Thesis for the Degree of Master of Business Administration

A Study on the Effect of Ethnic Chinese Networks on the International Trade of China

by

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Department of International Commerce and Logistics,

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February 2014

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화교 네트워크가 중국무역에 미친 영향에 관한 연구

Advisor: Prof. Kim, Eun Chae

by

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A thesis submitted in partial fulfillment of the requirements

for the degree of

Master of Business Administration

in Department of International Commerce and Logistics, The Graduate School, Pukyong National University

February 2014

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Abstract

The role of business and social networks in promoting international trade has attracted increasing research in recent years. The Ethnic Chinese Network (ECN) is the most representative business and social network since it is much easier to identify their members. China has the most well-known ethnic networks actively in international trade today.

What mechanisms have made ECN facilitate bilateral trade? ECN working as a loose network to collocate resource between market and enterprise has a particular mechanism. This paper will introduce the particular mechanism of ECN, letting us know the role ECN and overseas Chinese communities promoting bilateral trade.

Most international trade into China belongs to members of Ethnic Chinese Network (ECN). Is there a significant positive role in China's trade of ECN? This paper empirically investigates the role of ethnic Chinese networks in promoting international trade of China. At the same time we will introduce the formation, characteristic and

function of ECN, analyzing the crucial role of ECN (working as social capital) in promoting bilateral trade.

Key Words: ethnic Chinese networks, international trade of China, gravity model, oversea Chinese

华商网络对中国对外贸易影响的实证研究

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摘要

最近几年有关商业和社会网络对国际贸易推动作用的研究已经引起了日益增加的关注。华商网络由于其成员国的容易确定，成为了当今最具代表性的商业和社会网络。

那么华商网络是通过怎样的机制来推动双边贸易？华商网络作为在市场和企业之间直接进行资源配置的一种松散型网络，有一套自身运作的独特机制。本文将对华商网络对双边贸易贸易的作用机制做全面的梳理，了解华商网络、华人社团对信息交流和推动国际贸易活动的纽带作用。

绝大部分进入中国的贸易合作国，都来自于华商网络成员国。那么华商网络是否会在推动中国贸易发展方面起到促进作用？本文将建立实证模型，采用计量经济学的方法证实华商网络对我国贸易发展的重要意义。同时将结合定性分析的方法，介绍华商网络的形成，特点和功能。力求全面详实的说明华商网络在双边贸易中发挥的重要作用。

关键词：华商网络，中国对外贸易，重力模型，海外华人

Chapter1. Introduction

1.1 Research Background

International trade, as a major factor of openness, has made an increasingly significant contribution to economic growth. Over the past two decades since China initiated the reform and opened up, Chinese international trade has experienced rapid expansion together with its dramatic economic growth which has made the country target the world as its market. China has become a key player in formulating the world order since gaining membership in the United Nations in 1972. China has also recorded an average annual growth rate more than 10 percent. International trade attraction is the starting move of China's reform and opening up. An important part of the economic reform process in China has been the promotion international trade flows. After more than twenty years of economic reform, China has become one of the most important destinations for world trade.

Since the initiation of economic reforms and the adoption of the open door policy, China’s economy has experienced dramatic growth. China’s integration into the global economy has largely contributed to its sustained economic growth. Some of the industries with comparative advantages began to acquire a high level of specialization, and achieved a high growth rate of GDP, as well as an enormous inflow of hard currency and increase in employment.

Additionally, China's participation in international trade has also contributed to improvement in productivity of domestic industries and advancement of technology. On one hand, large imports of machinery goods in the early 1990s had an immediate impact on productivity through the application of technology embodied in them. On the other hand, the level of science and technology in China increased dramatically due to the effect of "learning by doing."

The opening up of the Chinese economy has not only enhanced the flow of goods and services, but has also eased the movement of its people across its border. And with regard to the source of china's rapid economic growth, the contribution of overseas Chinese has often been mentioned by many China watchers. First of all, overseas Chinese not only provided the People's Republic of China with capital at the initial stages of its Economic Reform and Open Door policies in 1978 and thereafter, but also gave it a developmental model to be copied. Importantly, overseas Chinese business network suffered when confronted with sanctions from western countries after the Tiananmen Square incident. Yet it is too early to judge whether there is a strong relationship between these overseas Chinese networks and China's rapid trade development.

It is often said that the 21st century is a "network" age. As the world has become more and more interdependent with global economic turmoil, the economic and business networks have become more important in the global market. The economies of scale that dominated in the previous period seem to have given way to network economies. The overseas Chinese have supported in different ways and participated in China's

economic development for a long time.

China is a country with high barriers to international trade. The ethnic Chinese networks played a significant role in attracting China's trade flows. More than 60% of trade values flowed into China by ethnic Chinese networks or some foreign countries which have big ethnic Chinese populations. With the economic development of East Asia and Southeast Asia, a large number of ethnic Chinese capital flowed into mainland China. The countries which have big ethnic Chinese population have been to the main international trade.

1.2 Literature Review

Recently, more and more economists and socialists are interested in ethnic Chinese networks in international trade and concerned about how it can decrease the informal trade barriers. The reasons can be answered from several aspects, such as new institutional economics, theory of social capital, modern evolved biology and game theory. Also, empirical study is not only interested in its static effects, but also its dynamic effects as well. The following part introduced the research situation of ethnic Chinese networks.

Overseas Chinese have the most well-known ethnic networks active in international trade today (Sarah 2005). Rauch and Trindade (2002) refer to ethnic Chinese networks as "probably the world's largest and most internationally dispersed set of interlinked business and social networks". Ethnic Chinese networks have certain peculiar traits such as deeply-

rooted instinct of trust, heavy reliance on interpersonal obligation bonding and the need to keep a reputation of trustworthiness (Redding, 1995). In contrasting networks to markets, Rauch (1999) refers to the market as a "black box" which automatically matches buyers and sellers. This reflects a degree of 'anonymity' between traders, which allows for commodity arbitrage between distant and unrelated parties. Networks, on the other hand, are characterized by personal contacts which are enhanced by factors like proximity, common language, common culture and historical ties.

Networks have also been found to assist trade by reinforcing trust where contract enforcement is weak or nonexistent. Because of increased reciprocal knowledge and number of transactions among members, networks provide a high speed information channel to publicize any opportunistic business conduct. The threat of collective punishment by shunning business with the deviant agent by all the other group members deters opportunistic behavior. In the case of international trade, as argued by Rauch and Trindade (2002), ethnic Chinese networks increase trade primarily by two mechanisms. First, through formal and informal contact, ethnic Chinese networks facilitate information sharing that helps match buyers and sellers in the international market. Second, ethnic Chinese groups help deter opportunistic behavior such as contract violation through enforcement of community sanctions.

The importance of business and social networks in facilitating trade has been the focus of many recent studies, both theoretical (Greif, 1993; Rauch and Casella, 2003) and empirical (Gould, 1994; Rauch and

Trindade, 2002). Theoretical analyses point out that networking activities play a key role in overcoming informational barriers in international transactions, as well as providing community sanctions that ensure the enforcement of contracts in a weak international legal environment. Empirical analyses show that networks significantly increase bilateral trade, especially trade in differentiated goods, suggesting that networking activities are vital in forming a match between buyers and sellers where complex information is needed.

Among the various types of business networks, ethnic networks have tended to attract empirical research, since it is much easier to identify their members. Overseas Chinese have been the most well-known ethnic networks active in trade (Redding 1995).

Ethnic Chinese networks have been strengthened by the formation of large-scale formal overseas Chinese associations. Liu (2001) documents the large gatherings of overseas Chinese and shows the growing trend of globalization in ethnic Chinese networks in the last few decades. For example, since the 1960s about 100 world conventions of overseas Chinese associations have been held. These serve as nodes for information exchange, providing commercial information for their members and business people outside their communities. Gao (2003) notes that many overseas Chinese associations consider establishing connections between members and their ancestral hometowns in China. Delegates are invited to trade fairs and business talks organized by such associations.

Minghuan (1996), who writes about voluntary Chinese associations in Europe, observes the existence of vast but loosely-knit webs of voluntary

associations around the world, providing numerous possibilities for communications, mutual help and organized activity among Chinese migrants. Associations differ in size and structure, from ephemeral and informal to firmly established and tightly organized. Such associations are not necessarily confined to one country but they unite ethnic Chinese of particular attributes across countries. While first generation migrants tend to stay within their own groups, second and third generations tend to be more integrated into a national or regional Chinese community. They are more likely to transcend the cultural and language dissimilarities and interact at a more regional or national level, whilst preserving their ethnic Chinese identity.

