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Foreign Direct Investment and Economic Growth: Evidence from China

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Abstract

Since Chinese 'The Reform and Opening', FDI has been considered as one of the drivers to uplift Chinese economy. However, Chinese economy appear dualistic feature, that is there are a huge gap between eastern and western region while the distribution of FDI also mainly concentrates on the eastern coastal area. In addition, Chinese economy has stepped into 'New Normal' and we believe new priorities should be addressed in the new stage. Many studies have proved the positive relationship between FDI and Chinese economy, but few of them considered the different time period and in the different regions.

Hence we want to use empirical model to study whether FDI stimulate the Chinese economy during each period and whether the imbalance inflows of FDI accelerated the inequality between western and eastern economy.

We set econometric model and used the panel data from 31 provinces in China during 2001-2009 and during 2010-2016 to study the relationship between economic growth and FDI and other economic variables. We found that 1) FDI stimulates the economic growth in both periods while contributes more during 2001-2009, which indicates new requirements for economy development in the 'New Normal Stage'. 2) During 2001 to 2009, FDI has weak impact on economy in the eastern region while has crowing-out effect on the western area. To some extent, FDI contributed to the inequality between western and eastern economy. During 2010 to 2016, FDI is no longer the variable that cause the imbalance. 3) To narrow the gap between eastern, central and western regions, we must take care of different economic variables that affect the regional economy most.

Based on the empirical study results and other facts, we offer some suggestions for the 3 important player: Chinese government, Chinese enterprises and foreign enterprises. In the new stage, the priority for Chinses government is to realize the industrial structure transformation. We use German 'Industry 4.0' as an example to offer some practical path to developing high-tech manufacturing industry and producer services. In the FDI policy, Sweden regional encouragement policy could be taken as reference to encourage FDI flowing to western China. Chinses enterprises should take advantage of Internet and increase innovation capability. As

for foreign enterprises, we conducted on Chinese retail industry to shed a light on how foreign enterprises can adapt to Chinese dynamic market.

Key word: Foreign Direct Investment, Chinese economic growth, Chinese government, Industrial structure transformation

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I. Introduction

1.1 Research background and Significance of topic

In the beginning of The Reform and Opening, China has taken advantage of the huge domestic market, cheap labor cost, relatively developed infrastructure and preferential policy to attract foreign investors. Many MNEs have realized the great potential of Chinese market and then tons of FDI are flowing into China. Since 1993, China has always been the most attractive market in the developing countries and since 2002, China has been the top three countries in terms of absorbing FDI. In 2017, the actual using value of FDI is 131.04 billion dollars. FDI is a significant component of Chinese component.[1]

It is widely believed that FDI has stimulated Chinese economic growth through facilitating capital formation, supplying job opportunity, promoting international trade and other channels. From 1993 to 2016, the simple arithmetic average annual GDP growth rate is 14.74%, but with great imbalance between western, central and eastern region.
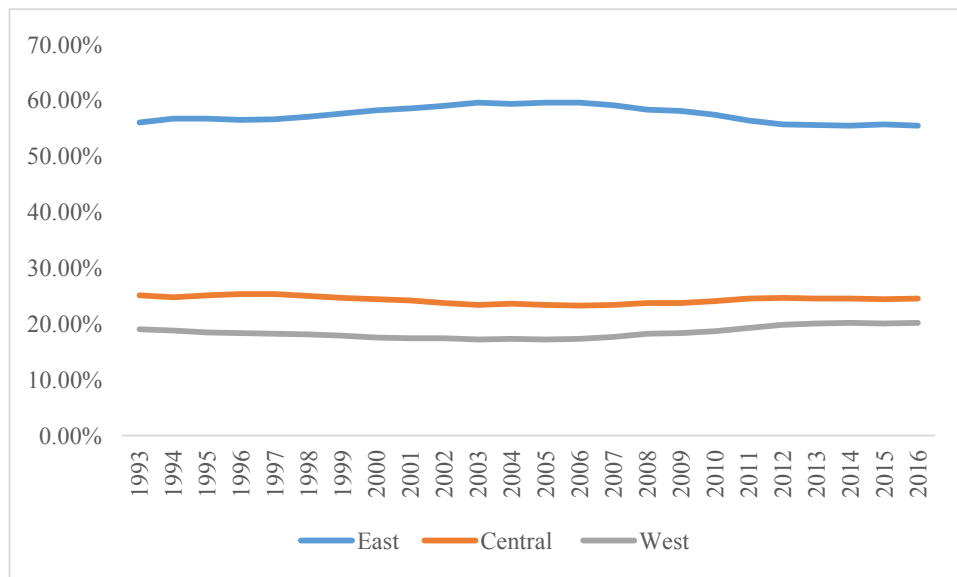
Graph 1.1 The proportion of GDP in three regions

Source: National Bureau of Statistics of China

As we can see from Graph 1.1, from 1993 to 2016, the proportion of GDP in three regions keep almost steady.

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1 Source: National Bureau of Statistics of China

Eastern area takes up around 55% of gross domestic production and central area ranks N.2. Compared with 1993, the proportion of GDP in western area decreased 1.13 percentage. We can clearly see the centralization of economic activities. From GDP per capita, we can also observe this trend.

However, if we look at the yearly growth rate of GDP as Graph 1.2 shows, we can see Chinese government strategic policy like 'Western Development' and 'Rise of Central China' have worked out in some ways.
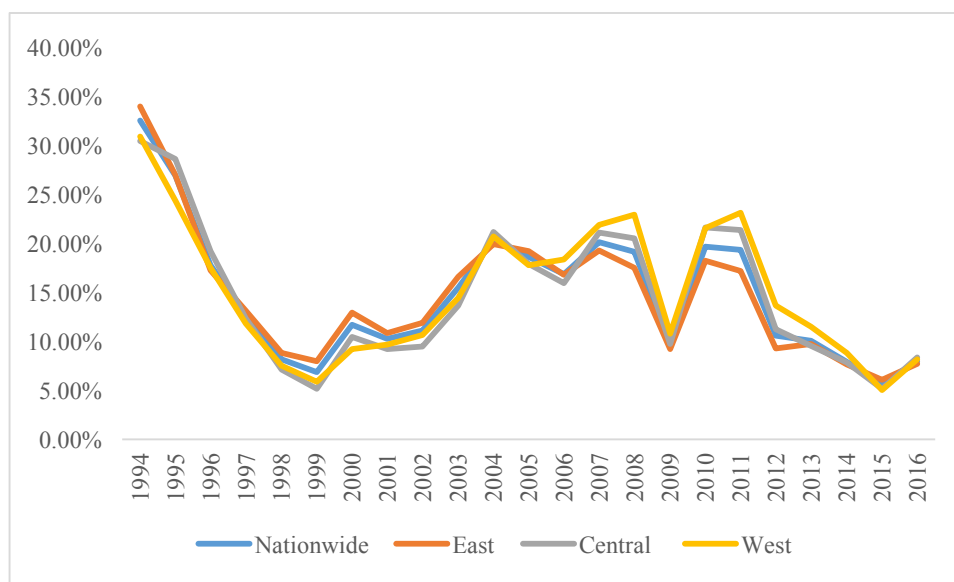
Graph 1.2 The annual growth rate of GDP in three regions

Source: National Bureau of Statistics of China

From 1994 to 2003, the eastern China has always been the most potential market with the fastest growth rate of GDP and the central and western China also develop fast under the government support. In 2016, the annual growth rate of central, western and eastern China is 8.35%, 8.14% and 7.66% respectively.

