(-1)	-0.550202	0.185829	-2.960789	0.0072
R-squared	0.933245	Mean dependent var		74.86519
Adjusted R-squared	0.921107	S.D. dependent var		123.0422
S.E. of regression	34.55992	Akaike info criterion		10.08884
Sum squared resid	26276.54	Schwarz criterion		10.32881
Log likelihood	-131.1994	Hannan-Quinn criter.		10.16020
F-statistic	76.89036	Durbin-Watson stat		1.436366
Prob(F-statistic)	0.000000			

4.2.7. <u>Analysis of regression result</u>

In the estimation output of long-term regression, R-squared is 0.996540 and

0.996108 separately. Both of them are close to 1.00, which means that the

regression equation can highly explain the relationship between independent

variable and dependent variable in long term. Although the R-squared and

Adjusted R-squared in estimation output of short-term regression, 0.922345 and

0.921107, are less than that in estimation of long-term regression, both of them are

still very high and the short-term regression equation can also explain the relation

between independent variables and dependent variable properly. In other words,

the independent variables we select are useful and sufficient to interpret the independent variable. The p-values in both regression models are 0.0000 and the F-statistic are very high, which means the two models can pass the significance test and the regression model is ideal. The goodness of residual in short-term and long-term, shown in Chart 4.1 and Chart 4.2, can also prove it. The DW stat is close to 1.5, which means there is no autocorrelation.

By conclusion, the model we launch can release the relationship among export volume, export tax rebate, external demand and exchange rate. We can clearly realize the effect of export tax rebates on export volume.

5. Chapter Five Conclusion

Export volume is mainly determined by external demand and price factors in China. As the supply side, maybe, export volume has a similar tendency with GDP, there is no causality between GDP and export volume. Export volume is a part of GDP and makes contribution to GDP, yet, because of the domestic overproduction; the GDP does not affect the export volume. So the demand side and price factors, including cost, export tax rebate, exchange rate, determine the export volume together. At the context of fixed cost, export tax rebate and exchange rate become the major indicators reflecting prices factors. The very high R-squared and Adjusted R-squared validate this conclusion.

External demand can influence the export volume positively. The correlation coefficient of external demand is 0.077536874685 and 0.0702711130871 in long term and short term separately, which means the export volume will increase $0.07 billion with $1 billion growth of external demand in long term and short term. The result accords with the economic theory. However, the role of external demand is not so important to China's export. That is to say, China's product is very competitive in global market, even though the global economy is sluggish; China's export volume is not affected a lot by it.

Appreciation of RMB will retrain the export performance. The correlation

coefficient of exchange rate is 0.17837101265 and 0.28752911565 in long term and short term separately. It means that if RMB appreciates ¥1 against $100, the export volume will decrease $0.17 billion in long term and $0.28 billion in short term. Exchange rate is very important for China's export performance, any change in exchange rate can cause significant fluctuation in export volume. The currency authority should pay more attention to the exchange rate to make sure that exchange rate can reflect the value of currency and plays a positive role in export.

Export tax rebate is the most important factor to affect export volume. According to the result of regression equation, the correlation coefficient of export tax rebates is 0.90173350468 and 0.672009802859 in long term and short term. With the t-statistic of 6.231477 in long term and 4.375291 in short term, the export tax rebate is highly significant to export volume. When the export tax rebate increases ¥1 billion, the export volume will increase $0.9 in long term and $0.6 in short term, vice versa. The effect of export tax rebate in long term is more effective than it in short term. What we can see here is that the biggest advantage of China's export goods is lower price compared with other countries, which is benefited by the export tax rebate. The export firms may export goods in a price lower than its cost and get profits by export tax rebate. The export firms depend on government assistance seriously. In other words, if the export tax rebate were canceled by the government because of some unexpected reasons, the China's export may collapse.

It also verifies that it's a Buyer's-Market, not only in China but also the whole world. In addition, with the growth of labor cost and appreciation of RMB, product cost also rise. One day, the rebate can't cover the increasing cost and the China's advantage in price will get weaker and disappear. If Chinese government wants to keep its export prosperous like in the last decades in future, it has to adjust the export structure and strengthen its competitiveness in other aspects, for example technology , innovation and so on.

Reference:

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