Since the basic gravity equation takes a log-linear form, it is natural for most studies to employ log-linear specification e.g. Head and Ries (1998), Rauch and Trindade (2002), Dunlevy and Hutchinson (1999). Some studies, however, depart from this practice by adopting a non-linear formulation as it is argued that the constant elasticity formulation does not take into account factors such as level of trade and number of immigrants in the country (Wagner et. al.2002). Gould addresses this issue by assuming that immigrants provide market information that decreases the transaction costs to trade at a decreasing rate. Mundra (2005) employs a partially linear (or semi parametric) formulation. Wagner et. al. (2002) also estimate a random-opportunities model that reflects the idea that immigrants' trading advantages fade as the number of immigrants increases.

Mundra (2005) studies the effect of immigration into the US on imports and exports between 47 US trading partners for the period 1973-1980. The author finds positive coefficients for US imports but negative estimates for US exports. This result is in sharp contrast to the study on US imports and exports undertaken by Gould. Wagner et. al. (2002) also estimates immigrant effect for Canada using provincial data for the years 1992-1995. They consistently find higher import elasticity in their log linear specifications.

The literature finds support for networking for trade in consumer, finished and differentiated goods. Brand names and country specific details are important for differentiated goods and price alone cannot provide all the information, as would be the case with homogenous goods. Thus network effects, more specifically, through the information-link, should be strongest for differentiated goods. As part of his analysis, Gould (1994) estimates import and export equations for consumer and producer manufactured goods. In addition to export effects outweighing import effects in both cases, he finds trade in consumer goods to be more influenced than trade in producer goods. He infers that major effect of trade through immigration is through establishment of business contacts, with preference for country of origin goods only having a secondary effect. At the product level, Mundra's (2005) results corroborated with Gould's in that positive network effect is found for both imports and exports of finished products. Rauch's (1999) analysis revolves mainly around trade in three different categories of goods which he defines as organized exchange, reference priced and differentiated.

Amidst the large number of studies on network effects on trade, limited research has been undertaken on the influence of specific co-ethnic networks on trade. Rauch and Trindade (2002) is perhaps the most cited work in this area. They examine whether presence of large numbers of ethnic Chinese residents in partner countries is associated with more trade in types of goods defined by Rauch (1999) for Frankel's (2002) sample of 63 countries for two year 1980 and 1990. To measure the strength of ethnic Chinese networks, they use product of ethnic Chinese population shares in each trading pair (capturing the idea that if an individual is selected at random from each country, both will be ethnic Chinese) as well as the product of the two countries' ethnic Chinese populations (reflecting the number of potential international connections). Using imports plus exports as their dependent variable, they find that all three types of goods are influenced by ethnic Chinese networks, but the effect gets stronger as one move from homogenous to more differentiated ones. Thus there is partial support for the "enforcement hypothesis" ethnic Chinese are found to enhance trade in homogeneous products as well.

1.3 Structures of research

This paper empirically investigates the role of ethnic Chinese networks in promoting international trade of China. We further evaluate whether the effectiveness of networking activities are affected by the level of economic and institutional development of the source and the host countries. The gravity model has been an empirical success in explaining

impacts on bilateral flows including international trade and labor migration. In our analysis, we employ standard gravity model, using the population of Chinese in foreign countries instead of ethnic Chinese networks to be main explaining variable and international trade flows into China to be dependent variable. Try to use the cross-section data regression analysis to test the impact of international trade in China by ethnic Chinese networks. This paper uses gravity modeling to investigate whether ethnic Chinese networks presence influences international trade in 2001, 2007 and 2011. We find that ethnic Chinese networks are significant in international trade of China. The strength of ethnic Chinese networks between country pairs, approximated by the product of the numbers of ethnic Chinese in both countries, is positively correlated with the cumulative amount of their reciprocal trade.

The remainder of the paper is organized as follows: Section 2 gives a theoretical background of overseas ethnic Chinese networks. Section 3 elaborates on the evolution of ethnic Chinese networks which included the current status and influencing mechanism. Section 4 details the empirical analysis, explaining the model and data sources. The result of regression analysis is discussed in Section 5, followed by concluding remarks in the final section.

Chapter2. Theoretical background

2.1 Overview of China's trade

Before 1978, China's planned economic strategy and inward-oriented policy resulted in the subordinate status of international trade in the national economy. China had only minimal trade with the outside world, exporting just surplus raw materials and simple manufactured goods to cover payments for imported goods, including strategic minerals and other necessities not available in the domestic market.

The planned economy and import substitution policy optimized China's export structure by encouraging the growth of domestic industry during the initial period. A number of national industries were established to foster economic growth. However, due to lack of competition, the optimization of resource allocation could not be achieved, and the Chinese trade sectors could not enjoy the dynamic benefits from international trade such as competition effects, efficiency effects and technology improvement effects.

It is well known that China has pursued unparalleled trade liberalization since 1978. Since then, China has gained tremendous benefits from its integration into the global trade system. With the establishment of the socialist marketing economy and the transition of the Chinese economy and society, great changes have taken place in the country, China has successfully converted itself from an inward-oriented country which was

protected by various trade policies to an outward-oriented one with an open market. The transition from a closed economy to an open one accompanied with it various experiences. From the perspective of trade policy, China underwent a number of evolutionary periods, such as dependence on the Soviet Union, absolute isolation, and opening doors to the world. WTO accession, which represents a new milestone in China's trade evolution enabled China to participate in the world trade under the global framework by improving the multilateral trade system.

From the perspective of the import regime, China was devoted to reducing trade barriers and enhancing its openness to the world. At the beginning of the 1980s, tariffs on many products were set to block the flood of foreign products into the Chinese market. The Chinese government canceled its import substitution list in the 1980s to encourage the market mechanism to achieve effective resource allocation with less intervention from the government. The initial tariff was set at the high rate of 56% in 1982. In the following two decades, China launched a massive tariff cut by at least ten times, reducing the average tariff rate to 15% in 2001 and 4.4% in 2012. In the meantime, a broad array of non-tariff barriers such as licenses and quotas were reduced massively.

In addition, China has made an all-out effort to raise the level of science and technology by implementing various international trade policies. The Ministry of Science and Technology of China and the former Ministry of Foreign Trade and Economic Cooperation of China proposed the strategy of "Trade Vitalization through Science and Technology" in 1999, which contributed to the increase of high-tech trade and the application of high

technology to upgrade domestic industries. At this stage, the strategy of "Trade Vitalization through Science and Technology" increased in importance from a ministerial program to a national strategy gradually. Through the common efforts made by the government and all sectors of society, the work of "Trade Vitalization through Science and Technology" made remarkable achievements. The government support for high-tech exports and the establishment of a favorable environment for high-tech industries enabled China to achieve rapid development of technology.

To meet the requirements for joining the WTO, China started to modify and improve laws and administrative regulations, including those involving foreign trade and economic cooperation in 1999 (Zhao 2009). Laws and regulations not in compliance with WTO regulations were revised or nullified. By the end of 2001, China had revised 2,300 corresponding laws and regulations.

After WTO accession, China has devoted much time and efforts to reducing trade barriers. On January 1, 2004, China lowered its average tariff rate by 0.6% to 10.4%, and in 2008, the average tariff rate was below 10%. In the meantime, China agreed to eliminate import quotas, licenses, designated trading practices and other non-tariff barriers. In addition, automobiles, chemicals and electronics industries which were subject to strong government protection before are likely to experience restructuring due to the dismantling of trade barriers.

China's international trade has expanded steadily since the implementation of opening policy in 1978. It serves as a distinguishing case which highlights how a latecomer can carve out a place in the

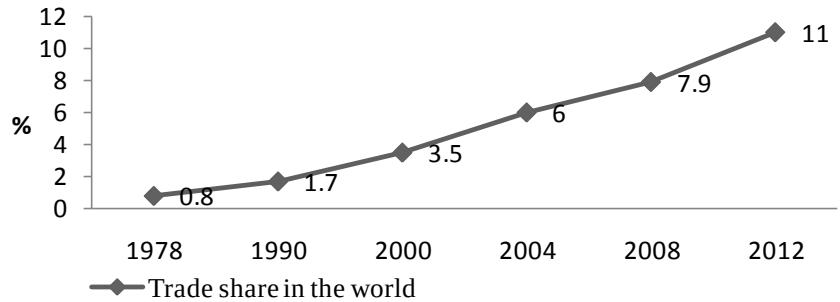
international trade market. As shown in Figure1, China's international trade volume has grown fast in the last 20 years with an annual expansion rate of 18.1%. It climbed from 20.64 billion dollars in 1978 to 3.86 trillion dollars in 2012, indicating the increasing opening-up of the Chinese economy. As for the trade balance, the total value of imports was comparable or sometimes even higher than the value of exports until the early 1990s.

Figure 1. China's trade statistics (1978-2012)

Source: Chinese Ministry of Commerce (1980-2012)

As shown in Figure 2, China's share in global trade and its global ranking have increased steadily since 1979. In 2012, China took up 11% in the global trade, and its global rank in terms of trade value was No. 2.