As we can see from section III, the location distribution of FDI also indicates the imbalance and the southern area takes up more than 80% of foreign capital. Even though the 'dualistic nature' of Chinese economy are the joint product of many attributes: history, natural conditions, government opening policy, location advantage and other factors. I believe the imbalance of FDI distribution also exacerbates the economy imbalance. In addition, in terms of annual growth rate of FDI, the history of using FDI also experiences different stage which shows the emphasis shift of government policy. In 2017, with the release of ' Notice on some measures to enlarge opening-up and actively use foreign capital' and 'Notice on several measures to

promote the growth of foreign capital ', Chinese government show its determination in attracting FDI but its focus on the quality of FDI at the current stage . So research on the relationship between FDI and economic growth in different region during different period help us acquire the deep understanding of new requirements of absorbing FDI at present and have theoretical significance in offering suggestions to government on how to increase the efficacy in attracting and absorbing FDI in central and western area. I also have a chance to take economic theory into account when setting the empirical model, for example, Endogenous Growth Theory.

Another concern rises now. With Chinese fragmented market and fast upgradation of consumer's demand, many MNEs also have some pain in operating in China. For example, as the giant in FMCG industry, P&G kept its glory since entering China in 1988. However, from 2014 to 2015, P&G sales revenue declined and its market share was cannibalized by some Chinese local brands. After taking some significant measures, its performance recovered in 2017 but further adaption is still needed. In the Suggestion Section, I am also trying to shed a light on how to adapt to Chinese market from MNEs' perspective which might give some implications for further study.

1.2 Literature review

FDI is widely regarded as an important engine to stimulate domestic economy in the host country. Many scholars have conducted the research related to the relationship between FDI and economic growth, however, result varies: some have found that a positive relationship exists while some found a weak or negative or even no relationship. The use of different methods and research on different regions and countries generated those heterogeneous results. Balasubramanyam et al. (1996) investigated with Endogenous Growth Theory and used cross-section data from 64 developing countries characterized by different trade policy. The study indicated a stronger growth enhancing effects of FDI in countries which encourages an outwardly oriented trade policy than it is in countries which adopted an import substitution policy. de Vita and Kyaw (2009) found that there is a positive effect of FDI on economic growth in developing countries with lower middle- and upper middle-

income but not so in those countries falling within the low-income classifaction through system GMM estimation conducted on 126 developing countries from 1985 to 2002. Overall, the research suggest that if developing countries want to capture the growth enhancing effects of FDI, they must reach a minimum level of economic development and absorption capacity. Wang and Wong (2009) distinguished FDI into 2 major components: greenfield investments and cross-border mergers acquisitions (M&A) since they believe that using total FDI might blur its effects which has been shown in the previous literature. They used data from 84 countries from 1987 and 2001 and suggest that the growth effect of greenfield investment is significantly positive, while that of M&A is negative. In addition, there is no limitation on the level of human capital, if the host country captures the growth enhancing effect of FDI from greenfield investment, while the host country must reach a minimum level of human capital for M&A to impact on economic growth positively. Iqbal Chaudhry.M, Mehmood.A and Saqib Mehmood.M(2013) used the ARDL co-integration approach to study the relationship between FDI and economic growth in China and suggest that the net FDI contributes to economic growth in the host economy, however, the contribution of net FDI strongly rely on the prevailing economic environment. Their research also suggest other variables as the determinants for uplifting Chinese economy, i.e. GFC (Gross fixed capital formation) and GFCE(General government final consumption expenditure). Chinese scholars also have conducted many research in terms of the relationship between FDI and economic growth. We can divide those research into two categories: the first is to set up the econometric model and use the data (FDI and GDP) to probe the relationship. For example, Yang (2006) used data and 1985-2004 and set the regression equation between FDI and GDP and found that the two variables are highly correlated. Wang (2009) used Granger Causality Test and ADF test to study the relationship between FDI, domestic consumption and economic growth and suggested that FDI has made positive contribution to Chinese economic growth but the effect is limited compared with that of domestic investment and consumption. Yao (2012) studies the relationship between FDI in service sector, value added of the service sector and GDP through VAR model. He suggests that there is a positive correlation between the three variables and the growth

enhancing effect of GDP on the value added of the service sector is significantly stronger than the effect of FDI in service. FDI is the Granger cause of the economic growth, however, GDP is not the Granger cause of FDI in service sector. The second is to take advantage of intermediate variable, i.e. human capital, technology to study the relationship between FDI and economic growth indirectly. For example, Wu and Chen (2003) endogenized the agglomeration effect of FDI into traditional C-D production function to probe the relationship between FDI and economic growth. Their research suggested that the factor inputs of FDI have stimulated Chinese economic growth for the recent years and the contribution of labor input is 5 times more than that of capital input. They also suggested a substantial correlation between high-quality human capital input and economic growth. Starting from Cobb-Douglas production function, Zhang (2004) used panel data from 28 Chinese provinces from 1984-2002 to study the impact of FDI on economic growth. The research suggested that the transmission mechanism of the impact is multi-channel: FDI not only accelerates the capital formation in the host countries directly, but also have indirect spillover effect, that is, technology diffusion, increase in human capital and effect on institutional change, and domestic capital is more powerful in Chinese economic growth compared with foreign direct investment.

Chinese scholars also notice the imbalance of Chinese economy and FDI distribution. Some analyzed the factors that lead to the unbalanced geographical distribution, for example, Shen and Tian (2002) suggested that stock of human capital influences the size and location choice of FDI significantly in additional to capacity of the market, cost of labor and level of marketability. Under the framework of New Economic geography, Huang and Chai (2006) used the Chinese provincial data to analyze the location choice of FDI. The research suggested that the tradition FDI location variables, such as labor cost and preferential policy could not fit well in explaining FDI distribution in China, however, variables derived from New Economic geography, i.e. local technology innovation capability, market size and the history of using FDI show significance. Zheng and Wang (2011) studies the topic from foreign enterprises level. They believed that the scale heterogeneity of foreign enterprises determines their market capacity of investing abroad, such as market competitiveness, risk

tolerance and bargaining and game capability with the host countries. They used Taiwanese enterprises in IT industry in Jiangsu province as sample and set empirical model, and suggested that due to their own limitations, for small and medium enterprises, spatial concentration is more apparent, while giant MNEs are the pioneer of FDI agglomeration not the follower and the characteristics of spatial concentration is relatively weaker. Sometimes, these MNEs might choose places that is away from competitor concertation area. Some scholars study the influence of FDI on regional economic development, for example, Wei (2002) used the data from 1985-1999 to study the relationship between FDI and Chinese regional economic growth and suggested that FDI could explain 90% of the difference of GDP growth rate between eastern and western area in China. Yan and Liu (2010) used econometric analysis approach to prove the FDI had deteriorated the imbalance of Chinese. Yang and Jiang (2014) studied the relationship from industry perspective. They used the panel data from 1997 to 2011 and suggest that FDI as the direct capital form has negative impact on economic growth of the secondary and tertiary industry in the southern part of China and has little impact on that in the central and western China.

II. The theoretical basis of FDI

2.1 The definition of FDI

According to International Monetary Fund, FDI is defined as 'a category of international investment that reflects the objective of a resident in one economy (the direct investor) obtaining a lasting interest in an enterprises resident in another economy (the direct investment enterprises)'. FDI is different from international indirect investment which is largely comprised of stock and securities in two ways: FDI emphasis the existence of long-term relationship between the foreign investors and the invested corporations in the host economy and also pays much attention to the actual control over the management of the enterprises. Nowadays, MNEs has become the main form of FDI. In ECOSOC's definition, multinational enterprises have monopolistic status in the home country and establish subsidiary or take a stake in the host enterprises through direct capital investment, technology transfer and other direct investment activities. According to IMF's Balance of Payment Manual, the ratio of investments from MNEs takes up over 25% of total capital from the host country, and then, the enterprises can be defined as foreign direct invested enterprises. In the analysis below, in order to calculate easily, I defined the direct investment from Hong Kong, Macao and Taiwan also as FDI and the corresponding enterprises as foreign enterprises according to the statistical caliber set up by Chinese National Statistics due to the different market operational mechanism.