Figure 2. China's trade share in the world (1978-2012)

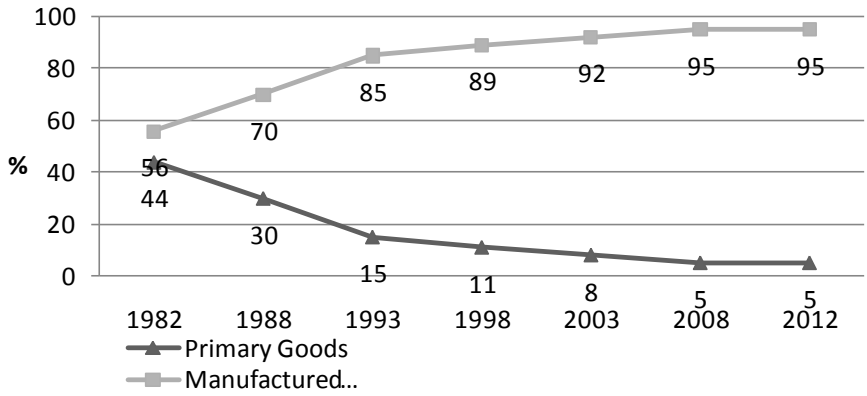


Source: 60 Years of New China

China's overall trading structure has experienced obvious changes with the rapid growth of foreign trade volume (Lemoine F 2004). Its rapid entry into the global market accelerated the early exit from labor-intensive exports. Structural reforms undertaken by China in recent years have significantly strengthened its global competitiveness and trade performance.

As for primary and manufactured goods, in 1982, primary goods accounted for 44% of total exports, while manufactured goods accounted for 56%. In 2012, the share of primary goods was only 5%, while manufactured goods expanded their share to a dominant level of 95% (Figure 3).

Figure 3 China's export structure (1982-2012)



Source: Chinese Statistical Yearbook (1983-2012)

An analysis of the leading trade countries in 2012 indicated that the EU, the U.S. and Japan were the top 3 countries/regions in terms of their share in the global trade volume with 18.26%, 13.28% and 5.35% respectively. The combined share of these 3 countries was 36.89%, indicating the dominant position of these countries in the global trade. As for China, OECD members have also remained its major trading partners for a long time. The share of trade with the EU, the U.S. and Japan accounted for 35.1% of the total trade. And the share of relevant trade with top 10 OECD countries took up 65% in 2011. Table 1 shows the top 10 trading partners of China in 2011 in terms of trade volume and share. It could be concluded that the trading partners of China are generally the leading trade countries in the world.

Table 1. Top 10 trade partners of China in 2012

Country	Trade Volume(100 Million$)	Share(%)
European Union	5460.4	14.1
United Sates	4846.8	12.5
Asean	4000.9	10.2
Hong Kong. China	3414.9	8.8
Japan	3284.5	8.5
Korea	2151.1	5.6
TaiWan	1689.6	4.3
Australia	1223	3.1
Russia	881.6	2.3
Brazil	857.2	2.2

Source: National Bureau of Statistics of China

China is a huge country which possesses one fifth of the world's population and has a vast territory of some 9.60 million square kilometers with 22 Provinces, 5 Municipalities, 4 Autonomous Regions and 3 Special Administrative Regions. China's economy has experienced a sharp growth, reflecting special characteristics stemming from regional disparities, as well as its trade performance.

In the past decades, China has become a major importer of world commodities or primary goods. Table 2 shows China's imports by major commodity. Imports of machinery (including electrical) have soared from a total of $69 billion in 1999 to $685 billion in 2012. In this table we can

clearly see China's imports of minerals fuel, inedible materials, plastic and organic chemicals have a large proportions.

Table 2. China's Imports by major Commodity, 1999-2012

(Billions of dollars)

	1999	2001	2003	2005	2007	2009	2012
Machinery	69	107	193	290	412	408	685
Mineral Fuel,Oil,etc.	9	17	29	64	105	124	312
Inedible materials	13	22	34	70	117	141	330
Plastic	34	42	64	81	103	108	165
Organic Chemicals	24	32	49	78	108	112	195

Source: Global Trade Atlas using Chinese data.

2.2 Overview of overseas ethnic Chinese networks

Oversea Chinese refers to people of Chinese nationality who live outside of China, which are Chinese citizens. Those who have acquired a foreign nationality are foreign citizens, and they are not oversea Chinese any more. Due to their Chinese descent and the strong connections with oversea Chinese in the field of history, culture, region and relationship, they are named as ethnic Chinese (Cai 2000). Chinese merchants refer to the oversea Chinese and ethnic Chinese with foreign nationality who engaged in economic activities including services for various companies.

The layout of Chinese merchants and oversea Chinese are in consistent. Most of the oversea Chinese and ethnic Chinese are Chinese merchants except some students and old people, even the intellectuals in the field of teaching and researching. They are engaged in the business activities more or less.

After the Second World War, particularly in the 1950s to 1960s, the political unrest and other factors push Chinese people immigrant from the center of Southeast Asia to the world (Zhuang 2010). This wave of immigration made the Chinese layout in 149 countries and regions within the five continents, 90% of them acquired the local nationality.

According to some statistics, there are about 55 million Chinese live in other places instead their motherland, among which 50 million in Asia, 3.4 million in America, and the rest are live in Europe, Africa and Oceania. Most of the Chinese live in countries of East Asia and Southeast Asia and the Chinese accounts a large proportion in these countries, for example, Taiwan is 99%, Hong Kong is 98% and Singapore is 76% (data in 1995). National identity connected by the culture strongly exists among the most of oversea Chinese.

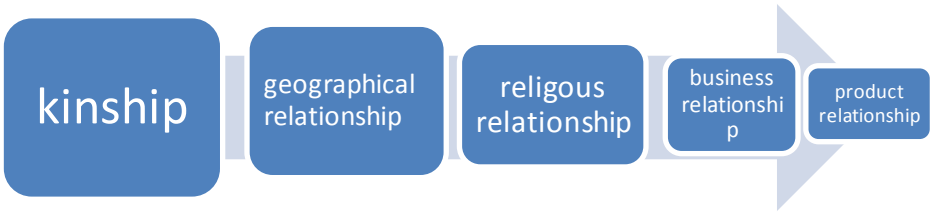
Traditional ethnic Chinese networks refer to the business connections and the relationships between the ethnic Chinese in the world before 1980s, which is based on the oversea Chinese and characterized by the region, dialect and factions. The traditional ethnic Chinese networks have been known widely in the academia. The modern ethnic Chinese networks connected and organized throng the modern media and information technology after 1980s, and had established an ethnic Chinese networks

all over the world. The modern ethnic Chinese networks have the following characters, first is about the expansion based on the emerging economy of mainland China. Secondly, the international trend led by the cosmopolitan sodality, which held by the various oversea Chinese association and people in oversea Chinese's hometown. Thirdly, the information is spreading through modern technology, especially through the information sharing method on the internet (Meng 2008).

2.3 History of ethnic Chinese networks

The traditional relationship in blood and geography is the strong cohesion in the Chinese society. Throngs of Chinese immigrants came to Southeast Asia and North America through the introduction of their kith and kin, gradually they live and making business there. The Ethnic Chinese gradually developed their "Wuyuan" Relationship, namely relationship in kin, geographical, religious, business and product (Lin 1994). Figure 4 show the degree of orientation in trusting relationship.The relationship in kin included the consanguinity kin, marriage kin and fiction kin. The relationship in geography refers to the fellow villagers' relationship. The kin in faith developed from the shared religion. The relationship developed from the peers in the same field and industry is the kin in industry. Kin in goods based on the common interests and developed into the economic relations. "Wuyuan" Relationship bands the Ethic Chinese together globally, which is the externalization of traditional Chinese culture.

Figure 4. Degree of orientation in trusting relationship



Note: the trusting relationship from strongest to weakest.

Source: Lin Qiyan. "A study on the culture of WuYuan and the international economy networks"

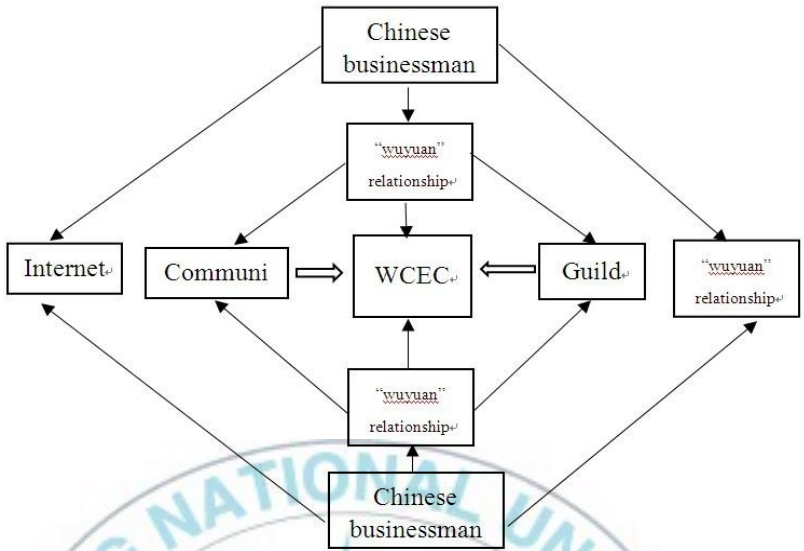
Under the influence of the traditional Chinese culture, the role of religious organizations, fellow halls and business guilds in business were enhanced by the immigration of ethnic Chinese. Due to the repellants of the local people and the culture conflicts with the social mainstream, the ethnic Chinese had to adhere to the spirit of solidarity and cooperation based on the civil organizations in order to protect their interests. The civil organizations like fellow halls, kinship organizations and business guilds connected by geography, bloodshed and business interests, layout in the gathering places of the oversea Chinese. It is all those civil organizations that connected together and developed into the Chinese network.

After the Second World War, with the internationalization and expansion of business scope, layout of ethnic Chinese was expanded and they national identity has ascend to a higher level, which breaks through the limits of dialects and region. Though 90% of the ethnic Chinese naturalized into 140 countries within five continents, the civil organizations based on the "Wuyuan" relationship has become more and more prosperous. In the late 1980s and 1990s, the Chinese civil organizations were rapidly developed and international Chinese civil

organizations gradually appeared with the world economic integration and regionalization.

It is the kinship and geographic relations that make the ethnic Chinese gathered together and developed the close relationships among the fellow-villagers in the process of seeking the live hood. Chinese merchants established business relationship and connected by the different fellow halls, they can get fund, labor and markets easier based on the mutual development in the civil organizations. Characterized by the self-help, self-protect and self-government, the ethnic Chinese civil organizations play an important role in managing relationship among ethnic Chinese and became the externalization of ethnic Chinese networks. The members of the network can hold parties or business meetings occasionally to seek common development (Lin 1994). Recommendation from bigwig in the circle is much valuable than any capital or contracts. The figure 5 shows the communication of ethnic Chinese networks.

Figure 5. The communication of ethnic Chinese networks



Source: Meng yinghua "Ethnic Chinese Networks and FDI in China"

2.4 Characteristics of ethnic Chinese networks

It is generally acknowledged that the natives associations and family associations are the bases of ethnic Chinese networks. It is the interpersonal credit of Confucianism and the good tradition promoted the development of ethnic Chinese networks, and the capital, talents and information was shared by this network. Therefore, ethnic Chinese networks have strong connection with Chinese culture. At the same time, the Chinese culture working as the footstone of ethnic Chinese networks and enhanced the trust of business mechanism. The Chinese merchant's organizations play an important role in the construction of business trust and regulating business behavior (Liu 2004). The building of oversea

Chinese organizations can benefit the ethnic Chinese in the aspect of international trade.

Credit can be realized by various means. Credit of law can be realized by the regulation and credit of goods can be materialized by the exchange of articles. Just like the law and goods, people's credit is realized by the morality. The west businessman has strong legal awareness and often participate the business negotiation with their lawyers, accountants to follow the strict legal procedure. Different from the west businessmen, the Chinese merchants prefer doing business within the circle, and one business needn't to have certification or contracts regularly. The merit of credit is a precious property of Chinese culture, which can be security of business beside the compulsive legal restrains. The interpersonal credit was perfectly showed in the ethnic Chinese networks. Ethnic Chinese rely on merchant's network to operate and develop business, the network is very hard to maintain without the credit. Interpersonal credit is the base and accordance of Chinese merchants, which maintains existence and operation of ethnic Chinese networks.

The international ethnic Chinese organizations play an important role in the construction of interpersonal communication among entrepreneurs. The international ethnic Chinese organizations have the following characteristics, firstly, initiated by the ethnic Chinese businessmen and supported by many renowned international ethnic Chinese entrepreneurs who focus on the development of native places and do not have many connections with politics. Secondly, contents of meetings held by the

ethnic Chinese organizations often related on the information sharing and economic development of ethnic Chinese.

Based on the ethnic Chinese networks, entrepreneurs built multi-level interpersonal network and platforms to share information, seek trade and make businesses. The network is patulous to expand the scope of businesses, which is named as “Bamboo Network”. Different from the typical America merchants, Chinese entrepreneurs using the interpersonal relations to share information, and expand business.

2.5 Function of ethnic Chinese networks

In essence, network integrated resources to consolidate the existing relations and making new relations. Some scholars stick to the idea that in the colonial period, the ethnic Chinese play as a middleman. After the independence of Southeast Asia countries, ethnic Chinese bring in the foreign capital and modern technology to develop the national economy and connected the development of mother-country with the industrialization of the west countries. Under the wave of economic globalization, the internationalization and localization of oversea Chinese’s business became more and more obvious. Chinese merchants expand their business on the base of their existing countries or areas and integrate the world market with their own management strength, shaping an international trading network. The network materialized the economic connection of different countries, areas and the whole world, which can

promote the regional development and have a strong influence on the economy of local ethnic Chinese.

Entrepreneurs will fully taking advantage of interpersonal network and seeking partners, raising fund and sharing information to expand the business. Based on the local area and expanding the business by multi-part integration and connection, ethnic Chinese networks connected the resources (including the other relating peoples' fund and west capital) and shape into the inclusive international ethnic Chinese networks. No matter to the development of the local area or the regional economy cooperation, even to the continuous development of world economy, the network can play an active role in the economy. The network's potential ability of attracting oversea Chinese's investment still needs to be taped. According to preliminary data, the Chinese merchant's investment has covered 132 countries and areas, and there are at least two million active capitals and 1.5 trillion share capitals in the Chinese merchants. Mainland China can absorb more capitals throng the ethnic Chinese networks.

Chapter3. The evolution of ethnic Chinese networks

3.1 Current Status

During the past 30 years, the size and distribution of the overseas Chinese population has changed. Largely, they are divided into two groups. The first group consists of immigrants who were not well

educated. They are from GuangDong's JiangMen area, ZhuJiang's delta area, Fujian's Fuzhou area, and ZheJiang's southern area. The second group is made up of highly educated immigrants, including scholars and students from mainland China studying in the United States, Canada, Australia, and Europe. Due to the rapid growth of the population and new migrations of overseas Chinese since the 1970s, their number increased from 10 million to 15 million in the early of 1950s to 30 million to 35 million in the 1980s and 1990s (Liu 2001).

Since the mid-1970s, about 4 million overseas Chinese from mainland China, Hong Kong, and Taiwan have moved to foreign countries. They have been expected to adapt to local cultures all over the world. Overall, these new overseas Chinese immigrants are well educated in comparison with the earlier ones. According to the data of Chinese Education Committee, a majority of scholars and students studying abroad between 1983 and 1995 selected the United States as their county of residence. And most of them have wanted to go to into business after finishing their education.

As of 2011, the total number of Chinese people in the world including mainland China was 1.5 billion, which accounted for 22.4 percent of the global population. As for overseas Chinese, approximately 35.71 million live in Southeast Asia, which accounts for 80 percent of their total population. In addition, 13.2 percent live in the Americas, 5.5 percent in Europe, and 1.4 percent in Australia and New Zealand. There are 98 countries with an overseas Chinese population of more than 1000; of these people, more than 10,000 live in each of the 52 countries and more than

100,000 in each of 25 countries. The 11 countries with the largest overseas Chinese populations and shares of their total populations are listed in Table 3.

Table 3 The 11 economies with the largest overseas Chinese populations and Percentages of total population in 2011

Rank	Overseas Chinese population (millions)		Percentage of overseas Chinese in total population	
1	Indonesia	8.120	Singapore	77.9
2	Thailand	7.510	Malaysia	26.3
3	Malaysia	6.780	Brunei	14.7
4	United States	4.240	Thailand	10.2
5	Singapore	2.680	Suriname	9.2
6	Canada	1.560	French Polynesia	8.8
7	Philippines	1.140	Myanmar	6.4
8	Myanmar	1.060	Panama	4.4
9	Vietnam	0.992	Indonesia	3.6
10	Peru	0.990	Laos	3.1
11	Russia	0.447	Canada	3.1

Note: Hong Kong and Taiwan are excluded

Source: Zhuang Guo Tu, "Historical Changes in numbers and distribution of overseas Chinese in the world".

As the table shows, Indonesia (8.12 million) topped the list for overseas Chinese population, followed by Thailand (7.51 million), Malaysia (6.78 million), United States (4.240 million), and Singapore (2.68 million). According to the share of total population, Singapore (78%) topped the list, followed by Malaysia (26.3%), Brunei (14.7%), Thailand (10.2%), and Suriname (9.2%).