2.2 The theoretical basis

2.2.1 Economic growth theory

For the host countries, the main purpose of introducing foreign capital is to stimulate domestic economic growth. So Economic growth theory is one of the theoretical basis when we discuss FDI. According to the evolution of economics, the economic growth theory can be divided as classical, neoclassical and endogenous growth theory.

The main representatives of classical theory are Adam Smith, David Ricardo, John Stuart Mill and other economists. The school believes that the main driver of the economic growth over a certain period is the

formation of capital. In the long run, investment can stimulate social need and then push enterprises to improve production capability and supply job opportunity.

Neoclassical growth theory studies the economics from a new perspective and the most typical one is Solow Growth Model. He assumes that the society only produce one kind of product, production factors (labor and capital) can substitute each other and emphasized the importance of market mechanism in the economic growth. The model indicates in the stationary equilibrium, the long-term economic growth only has level effect, but not rate effect. The main drawback of this model is: it is impractical to assume labor and capital can substitute each other and realize equilibrium growth. Solow admitted the importance of technology, but considered it as exogenous variable in the model, which makes the model lack of efficacy in explaining some economic growth facts.

Different from neoclassical theory, endogenous growth theory relaxes some assumptions and endogenizes related factors. Arrow(1962), R.Lucas(1988) and other scholars have some research on the question. They believe that endogenous technological progress is the determinant among other factors that stimulate the economic growth: on the one hand, society and corporations can invest in the labor through education, traning and other learning activities to get high-quality (high-productive) human capital; on the other hand, they can also realize physical capital accumulation alongside technological progress through innovation and creation, research and development. These improvements enable the endogenesis of technical progress, human capital and other factors. These economists believe that with the technological progress, the factor returns increase correspondingly and there is a positive correlation between the long-term growth rate and technological progress. However, the new economic growth theory evolves into dynamic model from static assumption since R.Vernon(1966) put up with Product Life Cycle, for example, South-North trade mode developed by P.Segeratrom. Endogenous growth theory is one of the theoretical basis when I construct the empirical model.

2.2.2 International Investment Theory

The history of international direct investment can be traced back to the middle 1800s, but tons of this economic

activities spring up after World War, especially in 1960s, cross-border investment activities carried by multi-national enterprises surged which raised concern among western economists. They have done many in-depth research on the determinants of investing abroad, location choice and related fields. OFDI (outward foreign direct investment) theory has become the important component of Western economics. Meantime, with the independence of developing countries, they might encounter with deficiency of savings, shortage of foreign exchange reserves and other problems in developing domestic economy. Development economists start from the host country to study on the necessity and possibility of developing countries to use FDI. The classical International Investment theory includes Monopolistic Advantage Theory, Internalization Theory, Eclectic Theory of International Production and Theory of Comparative Advantage.

Monopolistic Advantage Theory was put up by American economist Stephen Hymer and further developed and expanded by C. P. Kindleberger. The assumption of perfect competition of traditional international capital movement theory is unrealistic in the business world. He believed that the effect of product differentiation, scale economy, technology monopoly, tariff and other factors lead to an imperfect competition market and monopoly is the main form in the imperfect competition. He contributed the monopolistic advantages owned by American corporations as the determinant that prompts MNEs to invest abroad. These advantages include advanced technology, advanced management experience, abundant capital, global reputation, scale economy and so on. The conclusion of Monopolistic Advantage Theory is the combination of monopoly position and advantages are the mainspring for MNEs to invest abroad. Monopolistic Advantage Theory was derived from tons of research on cross-border investment activities of American MNEs after World War II and offer a new solution to further study. However, there are still many area remaining to be explained, for example, the outward FDI from developing countries to developed countries.

Internalization Theory is the further development of early Monopolistic Advantage Theory. The main representative of the theory is British scholar Peter.J.Buckley, Mark Casson and Canadian scholar

A.M.Rugman. They believe the imperfect competition not only exists in the end-product market but also exists in the intermediate market. Intermediate product not only includes raw materials and components, but also encompasses the knowledge shown by technical patent and human capital. The special characteristic, market structure and significant position in modern enterprises management of knowledge products give the enterprises the strongest motive to internalization in terms of knowledge product market: on the one hand, knowledge product provides monopolistic advantage; on the other hand, it is difficult to price the intellectual product due to the incompletion of intermediate market. So MNEs could take advantage of internalization to transfer pricing and maintain knowledge and technology monopoly to avoid extra transaction cost due to externalization of knowledge market. Internalization also might generate cost and when the benefit of internalization exceeds the cost, MNEs will internalize and invest abroad. Internalization Theory studies the international division of labor and production between enterprises and explain the motive of foreign investment, however, it could not explain the location choice when MNEs do business abroad.

British economist John H. Dunning proposed Eclectic Theory of International Production. He suggested that there are three advantages that determine the investment activities abroad of MNEs: ownership advantage, internalization advantage and location advantage. Dunning believed that ownership advantage, that is intangible assets and scale economy advantage owned or acquired by enterprises, which are not possessed by local firms in the host countries, is fundamental for MNEs to invest abroad. Dunning divided ownership into transferable component, i.e. information and proprietary technology and non-transferable part, i.e. the scale of corporation. The capability of MNEs engaging in the foreign direct investment is determined by ownership advantage. Internalization advantage lies in that MNEs take advantage of internalization of owned assets. The motive for MNEs to internalize its ownership advantages is to avoid negative effect from the external incomplete competition market, realize the optimal allocation of resources and maintain and exploit monopoly position brought by ownership advantage. Location advantage is another significant factor considered when investing abroad, which refer to the beneficial factors offered by the host countries to

attract inward FDI, for example. resources superiority, the advantage of labor cost and institutional

advantage of the host countries, i.e. politics and law, market size, infrastructure and so on. Eclectic Theory of

International Production is the most complete and accepted theory so far to investigate the determinants of

MNEs' global production and try to explain the whole involved economic activities of MNEs.

Through analyzing the outward FDI of Japanese corporations, Japanese scholar Kiyoshi Kojima derived

Theory of Comparative Advantage from the law of comparative advantage. His theory is also known as

Marginal Industry Expansion Theory. He suggested international investment theory should also study the

comparative advantage of the industry in the home economy. Kojima analyzed the outward FDI of Japanese

corporations and found out that the industries transferred to host countries are not competitive in Japan,

however possess comparative advantage in other Asian countries. The host countries might take advantage

of the capital, technology and management experience brought by Japanese enterprise, while Japan could

concentrate on the development of more competitive industries domestically, which enlarges the bilateral

trade due to the complementary relationship. Marginal Industry Expansion Theory explains the FDI based on

the vertical labor division, while the boundedness of the theory is the lack of efficacy in explaining the

investment between developed countries which is featured by horizontal labor division and that neglect the

willingness and potential of developing countries to develop high technology industry.

2.2.3 The theoretical basis of developing countries absorbing FDI

In the development economics, many scholars analyzed the necessity of developing countries to exploit FDI.

For example, R.Harrod suggested that FDI could be used to increase the saving rate; Ragnar Nurkse believed

the indirect an direct benefits of FDI could accelerate the capital formation. The most classical one is Two-

gap Theory developed by Hollis B. Chenery and Strout. They believed that there is a gap between the

resources needed by the developing countries to realize the economic objectives and the domestic maximum

supply and absorbing external resource could make up the gap. Two-gap model suggested foreign capital can

be used to make up the foreign exchange gap and savings gap in the developing countries, which could

enhance the level of domestic investment and promote economic growth. Two-gap theory emphases the significance and necessity of introducing foreign capital, however, it just focuses gross demand for foreign resources but neglect the structure of needed resources and negative impact of foreign capital.