Recently, many Chinese intellectuals have moved overseas as they have been lured by the strategy of other countries to hire the best and brightest foreign nationals. Overall political and economic elements, together with individual choices, have worked as push and pull factors to increase the growth of overseas Chinese population.

3.2 The influencing mechanism of China promotes international trade by ethnic Chinese networks.

The clubs and organizations of ethnic Chinese Network is a key non-governmental manner to contact with the overseas Chinese. Supported by the clubs and organizations of overseas Chinese, ethnic Chinese Networks can organize dozens of overseas Chinese merchants back to the mainland China and thus promote the international trade of members of the organizations or clubs. The offices of Overseas Chinese Affairs register about 1.5 million overseas Chinese from 1993 to 1997. Most of the overseas Chinese return to mainland China for international trade, and seeking a suitable opportunity. Thai-Chinese Chamber of Commerce is a case in the very point, annually this organization organizes its members to go to mainland China for field investigation and calls for the Thailand Chinese back to mainland China and promote the development of international trade of China.

Local governments attach importance on the trade activity of overseas Chinese and present many opportunities to them. With the connection of ethnic Chinese networks, the investor can get the related information and

reach an investment agreement with the local government. Besides, more and more overseas Chinese merchants participated into the international cosmopolitan sodality and enhanced the connections of the global overseas Chinese. In recent years, the organizations of the Chinese held many sodalities, which included the trade fairs and investment symposiums. The field investigation and gatherings promoted the development of the connection of inland and the oversea merchants thus attracted more international trade flows into the mainland China.

The oversea market is unfamiliar and risky for a nation or a national enterprise when it starts its international trade program. Most companies would choose the oversea market that is very familiar with the local ones in the management condition, manners and trade environment. Recognizable situations can help the enterprises get familiar with the local market and lower the risk. Among the management conditions and trade environment, enterprises give priority to the factors like familiar characters, management rules and economic structures. We named the above-mentioned action as "Xuntong Action (Seeking the familiar situation)" (Liu 2004). The international trade in mainland China from Southeast Asia, Hong Kong and Macao in the early era of reform and opening up resulted from the "Xuntong Action"

Through year's management, ethnic Chinese Networks in the Southeast Asia and Hong Kong, Macao area has become larger and larger, and the scale of trade capability was improved (Qiu 1997). The large market and tax preference encouraged overseas Chinese make international trade in mainland China. At the same time, the feeling of homesickness became

another stimulation for overseas Chinese businesses. The "Xuntong Action" makes the overseas Chinese chose mainland China as their trade destination and gathered in the family's origin regions in China's southeast coastal area.

Chapter4. Research model

4.1 The gravity equation

Trade gravity model as a tool for the analysis of bilateral trade flows have been widely used in international trade. And it has been an empirical success in explaining impacts on bilateral flows including international trade, foreign investment and labor migration (Anderson 1979). It has been extensively used as a baseline model to explore a variety of policy issues such as regional trading agreements (Sharma and Chua 2000); multilateral agreements (Rose 2004) and calculation of trade potentials (Nilsson 2002). Sheng bin and Liao ming zhong (2004) found current of international trade depend on the distance and scale of economics between two countries. They found current of international trade is proportion with each country's scale of economics but inversely proportion to distance between two countries.

The trade gravity model was given its name by Jan Tinbergen. He was trained in physics, so he thought about the trade between countries as similar to the force of gravity between objects: Newton's universal law of

gravitation states that objects with large mass, or that are closer to each other, have a greater gravitational pull between them. Tinbergen's gravity equation for trade states that countries with larger GDPs, or that are closer to each other, have more trade between them. The equation proposed by Tingbergen to explain trade between countries is similar to Newton's law of gravity, except that instead of the mass of two objects, he uses the GDP of two countries, and instead of predicting the force of gravity (Feenstra 2007). The gravity equation in trade is:

$$Trade_{ij} = B \times \frac{GDPi \times GDPj}{DISij}$$

To make it easier for empirical testing we can change it to the logarithmic form:

$$\ln(T_{ij}) = ß_0 + ß_1 \ln(GDP_i GDP_j) + ß_2 \ln(D_{ij}) + \eta_{ij}$$

Where GDP_iGDP_j indicate the source country and China, and the Dij is the distance between country i (the source country) and j (China).

Since 1980s, gravity model was used to test the trade potential, it was explained some economic phenomena in reality. Fidrmuc (2003) using the GDP of two countries and the distance of two capital cities to test the trade. He found the trade has negative correlation with distance and positive correlation with GDP. The coefficient of distance variable fluctuate between -1.5 and -0.7

The empirical analysis from basic gravity model first. According to the introduction of gravity model, the regression equation of gravity model is:

$$\ln (TRADE_{ij})=C_0+C_1\ln(GDP_i)+C_2\ln(GDP_j)+C_3\ln(D_{ij}) +U_{ij}$$

4.2 The selection of variables

According to Tinbergen's gravity equation, we can easily find trade is the dependent variable. The dependent variable $Trade_{ij}$ is the trade flows which 41 sample countries trade with China in 2001, 2007 and 2011.

According to the Tingbergen's gravity equation theory, the Gross Domestic Product (GDP) is one of the indispensable factors of international trade. GDP is the market value of all officially recognized final goods and services produced within a country in a year, or other given period of time (Tinbergen 1964). So we can get that countries with larger GDPs, or that are closer to each other, have more trade between them. In this research I used the 41 sample countries GDP in 2001, 2007 and 2011. To make it easier for test, I used the 10000$ for unified the unit of Trade and GDP.

Distance is other important independent variables. According to Tinbergen's theory, distance can hinder two countries bilateral trade. So I will keep the two basic variables and prove this theory.

This paper intends to investigate the significance of ethnic Chinese networks in China's bilateral trade. Beside the basic factors in Tingbergen's equation, I try to use the additional variable ECN (ethnic Chinese networks) and examine the impact of ethnic Chinese networks. In this study, I use the ethnic Chinese population instead of ethnic Chinese

network to test the empirical model.

The FTA means free trade agreement, which eliminates tariffs, import quotas, and preferences on most goods traded between them. If people are also free to move between the countries, in addition to FTA, it would also be considered an open border. FTA can help a country increase its trade flows to a certain degree. There was no China's Free Trade Agreements in 2001, so we didn't use the dummy variable FTA in the analysis of 2001. APEC is the shortened from of Asia-Pacific Economic Cooperation. There are 4 economies in China's top 10 trade partners which belong to APEC. So the dummy variable APEC has the potential to impact China's trade flows. At last, every independent variable's expected signs and theoretical descriptions are showed in the Table 4.

Table 4 Meaning, expected sign and Theoretical description on Independent variable

Independent variable	Meaning	Expected sign	Theoretical description
GDP_i	The GDP of the foreign country	+	Denote the economic size of country i. it is the basic factor in gravity model.
$DISTANCE_{ij}$	The distance of two country's capital	-	Distance is a important hindering factor of investment. Greater the distance the higher risk.
ECN	Ethnic Chinese networks	+	Ethnic Chinese networks can promote international trade flows of China.
FTA_{ij}	Dummy variable, 1 or 0	+	Free Trade Agreement can impact China's import and export
APEC	Dummy variable 1 or 0	+	Whether the country join the APEC or not

After adding all the variables we can get the new equation:

$$TRADE_{ij}=\alpha+\beta_1 GDP_i+\beta_2 DISTANCE_{ij}+\beta_3 ECN_i+\beta_4 FTA_{ij}+\beta_5 APEC_{ij}+\varepsilon_{ij}$$

4.3 The source of Data

In this paper, I used the cross-section data in three years to do the regression analysis. The dependent variable in this paper is the Trade in 2001, 2007 and 2011. The data of trade flows of China came from the China Statistical Year Book (2002, 2008, and 2011) and all of the import export and total value of trade have changed into U.S dollar. In order to guarantee the unity and integrity of the statistical caliber, I try to make the same type of data sourced same provenance. In this empirical study, all primary data of the 41 sample countries was showed in the appendices. Information about GDP is from the UN data-A world of information (http://data.un.org/Data.aspx). The data of Chinese import and export is from "China statistical yearbook 2002, 2008 and 2012". The distance is the geographic distance between Beijing and the Capital city in other countries on a distance calculator website (http://www.timeanddate.com). Information about ethnic Chinese population across countries is mainly taken from "The Overseas Compatriot Economy Year Book". The information of dummy variables FTA and APEC is from a Chinese information website (http://baike.baidu.com/).

Chapter 5. Result of regression analysis

The goal of this paper is to examine the role of ethnic Chinese networks in international trade of China. As we know, the international trade includes import and export. In this study I will examine the role of variable ECN in total volume of trade of China first, and then I will try to do the empirical analysis on the import and export respectively. The table 5 shows the regressions result of gravity model in 2001.

5.1 The analysis result of China's total volume of trade

Table5. The regressions result of gravity model 2001

Variable	*(A1)*	*(A2)*	*(A3)*
Induced variable lnTrade			
Constant	1.393	0.680	0.687
lnGDP	0.852*** (8.088)	0.825*** (9.822)	0.821*** (10.201)
lnDIS	-0.572*** (-4.412)	-0.409*** (-3.767)	-0.369*** (-3.497)
lnECN		0.181*** (4.806)	0.142*** (3.460)
APEC			0.037** (2.088)
F	45.936	56.127	47.011
R^2	0.707	0.820	0.839
Samples	41	41	41

Note: the first number in every blank is "unstandardized coefficients", and the number in the ( ) is "t." *** Significant at 1% level.** Significantat 5% level.*Significant at 10% level.

From the Table 5 columns (A3), we found the R square is 0.839 which means the analyses equation has 83.9% explanation power. The regression result shows that variable lnECN is statistically significant at the 1% level and it is positively associated with dependent variable lnTrade, which means the ethnic Chinese networks have positively effect on trade flows of China. The GDP is highly significant at the 1% level of significance too. That means a country have huge GDP can promote trade flows with China.

We also found the distance (lnDIS) is negative and statistically significant at 1% level which means distance inhibits the bilateral trade with China.

There was no country had free trade agreements (FTA) with China before 2002, so the utilization of the dummy variable FTA in 2001 statistics. After adding the dummy variable APEC, we found it was positively associated with international trade flows with China and statistically significant at the 5% level.

Table 6. The regressions result of gravity model 2007

Variable	*(A1)*	*(A2)*	*(A3)*	*(A4)*
Induced variable lnTrade				
Constant	1.298	0.832	0.837	0.734
lnGDP	0.806*** (8.162)	0.758*** (8.860)	0.763*** (9.227)	0.792*** (8.103)
lnDIS	-0.433*** (-3.879)	-0.323*** (-3.227)	-0.288*** (-2.929)	-0.271** (-2.614)
lnECN		0.148*** (3.827)	0.104** (2.378)	0.096** (2.069)
APEC			0.033* (1.916)	0.030* (1.697)
FTA				0.014 (0.576)
F	43.368	44.175	36.441	28.678
R^2	0.695	0.782	0.802	0.804
Samples	41	41	41	41

Note: the first number in every blank is “unstandardized coefficients”, and the number in the ( ) is “t.” *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

We used the same way analyzed the data of 2007. Table 6 shows the regression results in 2007. From the Table 6 columns (A4), it is found that R square is 0.804 which means the analyses equation has 80.4% explanatory power. The variable lnECN also positively related to lnTrade and statistically significant at the 10% level. The variable GDP also has positive impact on the China's trade flows and highly significant at the 1% level of significance too. The variable distance still negatively associated with China's trade flows and it was significant at 5% level.

In the data of 2007 the dummy variable FTA was utilized. We found the APEC is also positively associated with international trade flows of China but marginally statistically significant at the 10% level. The variable FTA is not statistically significant.

Table 7. The regressions result of gravity model 2011

Variable	*(A1)*	*(A2)*	*(A3)*	*(A4)*
Induced variable lnTrade				
Constant	1.126	0.702	0.718	0.797
lnGDP	0.815*** (7.468)	0.709*** (7.705)	0.719*** (7.811)	0.685*** (5.230)
lnDIS	-0.353*** (-3.190)	-0.221** (-2.329)	-0.205** (-2.148)	-0.208** (-2.144)
lnECN		0.179*** (4.490)	0.144*** (2.861)	0.154** (2.641)
APEC			0.021 (0.151)	0.024 (1.185)
FTA				-0.010 (-0.370)
F	35.439	42.257	32.302	25.250
R^2	0.651	0.774	0.782	0.783
Samples	41	41	41	41

Note: the first number in every blank is "unstandardized coefficients", and the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

After using the data of 2011, in Table 7 column (A4), we found the R square is 0.783 which means the analyses equation has 78.3% explanatory power. The variable lnDIS was negatively associated with international trade flows of China. The variable lnGDP still has positive impact on the China's trade flows and highly significant at the 1% level of significance too. Meanwhile, the variable lnECN also positively related to lnTrade and statistically significant at the 5% level. The difference with 2007 and 2001 is after doing regression analysis; we found the dummy variable APEC is

not statistically significant. But the variable lnECN always play significant role in China's trade flows. The bigger Chinese ethnic population in foreign countries, the more total volume of international trade increase in China.

5.2 The analysis result of China's export

Considering the ethnic Chinese Network has difference impact on china's import and export. I try to do the empirical analysis on the import and export respectively. Table 8 is the regressions result of gravity model of China's export in 2001.

Table 8. The regressions result of gravity model 2001(Export)

Variable	*(A1)*	*(A2)*	*(A3)*
Induced variable lnExport			
Constant	1.545	0.803	0.807
lnGDP	0.828***	0.800***	0.798***
	(7.204)	(8.485)	(8.433)
lnDIS	-0.636***	-0.467***	-0.447***
	(-4.499)	(-3.833)	(-3.602)
lnECN		0.189***	0.169***
		(4.449)	(3.512)
APEC			0.018
			(0.874)
F	39.225	45.684	34.235
R^2	0.674	0.787	0.792
Samples	41	41	41

Note: the first number in every blank is "unstandardized coefficients", and the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

From Table 8, we found the variable lnGDP has a positive impact on the China's export flows and highly significant at the 1% level of significance. And same as variable lnECN. Both of the two variables are statistically significant at 1% level. The variable lnDIS is negatively related to China's export flows and significant at 1% level.

Table 9. The regressions result of gravity model 2007 (Export)

Variable	*(A1)*	*(A2)*	*(A3)*	*(A4)*
Induced variable lnExport				
Constant	1.202	0.798	0.800	0.854
lnGDP	0.801***	0.760***	0.762***	0.746***
	(8.560)	(9.072)	(9.001)	(7.431)
lnDIS	-0.402***	-0.307***	-0.296***	-0.305***
	(-3.794)	(-3.126)	(-2.939)	(-2.865)
lnECN		0.128***	0.115**	0.119**
		(3.382)	(2.560)	(2.498)
APEC			0.010	0.011
			(0.570)	(0.619)
FTA				-0.008
				(-0.298)
F	46.444	43.281	31.949	24.930
R^2	0.710	0.778	0.780	0.781
Samples	41	41	41	41

Note: the first number in every blank is "unstandardized coefficients", and the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

The InGPD and InECN are affected positively on China's export flows through the statistical analysis according to table 9. Same as 2001, the ethnic Chinese network can increase and promote China's export flows. Distance is also affecting the China's export flows; it is negative and statistically significant at 1% level. The variable APEC and FTA are not statistically significant.

Table 10. The regressions result of gravity model 2011 (Export)

Variable	*(A1)*	*(A2)*	*(A3)*	*(A4)*
Induced variable lnExport				
Constant	1.151	0.723	0.724	1.034
lnGDP	0.777*** (6.926)	0.670*** (7.018)	0.670*** (6.898)	0.537*** (3.982)
lnDIS	-0.336*** (-2.948)	-0.202** (-2.052)	-0.201* (-1.995)	-0.212** (-2.122)
lnECN		0.181*** (4.376)	0.179*** (3.380)	0.221*** (3.678)
APEC			0.001 (0.053)	0.014 (0.663)
FTA				-0.041 (-1.414)
F	46.444	36.368	26.542	22.222
R^2	0.710	0.747	0.747	0.760
Samples	41	41	41	41

Note: the first number in every blank is "unstandardized coefficients", and the number in the ( ) is "t." *** Significant at 1% level. ** Significant at 5% level.*Significant at 10% level.

From Table 10, we can find the variable lnGDP still has positive impact on the China's export flows and highly significant at the 1% level. Same as 2007, variable lnECN is positively related to China's export flows and statistically significant. The variable lnDIS is negative correlated with China's export and statistically significant at 1% level.

5.3 The analysis result of China's import

Table 11. The regressions result of gravity model 2001 (Import)

Variable	*(A1)*	*(A2)*	*(A3)*
Induced variable lnImport			
Constant	-0.170	-0.761	-0.742
lnGDP	1.488*** (7.001)	1.465*** (7.019)	1.454*** (7.321)
lnDIS	-0.721*** (-2.759)	-0.586** (-2.173)	-0.482* (-1.851)
lnECN		0.150 (1.603)	0.046 (0.454)
APEC			0.096** (2.214)
F	30.249	21.855	19.346
R^2	0.614	0.639	0.682
Samples	41	41	41

Note: the first number in every blank is "unstandardized coefficients", and the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

The regression results of gravity model of China's import in 2001 are collected in Table 11. In this table, we can clearly find the variable lnGDP has a positive impact on the China's export flows and highly significant at the 1% level of significance. The variable lnDIS is negatively related to China's export flows and significant at 1% level. In table 11 column (A3), we found the variable APEC is positively associated with China's import flows and statistically significant at the 5% level. The biggest difference is

the variable lnECN is not statistically significant. The ethnic Chinese networks have no significant impact on China's import flows increase.