Hirschman believed that even though the scarcity of resources limits the economic development of developing countries, the most significant limitation is technology, that is, there is the third gap in addition to savings and foreign exchange: technology, management and entrepreneur, which could not make up by domestic resources but must be introduced from foreign countries. After all, the developing countries should also introduce foreign appropriate technology, advanced management knowledge and talents. Based on the three-gap model, some development economics put up with four-gap mode, that is, tax gap should also be filled up with foreign resources.

These 'gap' model have the theoretical significance when developing countries introduce the foreign direct investment.

Since 1980s, with the closer connection between different economies, the investment activities in foreign countries soared, which has facilitated the process of economic globalization. The fast development of FDI not only increases the resources allocation efficiency in home countries, but also drives the rapid economic growth in host countries. In the early 1978, Chinese government has launched many policies directed at foreign investment to encourage FDI inward, and the mass market and cheap labor cost in China has attracted millions of investors abroad. The foreign companies flew into China quickly and set up operations. According to UNCTAD, China has become the largest FDI recipient country by 2014. As we can see from Graph 3.1, the actual using volume of FDI in China has experienced sharp increase from 1983 (9.2 billions of dollars) to 2016(1260.0 billions of dollars). However, the annual growth rate fluctuated during different time period which reached the peak in 1991 (152.1%) and at the its lowest level in 1998(-11.3%) under the influence of Asian financial crisis.
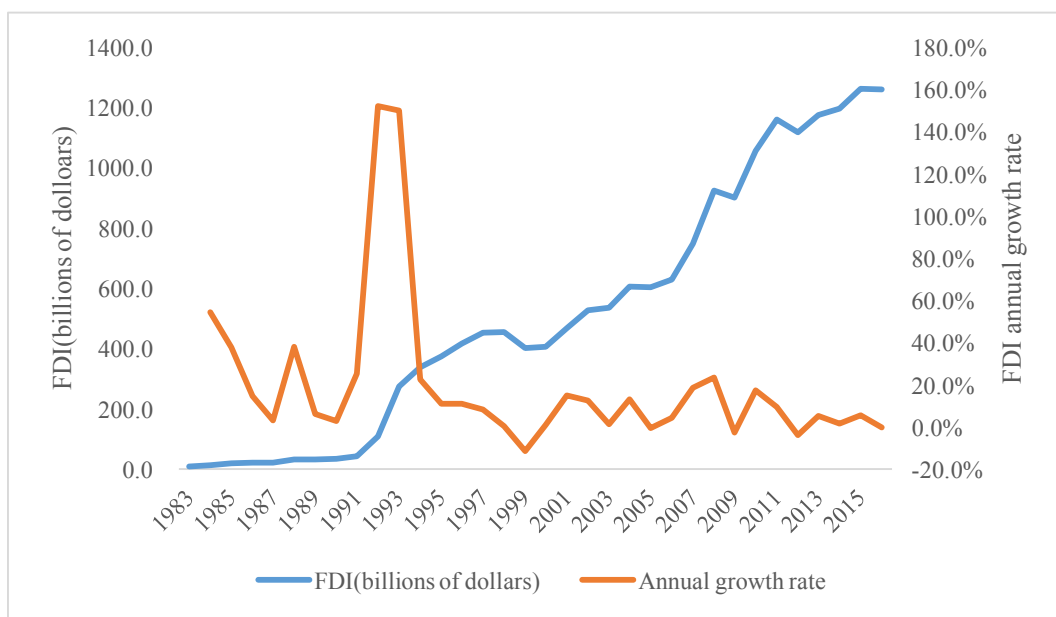
Graph 3.1 the real using volume of FDI from 1983-2016

Source: National Bureau of Statistics of China

So take into accounts the absolute value of FDI, the annual growth rate, government policy and macro economy environment, we can divide the development stage of FDI in China into four time period.

Period 1 (1983-1991) Start-up period

In the beginning of Chinese Reform and Open, foreign investors tended to hold conservative attitudes towards Chinese investment environment. The total value of inward FDI is relatively small and the absorbing efficiency of host economy is quite low. So the Chinese government has enacted preferential policy in tax, tariffs and other related field to attract more foreign investors and also accelerated the opening pace, for example, defined the 14 coastal open city to explore the possible approach to stimulate foreign economic and technological exchange in 1984 which has shown great efficacy in attracting FDI. The annual growth rate is 54.3% in 1984. However, due to some political reasons in 1988-1990, the inward FDI flow declined but recovered in 1991. During this period, the direct positive impact on China economic growth from FDI is relatively low but the foreign invested corporations has a strong demonstration effect.

Period 2 (1992-2000) Rapid growth period

In 2000, the actual using value of FDI increased by 269.9% since 1992 and reached to 407.2 billions of dollars which is much more than 43.7 billions of dollars in 1991. The main reasons are as follows, firstly, Chinese Reform and Open has entered a new stage and established the socialist market economic system as the Reform target. The open area has stretched into central China and more and more preferential policies has been launched by each level of government to encourage FDI inward. Secondly, in the 1990s, as American economy soared and the economic globalization deepens, the global surplus capital is hunting for new potential market. Even though, the FDI has fluctuated during 1997-1999 due to Asian Financial Crisis, FDI indeed contributes a lot to the fast growth of Chinese economy.

Period 3 (2001-2009) Fast growth period

China has officially joined WTO in 2001which marked the new stage of Chinese openness and government keep consummating polices and regulations which improves the investment environment and increases the market transparency. FDI enterprises on the mainland enjoy national treatment. In 2004, Chinese government launched 'Measures for The Administration on Foreign Investment in Commercial Fields' which denoted there is barely no longer any restrictions on policy and district in service trade. The annual growth rate of FDI from

2001 to 2009 are mostly above 10% except some special years affected by global macro economy situation.

Period 4 (2010-now) Slow but stable growth period

In 2010, the real using volume of FDI has reached 1000 billions of dollars for the first time. However, the annual growth rates are mostly below 10%. In 2013, President Xi proposed that Chinese economy has entered into 'New Normal' period and face the challenge on upgrading the industry structure. With the increasing labor price, China may not be the priority when multi-national enterprises invest in labor-intensive operations.

3.1 FDI location choice in China

The main driver for MNEs to invest abroad is seeking profit. However, foreign investment activities are limited not only by their own conditions but also by the economic level, political situation, degree of openness and other factors of host country. Due to different geographic conditions in China, Chinese government adopted different policies between southern, central and western area. The southern part of China became the earliest open area and enjoy many favorable policies which makes the huge imbalance between southern area and central, western area in absorbing foreign capital.

According China National Statistics Bureau, the provinces are divided as follows. This classification will also be applied when doing the empirical study in the following.

Table 3.1 The geographic classification of Chinese provinces

Source: National Bureau of Statistics of China

Southern area	Liaoning, Beijing; Hebei; Tianjing, Fujian, Zhejiang, Shandong, Shanghai, Guangdong, Jiangsu, Hainan;
Central area	Heilongjiang, Shanxi, Henan, Hunan, Jiling, Anhui, Jiangxi, Hubei;
Western area	Neimenggu, Qinghai, Shanxi, Gansu, Sichuan, Guangxi, Guizhou, Xinjiang, Chongqing, Yunnan, Ningxia, Xizang