Table 12.The regressions result of gravity model 2007 (Import)

Variable	*(A1)*	*(A2)*	*(A3)*	*(A4)*
Induced variable lnImport				
Constant	0.106	-0.418	-0.403	-1.291
lnGDP	1.445***	1.392***	1.407***	1.659***
	(6.756)	(6.610)	(7.144)	(7.575)
lnDIS	-0.772***	-0.648**	-0.538**	-0.390*
	(-3.187)	(-2.628)	(-2.298)	(-1.680)
lnECBN		0.167*	0.029	-0.041
		(1.750)	(0.279)	(-0.395)
APEC			0.103**	0.081**
			(2.522)	(2.025)
FTA				0.124**
				(2.216)
F	29.622	21.840	20.343	19.025
R^2	0.609	0.639	0.693	0.731
Samples	41	41	41	41

Note: the first number in every blank is "unstandardized coefficients", and the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

Table 12 reports the similar results with Table 11. The variable lnGDP is positively related to China's import flows and statistically significant. The distance is also negatively related to China's import flows and significant at 1% level. The variables APEC, FTA are positively related to China's import flows and statistically significant. The ethnic Chinese

networks still have no significant impact on China's import flows increase.

Table 13. The regressions result of gravity model 2011 (Import)

Variable	*(A1)*	*(A2)*	*(A3)*	*(A4)*
Induced variable lnImport				
Constant	-0.124	-0.586	-0.525	-1.854
lnGDP	1.423***	1.307***	1.344***	1.918***
	(7.303)	(6.869)	(7.383)	(8.728)
lnDIS	-0.620***	-0.476**	-0.416**	-0.371**
	(-3.136)	(-2.423)	(-2.201)	(-2.280)
lnECBN		0.195**	0.062	-0.118
		(2.370)	(0.627)	(-1.201)
APEC			0.078**	0.023
			(2.190)	(0.681)
FTA				0.174***
				(3.716)
F	33.950	27.255	23.739	28.511
R^2	0.641	0.688	0.725	0.803
Samples	41	41	41	41

Note: the first number in every blank is "unstandardized coefficients", and the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

Table 13 shows similar result as table 12. We found the variables lnGDP and lnDIS still have a positive and negative role on China's import flows respectively. Both of them are significant at the 1% or 5%level. Dummy FTA is also positively related to China's import flows and statistically significant.

Compared with the result of China's export, the biggest difference is the variable ECN has no significant impact on China's import flows increase. The variable GDP positively associated with China's export and import. At the same time, the variable DIS also negatively associated with China's import and export. According the results, we can also find the promoter action of FTA in China's import flows is bigger than in China's export.

5.4 Comprehensive comparison

Table 14. The significance variables of regression result in different years (Total volume of trade)

	2001	***2007***	***2011***
lnGDP	0.821***	0.763***	0.709***
	(10.201)	(9.227)	(7.705)
lnDIS	-0.369***	-0.288***	-0.221**
	(-3.497)	(-2.929)	(-2.329)
lnECBN	0.142***	0.104**	0.179***
	(3.460)	(2.378)	(4.490)
APEC	0.037**	0.033*	
	(2.088)	(1.916)	
R^2	0.839	0.802	0.774

Note: Dependent variable lnTrade, the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

It is self evident from table 14 that the ethnic Chinese Networks keep having an important positive effect on china's trade flows. With comparing the coefficients of 2001 and 2011(0.179>0.142), we found the

promote impact of ethnic Chinese networks in 2011 is much bigger than 2001. The ethnic Chinese networks play more important role on China's trade flows increase. GDP and distance is another two main factors to affect China's trade flows. Compared the coefficients, we found the coefficient of lnDIS is keeping increasing but the lnGDP is keeping decreasing. Even though APEC not significant in 2011, it is still a factor to affect China's trade flows in the past decade.

Table 15.The significance variables of regression result in different years (Export)

	2001	***2007***	***2011***
lnGDP	0.800***	0.760***	0.670***
	(8.485)	(9.072)	(7.018)
lnDIS	-0.467***	-0.307***	-0.202**
	(-3.833)	(-3.126)	(-2.052)
lnECBN	0.189***	0.128***	0.181***
	(4.449)	(3.382)	(4.376)
R^2	0.787	0.778	0.747

Note: Dependent variable lnTrade, the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

In the export side, the ethnic Chinese networks also had a very important effect on China's export flows. Compared the coefficients of 2007 and 2011, we can know the significant role of ethnic Chinese networks impact China's export flows is getting stronger. In addition, the variable GDP is highly significant at 1% steadily. The coefficient of distance was keeping increase which means the impact of distance on China's export flows increases.

Table 16. The significance variables of regression result in different years

(Import)

	2001	***2007***	***2011***
lnGDP	1.454***	1.659***	1.918***
	(7.321)	(7.575)	(8.728)
lnDIS	-0.482*	-0.390*	-0.371**
	(-1.851)	(-1.680)	(-2.280)
APEC	0.096**	0.081**	
	(2.214)	(2.025)	
FTA		0.124**	0.174***
		(2.216)	(3.716)
R^2	0.682	0.731	0.803

Note: Dependent variable lnTrade, the number in the ( ) is "t." *** Significant at 1% level.** Significant at 5% level.*Significant at 10% level.

Table 16 shows that the coefficient of GDP and distance increased in the past decade. After 2001, Chinese government signed the free trade agreements with more countries for importing more products. The variable FTA began playing significant roles on China's import flows from 2007 and the coefficient is increasing.

We can clearly find the ethnic Chinese networks have no significant impact on China's import flows increases. As we know, a country's trade surplus means the country has an inside track in bilateral trade. According to the figure 1(in chapter 2), we can see the trade surplus of China keeping increasing from 1998. Chinese government had formulated many policies to increase export. That is why the ethnic Chinese networks have highly significant role in China's export flows.

Chapter6. Conclusion

The formation process of ethnic Chinese network was researched mostly from the angle of historical study. The formation process of modern ethnic Chinese networks is lacking on the angle of economic research. In this paper, I analyzed the role of ethnic Chinese networks from economic perspectives and bear out that the ethnic Chinese networks have a positive impact on bilateral trade.

This thesis attempts to show the economic effects of ethnic Chinese network on the basis of foreign and domestic research information. With the analysis of former researches, this thesis attempts to promote the further studies of ethnic Chinese network by emphasise on its economic function. First, we introduced the formation of ethnic Chinese network with using the qualitative economic analysis, it elucidated the operating mechanism and how ethnic Chinese network impacts China's international trade. Second, on the base of gravity model theories, we used the basic gravity model with adding some vairables and tested whether ethnic Chinese network affect attracting international trade flows of China.

Our empirical analysis was from two sides which they are import and export. According to the results, I present evidence that China's total volume of trade and China's export are positively related to the population of ethnic Chinese in the receiving country and interpreting this shows the significant role of ethnic Chinese networks in China's export flows. This

result is robust to a variety of specifications. According the data of The World Bank, China is the second biggest export country of the world in 2011. China's trade surplus has increased from late 90's, the goverment encourage larger exports in the past decade. That is the main reason of ethnic Chinese network didn't play signifficant role on China's imports. On the other hand, after more and more countries sign the free trade agreement with China, the variable FTA began playing significant roles on China's import flows from 2007. This result point out the FTA can help China increase more import flows.

Take a panoramic view of the results, we can find that ethnic Chinese networks have an economically greater positive impact on China's bilateral trade. The positive role of overseas ethnic Chinese networks in China's trade also implies that there may exist significant informal barriers to China's bilateral trade, and suggests that there is much room for improvement in China's efforts to promote the international trade. The empirical findings in this study say nothing specific about what informal barriers lead to the role of ethnic Chinese networks, even though problems with information sharing and the legal and regulatory environments are used to motivate this study. A more detailed examination in this regard is certainly worth further effort. Finally, the annual data of overseas Chinese population couldn't be found, this paper only did the regression analysis based on the data of 2001, 2007 and 2011. A more detailed examination in analysis of panel data is definitely worth further studies.