Since some data related to real using value of FDI is missing, I use the value of total investment of foreign invested enterprises to show the pattern as we can see in the following graph.
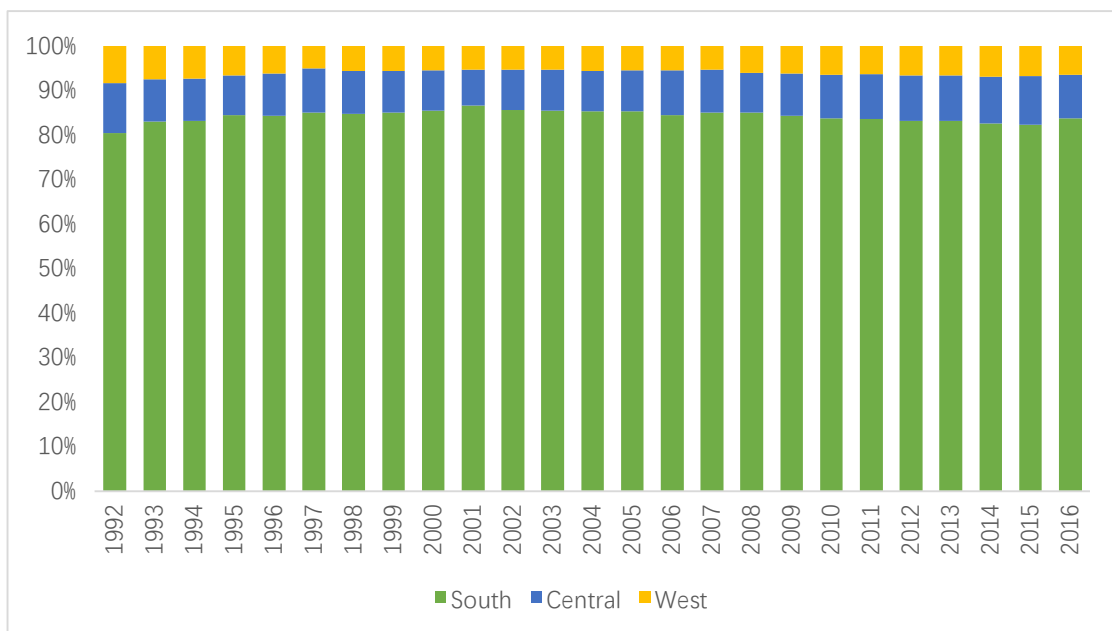
Graph 3.2 the proportion of total investment of foreign invested enterprises from 1992-2016

Source: National Bureau of Statistics of China

The southern area in China takes more than 80% of foreign capital while the proportion of foreign investment absorbed by western area is increasing slowly year by year. By 2016, the amount of total investment of foreign invested enterprises has reached to 490,608 in the central China, 327,486 in the west respectively which are much more than 38 times of those in 1992. The central and western China still have great potential in attracting FDI. However, from the discussion about the industry selection below, we can clearly see the FDI inclination towards service sector. Eastern China has accumulated the competitive advantages over market environment, industrial matching capacity and talent pool and the labor cost advantage in western area weakens. In addition, with Free Trade Zones launched successively in the east, eastern area goes ahead again in terms of government policy. The distribution of FDI in location will continue polarization in the future.

3.2 FDI industry selection

It has been more than 30 years since Deng Xiaoping's South Talks. The FDI inward (in value) is increasing annually and with the strategic adjustment of the economic structure accompanied by related government policies inclination, FDI has shown different trends towards industry selection.

Table 3.2 Proportion of industry distribution from 2001-2016

Year	Primary industry		The secondary industry		Tertiary sector	
	FDI($10 thousand)	Proportion	FDI($10 thousand)	Proportion	FDI($10 thousand)	Proportion
2001	89873	1.92%	3479795	74.23%	1118132	23.85%
2002	102764	1.95%	3946489	74.82%	1225047	23.23%
2003	100084	1.87%	3917919	73.23%	1332497	24.90%
2004	111559	1.84%	4546037	74.98%	1405404	23.18%
2005	71826	1.19%	4469243	74.09%	1491030	24.72%
2006	59945	0.95%	4250660	67.45%	1990749	31.59%
2007	92407	1.24%	4286105	57.33%	3098233	41.44%
2008	119102	1.29%	5325624	57.64%	3794818	41.07%
2009	142873	1.59%	5007582	55.62%	3852817	42.79%
2010	191195	1.81%	5386037	50.94%	4996292	47.25%
2011	200888	1.73%	5574870	48.05%	5825342	50.21%
2012	206220	1.85%	5245768	46.96%	5719626	51.20%
2013	180003	1.53%	4956886	42.16%	6621731	56.31%
2014	152227	1.27%	4394333	36.75%	7409596	61.97%
2015	153386	1.21%	4359480	34.53%	8113794	64.26%
2016	189770	1.51%	4021285	31.91%	8389087	66.58%

As we can see from Table 3.2, the proportion of FDI flowing to primary industry keeps steady (around 1.5%) and from 2001 to 2005, foreign investment in the secondary industry accounted for more than 70% of total FDI in actual use, and mainly focused on manufacturing industry. However, the absolute predominance has declined annually since 2006, correspondingly with the rise of service sector. In 2011, FDI in tertiary industry exceeded that in the secondary industry which accounted for more than 50% of disbursement of foreign capital for the first time. Foreign investors have found the great opportunity in Chinese service sector. And the hottest area in service sector in 2016 is retailing, finance, real estate and leasing and commercial services.

However, if we look into detailed industries, manufacturing and real estate are the top 2 industries in terms of FDI inward, with 28.2% and 15.6% of total actual using of FDI respectively in 2016[2]. By the end of 2017, the

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2 Source: National Bureau of Statistics of China

number of newly foreign invested manufacturing enterprises is 4986 with year-on-year growth of 24.3%. Manufacturing industry is still the hottest area in attracting foreign investors where we have observed the structural changes. In 2017, the actual using value FDI in high-tech manufacturing[3] is 66.59 billion yuan and has increased by 11.3% in terms of year-and-year growth.[4] The number of capital-intensive and technology-intensive projects from America and Europe have increased significantly which includes many well-known MNEs like BMW and Siemens. The trend indicates that Chinese government focuses on the quality of FDI instead of quantity at the present stage. Chinese government launched the strategic policy 'Made in China 2025' and 'Notice on some measures to enlarge opening-up and actively use foreign capital' to encourage MNEs to invest in high-end, eco-friendly and intelligent industry. Chinese government considers the industrial structure upgrade as the new engine of Chinese economic growth.

3.3 Sources of FDI
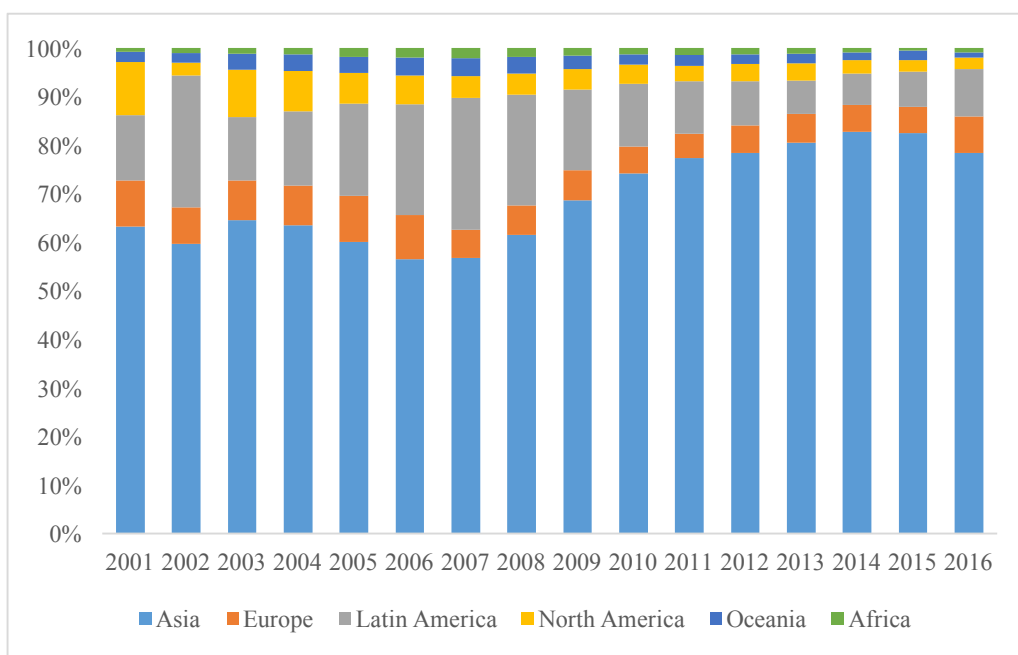
Graph 3.3 the proportion of sources of FDI from 2001-2016

Source: National Bureau of Statistics of China

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3 Chinese national statistics bureau set up high-tech industry classification based on 'Statistics Law of the People's Republic of China, 'National Industries Classification' and related international standards. The classification defines high-tech industry as the manufacturing industry with relatively higher and intensive input of R&D and includes six general categories: Pharmaceutical Manufacturing, Aerospace, spacecraft and equipment manufacturing, Electronic and communication equipment manufacturing, Computer and office equipment manufacturing, Medical Equipment and Instrumentation manufacturing and Information Chemicals Manufacturing.

4 Source: Chinese Ministry of Commerce

As we can see from Graph 3.3, Asia has been the major source of FDI inward since 2001 with the average proportion above 60%. According to the data released by China's Ministry of Commerce, in 2017, the actual investment made by the top 10 countries and regions accounted for 95.1% of the country's total.
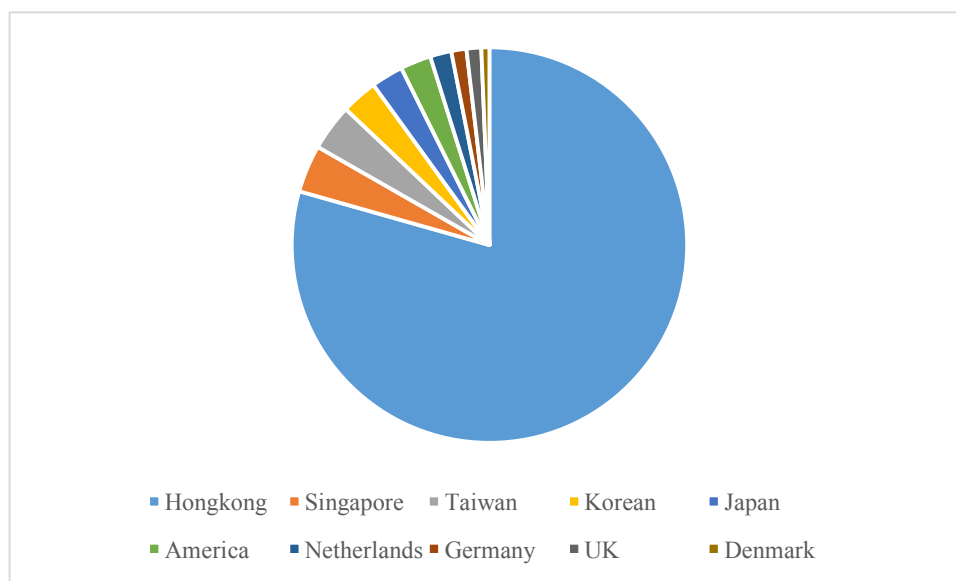
Graph 3.4 the top 10 countries and regions in the actual FDI

Source: Chinese Ministry of Commerce

As Graph 3.4 indicates, Hong Kong is the largest sources of FDI all the time. Asia countries and regions contribute the most with supplement from European countries and America; ethnic Chinese contribute more than other foreign investors.

3.4 The problems in current FDI situation

From the characteristics we analyzed above, we can identify several problems existing in the current FDI situation.

Problems 1: High pressure on attracting foreign capital

According to the '2017 World Investment Report' published by United Nations Conferences on Trade and Development, the FDI flowing to Asian developing regions have decreased by 15% in 2016. The actual value of using FDI has decreased 2% in China in 2016. America and British ranked NO.1 and NO.2 in terms of inward FDI and the value of FDI flowing to United Statas is three times more than that flowing to mainland China. The FDI to America in 2016 is 391 billion dollars and the FDI to mainland China plus that

to Hong Kong is 242 billion dollars. With the American 're-industrialization' strategy, British rejuvenation and other developing countries further opening markets, China bear high pressure on attracting and absorbing high-quality FDI.

Problem 2: the imbalanced distribution of FDI

As we analyzed above, the majority of FDI is flowing to eastern area. Open market environment, mature infrastructure, advanced associated industries, talents and preferential policy in the eastern region may enlarge the gap, which may intensify the economic polarization.

Problem 3: 'de-industrialization' of FDI

As we mentioned above, FDI in the service sector has surpassed that in the secondary industry. But the majority of increase in the tertiary industry may attribute to the increase in the real estate industry, which increases the bubbles in Chinese real estate industry and has negative impact on healthy economic growth in the long run.

<center>IV. Empirical model and regression</center>

In order to investigate the relationship between economic growth and FDI and other economic variables during different time period, and compare the difference between the southern, central and western area in China, and also learn from related economic theory and previous studies and consider the availability of data, I set the empirical model as follows:

$$GDP_i = \alpha + \beta_1 INFRA_i + \beta_2 OPEN_i + \beta_3 L_i + \beta_4 FDI_i + \beta_5 EDU_i + \beta_6 K_i + \beta_7 ST_i + \varepsilon_i \quad (1)$$

where GDP= Gross Domestic Product (when the regression is carried on national level) or Gross Regional Domestic Product (when the regression is carried on provincial level)

INFRA= tonnage mileage by all means of transportation which indicates the infrastructure condition

OPEN= total export-import volume which indicates the level of open market

L= quantity of urban employment

FDI= Foreign Direct Investment

EDU= enrollment of higher education which indicates the quality of human capital

K= Fixed Capital investment which indicates the investment environment

ST= the added value of the tertiary industry which indicates the industry structure

In order to eliminate the multicollinearity of the function, I do the logarithmic transformation on the variables:

$$INGDP_i = \alpha + \beta_1 ININFRA_i + \beta_2 INOPEN_i + \beta_3 INL_i + \beta_4 INFDI_i + \beta_5 INEDU_i + \beta_6 INK_i + \beta_7 INST_i + \varepsilon_i$$

(2)

I will start from related date from two time period (2001-2009 and 2010-2016) to compare between different regions and also insert a variable ST_i to investigate the effect of industrial structure. During the empirical analysis, we combine the data from provinces with time, which is known as Panel Data. Panel Data are multi-dimensional data containing individuals (in our case, provinces), indicators and time period. Panel data increases the degree of freedom of sample and are more accurate than other liner regression model.

4.1 Data sources

The data comes from 'China Statistical Yearbook' over the years, National Statistics Bureau database and CNKI database. The unit of FDI and total export-import volume is one hundred million RMB which is calculated by dollars plus exchange rate. Exchange rate is calculated by the weighted average of daily exchange rate published by People's Bank Of China.