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Appendix: Raw Data

2001	Trade(10000$)	Import(10000$)	Export(10000$)	GDP(10000$)	DIS(km)	ECN(Per)	APEC
Argentina	142483	123946	18537	10204029	19243	30000	0
Australia	1043561	585057	458504	39501256	8987	454000	1
Belgium	489790	202205	287585	25279503	7981	30000	0
Brazil	446940	300302	146638	50422123	16940	100000	0
Burma	86164	13689	72475	647856	3226	2000000	0
Canada	793034	362688	430346	73466195	10476	910000	1
Chile	256535	156709	99826	7098457	19057	5000	1
Denmark	155378	63680	91698	17388083	7222	6000	0
Finland	266641	151277	115364	13518351	6340	1000	0
France	832498	425312	407186	145203030	8238	300000	0
Germany	2778827	1641642	1137185	200658762	7379	111000	0
Greece	78691	5506	73185	14605026	7629	2290	0
India	494503	227387	267116	52279846	3768	135000	0
Indonesia	793480	450835	342645	19566061	5194	7310000	1
Ireland	145959	68946	77013	12316710	8295	5000	0
Israel	141709	51765	89944	11297438	7153	4500	0
Italy	914691	431947	482744	122517696	8138	30000	0
Japan	10189984	5346600	4843384	398081954	2103	170000	1
Korea	4410257	2856801	1553456	57592891	962	30000	1
Malaysia	1427051	929630	497421	10084553	4335	5280000	1
Mexico	397862	111496	286366	64907558	12473	20000	1
Netherland	1067913	157157	910756	43780727	7844	80000	0

New Zealand	139931	80334	59597	6547778	10752	35000	1
Norway	145039	92323	52716	19192703	7043	1000	0
Panama	127638	372	127266	1227240	14345	150000	0
Paraguay	8690	787	7903	632515.2	18281	10000	0
Peru	97825	73161	24664	5677234	16660	60000	1
Philippines	525940	321716	204224	8135766	2840	2200000	1
Portugal	38359	8271	30088	13228571	9687	10000	0
Russia	1192743	840669	352074	34511044	5807	236850	1
Saudi Arabia	510689	343535	167154	18855120	6613	45000	0
Singapore	1403078	704656	698422	9058282	4457	2291100	1
South Africa	257941	126877	131064	11110086	11675	30000	0
Spain	347823	90018	257805	68629588	9241	35000	0
Sweden	270105	179103	91002	25096076	6725	20000	0
Swiss	267461	203679	63782	28665826	8098	13286	0
Thailand	855695	559960	295735	12687692	3282	6100000	1
Turkey	137783	28879	108904	23253456	7076	60000	0
UK	1139539	333596	805943	160161721	8161	250000	0
United States	9718343	2723764	6994579	1059020000	11170	2000000	1
Vietnam	326427	11589	314838	3505822	2321	695000	1

2007	Trade(10000$)	Import(10000$)	Export(10000$)	GDP(10000$)	DIS(km)	ECN(Per)	FTA	APEC
Argentina	990085	633450	356635	26076867.81	19243	43071	0	0
Australia	4383000	2584034	1798966	85051660.52	8987	669890	0	1
Belgium	1765252	497314	1267938	45961885.37	7981	9341	0	0

Brazil	2971409	1834183	1137226	136685324.4	16940	155694	0	0
Burma	207784	37814	169970	1800000	3226	1121114	1	0
Canada	3033482	1097913	1935569	142406572.9	10476	1317734	0	1
Chile	1469616	1028060	441556	17308128.82	19057	4280	1	1
Denmark	641284	182299	458985	31141760.2	7222	10396	0	0
Finland	1035850	379433	656417	24612735.72	6340	4000	0	0
France	3366845	1334105	2032740	258238973.3	8238	232547	0	0
Germany	9409722	4538293	4871429	332380741.2	7379	109247	0	0
Greece	342342	17045	325297	30543177.12	7629	20000	0	0
India	3862856	1461710	2401146	123870019.6	3768	195620	0	0
Indonesia	2499641	1239508	1260133	43221673.78	5194	7776468	1	1
Ireland	636369	192533	443836	25830743.87	8295	3460	0	0
Israel	530994	165394	365600	16711180.35	7153	8187	0	0
Italy	3138042	1021080	2116962	212718049.7	8138	145284	0	0
Japan	23595096	13394237	10200859	435632929.7	2103	606889	0	1
Korea	15985081	10375195	5609886	104923595.1	962	21956	0	1
Malaysia	4638632	2869705	1768927	19355280.28	4335	6324300	1	1
Mexico	1496940	326329	1170611	103587659.8	12473	21653	0	1
Netherland	4634239	492456	4141783	78256674.3	7844	110000	0	0
New Zealand	369792	153775	216017	13486470.59	10752	147570	0	1
Norway	381488	161476	220012	39347916.21	7043	26039	0	0
Panama	558787	789	557998	1979370	14345	130000	0	0
Paraguay	48550	1968	46582	1383752.559	18281	5104	0	0
Peru	601639	433789	167850	10723299.67	16660	1300000	0	1

Philippines	3061576	2311784	749792	14935992	2840	1170000	1	1
Portugal	221096	38464	182632	23174157.38	9687	10000	0	0
Russia	4815478	1968858	2846620	129970576.5	5807	500000	0	1
Saudi Arabia	2536697	1755968	780729	41590901.81	6613	26200	0	0
Singapore	4714398	1752368	2962030	16870575.65	4457	2687000	0	1
South Africa	1404633	742826	661807	28617183.07	11675	107500	0	0
Spain	2095841	442995	1652846	144142653.4	9241	110000	0	0
Sweden	869069	414184	454885	46251285.37	6725	19739	0	0
Swiss	944443	584398	360045	45052810.99	8098	13000	0	0
Thailand	3463812	2266469	1197343	24697687.02	3282	7123322	1	1
Turkey	1176802	129240	1047562	64715513.39	7076	40400	0	0
UK	3943179	777552	3165627	282552644	8161	311683	0	0
United States	30206716	6939061	23267655	1396180000	11170	3857774	0	1
Vietnam	1511758	322628	1189130	7101559.286	2321	1309383	1	1

2011	Trade(10000$)	Import(10000$)	Export(10000$)	GDP(10000$)	DIS(km)	ECN(Per)	FTA	APEC
Argentina	1475934	625683	850251	44604411	19243	85475	0	0
Australia	11658309	8267315	3390994	138414528	8987	870000	0	1
Belgium	2910476	1013115	1897361	51386250	7981	9005	0	0
Brazil	8423112	5239449	3183663	247665218	16940	280000	0	0
Burma	650140	167990	482150	5192500	3226	1060000	1	0
Canada	4743605	2216995	2526610	177778888	10476	1560000	0	1
Chile	3138529	2056856	1081673	25099410	19057	20000	1	1
Denmark	926005	281345	644660	33361601	7222	10000	0	0

Finland	1118119	454082	664037	26317917	6340	6141	0	0
France	5206215	2206330	2999885	277971950	8238	460000	0	0
Germany	16914401	9274397	7640004	360083333	7379	90000	0	0
Greece	430298	35361	394937	28962736	7629	7472	0	0
India	7390824	2337115	5053709	187284540	3768	120000	0	0
Indonesia	6055462	3133738	2921724	84648346	5194	8120000	1	1
Ireland	586552	369944	216608	22082324	8295	20000	0	0
Israel	977850	303770	674080	25821688	7153	8065	0	0
Italy	5126947	1757666	3369281	219235709	8138	200000	0	0
Japan	34283401	19456352	14827049	589679488	2103	680000	0	1
Korea	24562635	16270629	8292006	111447196	962	180000	0	1
Malaysia	9002270	6213671	2788599	28793435	4335	6780000	1	1
Mexico	3334446	936858	2397588	115764625	12473	60000	0	1
Netherland	6815979	866030	5949949	83607361	7844	110000	0	0
New Zealand	871801	498132	373669	15894094	10752	150000	1	1
Norway	740778	362191	378587	49106482	7043	10000	0	0
Panama	1459867	4286	1455581	3131580	14345	140000	0	0
Paraguay	129254	4449	124805	2600796	18281	5059	0	0
Peru	1250999	785671	465328	17681163	16660	990000	1	1
Philippines	3224704	1799166	1425538	22409522	2840	1410000	1	1
Portugal	396323	116179	280144	23757375	9687	20000	0	0
Russia	7927339	4036987	3890352	189908623	5807	447199	0	1
Saudi Arabia	6431724	4946754	1484970	66950666	6613	20000	0	0
Singapore	6371006	2813992	3557014	24502431	4457	2830000	1	1

South Africa	4547021	3210791	1336230	40180221	11675	120000	0	0
Spain	2727280	755155	1972125	147688194	9241	140000	0	0
Sweden	1368374	711688	656686	53927796	6725	30000	0	0
Swiss	3090855	2720833	370023	65930792	8098	10828	0	0
Thailand	6473385	3903910	2569475	34567223	3282	7510000	1	1
Turkey	1873733	312376	1561357	77477517	7076	41200	0	0
UK	5867847	1455681	4412166	244488387	8161	420000	0	0
United States	44658227	12212891	32445336	1499130000	11170	4240000	0	1
Vietnam	4020784	1111770	2909014	12367927	2321	992597	1	1