4.2 Regression Analysis

4.2.1 F test and Hausman Test

On the national level, the data is short panel. Firstly, we will use F statistic test to decide the regression model: pooled regression or individual fixed effects regression. We assume H_0: the intercept of all sections is same, that is pooled regression model. If P is lower than 5% significance, we will reject null hypothesis, that is we choose fixed effects regression.

```
. xtreg lnD lnC lnE lnTS lnG lnopen lnEDU lnFDI,fe

Fixed-effects (within) regression            Number of obs     =        278
Group variable: cntry                        Number of groups  =         31

R-sq:  within  = 0.9675                       Obs per group: min =          8
       between = 0.8210                                      avg =        9.0
       overall = 0.8409                                      max =          9

                                              F(7,240)          =    1021.02
corr(u_i, Xb)  = 0.1957                       Prob > F          =     0.0000
```

lnD	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lnC	.1074696	.0259128	4.15	0.000	.056424	.1585152
lnE	.4220616	.024954	16.91	0.000	.3729047	.4712184
lnTS	.0388713	.0143299	2.71	0.007	.0106429	.0670996
lnG	.2313391	.0702269	3.29	0.001	.0929993	.369679
lnopen	.1012173	.0241188	4.20	0.000	.0537056	.1487289
lnEDU	.0948541	.0396199	2.39	0.017	.0168069	.1729013
lnFDI	.0524243	.0130765	4.01	0.000	.0266649	.0781837
_cons	1.672714	.3828434	4.37	0.000	.9185519	2.426876

```
sigma_u |  .4436899
sigma_e |  .0812605
    rho |  .96754576   (fraction of variance due to u_i)

F test that all u_i=0:     F(30, 240) =     64.77            Prob > F = 0.0000
```

Graph 4.2.1 F Statistic Test on national level during 2001-2009

(1) 2001-2009 National: F test that all u_i=0: F(30, 240) = 64.77; Prob > F = 0.0000. Reject H_0.

(2)2001-2009 East: F test that all u_i=0: F(10, 81) =180.22; Prob > F = 0.0000. Reject H_0.

(3)2001-2009 Central: F test that all u_i=0: $F(7, 57) = 23.20$; Prob > F = 0.0000. Reject H_0.

(4)2001-2009 West: F test that all u_i=0: $F(11, 88) = 6.45$; Prob > F = 0.0000. Reject H_0.

(5)2010-2016 National: F test that all u_i=0: $F(30, 131) = 190.42$; Prob > F = 0.0000. Reject H_0.

(6)2010-2016 East: F test that all u_i=0: $F(10, 39) = 27.12$; Prob > F = 0.0000. Reject H_0.

(7)2010-2016 Central: F test that all u_i=0: $F(7, 31) = 10.58$; Prob > F = 0.0000. Reject H_0.

(8)2010-2016 West: F test that all u_i=0: $F(11, 47) = 24.08$; Prob > F = 0.0000. Reject H_0.

So fixed effects regression model is preferred that pooled regression model.

Secondly, we will do Hausman Test to decide between Random Effects Model and Fixed Effect Regression. We assume H_0: There is no relationship between random effects and explanatory variables, that is random effects model. If P is lower than 5% significance, we will reject null hypothesis, that is we choose fixed effects model. We use Stata.12 to do the test. The results are as follows:

```
. hausman FE RE,constant sigmamore

                  ——— Coefficients ———
                 (b)          (B)          (b-B)      sqrt(diag(V_b-V_B))
                 FE           RE           Difference      S.E.

      lnC       .1074696     .141339      -.0338694       .0191303
      lnE       .4220616     .5037199     -.0816583       .0209948
      lnTS      .0388713     .0126413      .02623         .0066817
      lnG       .2313391     .1103913      .1209479       .0799908
    lnopen      .1012173     .027994       .0732233       .0219908
     lnEDU      .0948541     .1715489     -.0766948       .0330514
     lnFDI      .0524243     .0056248      .0467995       .0110315
     _cons      1.672714     2.195673     -.5229593       .4236098

                        b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

              chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =        102.46
              Prob>chi2 =       0.0000
              (V_b-V_B is not positive definite)
```

Graph 4.2.2 Hausman Test on national level during 2001-2009

```
                 ── Coefficients ──
                  (b)          (B)          (b-B)          sqrt(diag(V_b-V_B))
                  FE           RE           Difference     S.E.

        lnEDU     .1896897     .165663      .0240268       .0765781
        lnFDI     .0262344     .049657      -.0234226      .0052284
         lnST     .359224      .1562891     .2029349       .0379036
      lnINFRA     .033812      .0488853     -.0150733      .0064917
          lnK     .1996381     .3676678     -.1680297      .0281235
          lnL     .1738654     .1821593     -.0082939      .0244332
       lnOPEN     .0539635     .0368782     .0170853       .0087231
        _cons     2.177659     2.285046     -.1073873      .1648858

               b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

   Test:  Ho:  difference in coefficients not systematic

            chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                    =      49.92
         Prob>chi2 =       0.0000
         (V_b-V_B is not positive definite)
```

Graph 4.2.3 Hausman Test on national level during 2010-2016

As we can see from Hasuman Test, the P value is 0 during 2001 to 2009 and during 2010 to 2016, so we reject the null hypothesis, and use fixed effects model to do the regression.

4.2.2 Regression estimate

After doing F statistic test and Hausman test against sample data, we decide to use fixed effects model to do the regression in two time period (2001-2009, 2010-2016). We use Stata.12 and OLS method to run the regression of four parts data respectively. The results are as follows:

Table 4.2.1 Results of whole samples data's regression from 2001 to 2009

VARIABLES	(1) National lnGDP	(2) East lnGDP	(3) Central lnGDP	(4) West lnGDP
lnEDU	0.095**	0.069***	0.023	0.532***
	(0.040)	(0.018)	(0.038)	(0.194)
lnFDI	0.052***	0.000	0.006	-0.037
	(0.013)	(0.009)	(0.012)	(0.049)
lnST	0.039***	0.789***	0.713***	0.195
	(0.014)	(0.025)	(0.068)	(0.201)
lnINFRA	0.107***	-0.012	0.013	0.092
	(0.026)	(0.011)	(0.022)	(0.131)
lnK	0.422***	0.081***	0.120***	0.479***
	(0.025)	(0.017)	(0.042)	(0.138)

lnL	0.231***	-0.086***	0.300***	0.860
	(0.070)	(0.030)	(0.089)	(0.539)
lnOPEN	0.101***	0.067***	0.089***	-0.299***
	(0.024)	(0.013)	(0.023)	(0.087)
Constant	1.673***	1.771***	-0.317	-1.222
	(0.383)	(0.139)	(0.523)	(2.511)
Observations	278	99	72	107
Number of cntry	31	11	8	12
R-squared	0.968	0.997	0.996	0.844

Annotation：*** p<0.01, ** p<0.05, * p<0.1. （） is standard deviation.

As we can see from Table 4.2.1, the results indicate the goodness of fit, the R^2 of National, East, Central and West are 96.8%, 99.7%, 99.6% and 84.4%, which means 96.8% of the variation in lnGDP can be explained by the variation in all the variables together on the nationally level.

InEDU is 5% significant on the national level. The coefficient is 0.095, which means 1 % increase in enrollment of higher education will lead to 0.095% increase in GDP. The variable is also 1% significant in the eastern and western region, but insignificant in the central China while the quality of human capital contributes more in the western region with 0.532 as coefficient. And the coefficients in the eastern and central region are 0.069 and 0.023 respectively.

InFDI is 1% significant on the national level and has positive correlation with InGDP and this positive correlation also exists in the central region, but the coefficient is insignificant. The coefficient on the national level is 0.052, which means 1% increase in Foreign Direct Investment will lead to 0.052% decrease in GDP. FDI did benefit the economic growth during 2001 to 2009. However, our correlation indicates a negative correlation between FDI and GDP in the western region. The coefficient is -0.037, which means 1% increase in FDI will lead to 0.037% decrease in GDP. This might be explained by Crowding-Out Effect of FDI. One of the most classical study was carried out by Harrison and Aikten (1999). They used panel data of more than 4,000 Venezuelan plant from 1976 and 1989 and found out there was a negative relationship between foreign ownership and the productivity of wholly domestically owned firms in the same industry. During 2001-2009,

the industries in the western China were underdeveloped compared with eastern region, let alone developed regions or countries. Therefore, MNEs invested in the western region might take advantage of its strong market power and advanced technology and management experience, and then put pressure on domestic enterprises and prohibit them from entering or further developing in the industry. However, the correlation between InFDI and InGDP is positive in central region and weak in eastern region. One direct impact on FDI on the economic growth is to make up the capital gap. From 2001 to 2009, foreign capital satisfied the needs to develop manufacturing industry in the eastern coastal region and central region.

InST is 1% significant on the national level and in the eastern and central regions while the coefficient is insignificant in the western region. The coefficients of four part regression indicate a positive correlation between InST and InGDP. The coefficients on the national level and in the eastern, central and western China are 0.039, 0.789, 0.713and 0.195 respectively, which means 1% increase in the added value of the tertiary industry will lead to 0.039%, 0.789%, 0.713% and 0.195% increase in gross domestic product and gross regional domestic product. Specially, ST is the variable which contribute most to GDP in the eastern and central regions. The possible reason might be the prosperous real estate industry in China during 2001 to 2009. As we can see from Table 4.2.1, FDI flowing into the real estate industry has taken up over 10% of total actual using value of FDI and in 2007, the proportion has even reached to 22.86%.
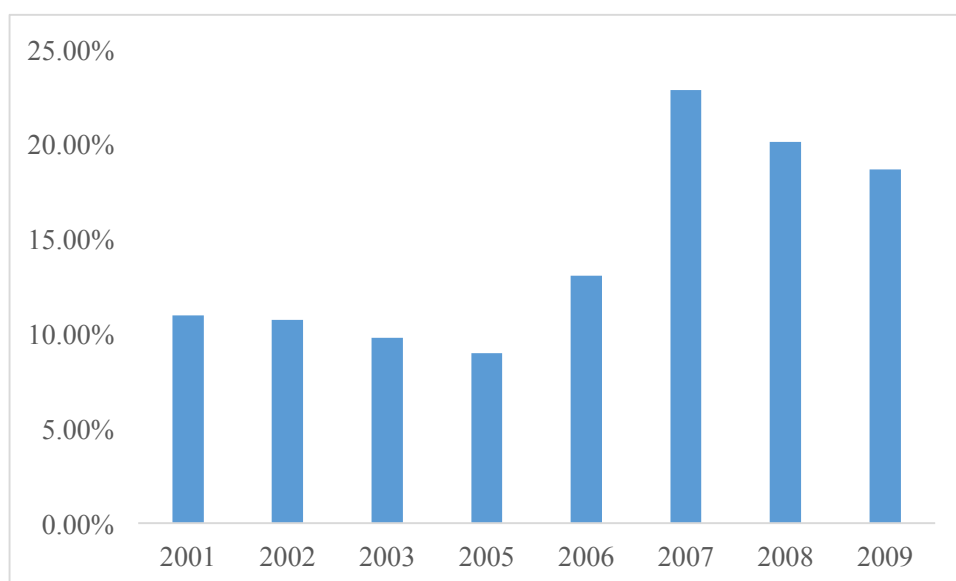

Graph 4.2.1 The proportion of FDI in the real estate industry

The infrastructure also shows some importance on the economic growth. InINFRA is 1% significance on the national level while insignificant in the three regions. The coefficient on the national level is 0.107, which means 1% increase in tonnage mileage will lead to 0.107% increase in the GDP. Therefore, enhancing infrastructure construction will benefit the economic growth. The regression indicates a negative relationship between the explanatory variable and explained variable except in the eastern China. The possible reason might be the already complete infrastructure in the eastern China. The giant input to construct railways or other transportation facilities may exceed the utility brought by the newly-constructed infrastructure. Considering the geographical condition in central and western area, Chinese government has issued some policy to support the construction. For example, 'develop-the-west strategy' has increased the highway mileage from 533 thousand kilometer in 1999 to 1421 thousand kilometer in 2008. By the end of 2008, the construction of national main trunk line in the western area has been completed. However, there is still gap between China and developing countries, and between western China and eastern area in terms of infrastructure. We are still on the way.

Fixed capital investment which indicates the investment environment is the variable that contribute most on the national level and 1% significant. The coefficient is 0.422, which means 1% increase in InK will lead to 0.422% increase in GDP. We also observe the positive relationship in the eastern, central and western China and the coefficients of the three regression are all 1% significant. Therefore, improving the investment environment, such as to standardize government behavior, perfect marketing mechanism and strengthen legislation will stimulate the economic growth, especially in the central and western region due to the autonomy of autonomous region. Specifically, the coefficient of InK in the regression of western region is 0.479, which means 1% increase in the fixed capital investment will lead to 0.479% increase in the gross regional domestic product. The regression result shows great importance of improving investment environment.

The influence of labor force is different in different regions, which positively affects the economy on the national level and in the central, western region, which means that the industry is mainly labor-intensive and increase the input of productive factors may stimulate the industrial economic growth. The coefficient of InL in the regression of eastern area is -0.086 which is 1% significant, meaning that 1% increase in the labor force in the eastern China will lead to 0.086% decrease in the gross regional domestic product. As we can see from Table 4.2.2, the added value of the secondary industry has always exceeded that of tertiary industry. If we consider labor force as an input, we might us diminishing marginal utility to explain the negative relationship.
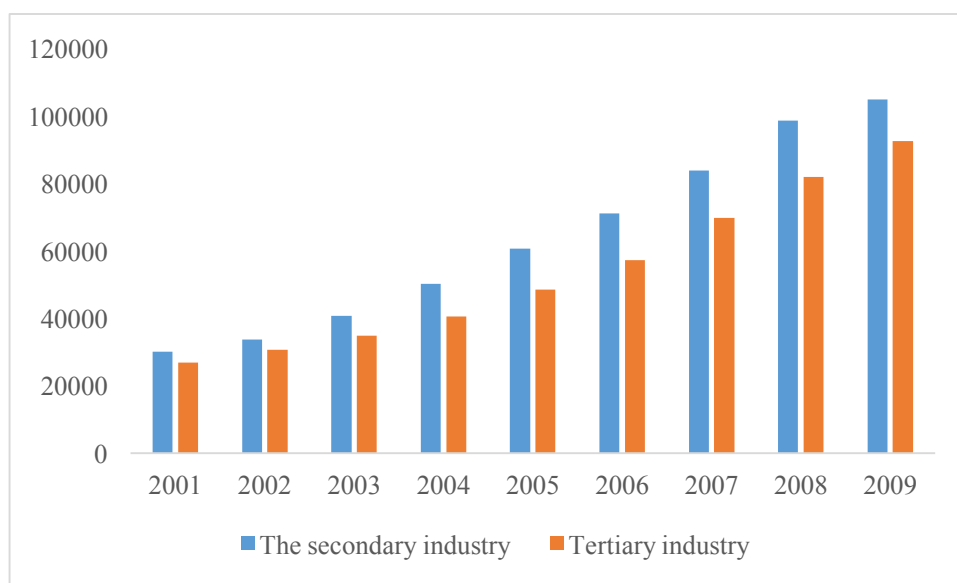
Graph 4.2.2 The added value of the secondary and tertiary industry in the eastern region

Source: National Statistics Bureau of China

For a long time, investment and export are the main driver of Chinses economy growth. Participation in international trade will help domestic enterprises understand the international standard and then modify the products. As what we expect, InOPEN is 1% significant on the national level and in the three regions. The coefficients show positive correlation on the national level and in the eastern and central regions. The coefficient in the regression of China is 0.101, which means 1% increase in the total export-import volume will lead to 0.101% increase in GDP. However, there is a negative correlation between InOpen and InGDP in the western region. The coefficient in -0.299, which means 1% increase in the total export-import volume will lead to 0.299 decrease in GDP. According to Zheng (2015), before the financial crisis in 2008, the main export

product in the western region is the commodity made of base metals. Commodity with highly competitive advantage is mainly labor-intensive and resource-intensive. We assume the low-grade export structure may have negative impact on the regional economy.

All in all, we list the first three variables that contribute most to the economic growth during 2001 to 2009. On the national level, we should keep improving investment environment and enhance the construction of infrastructure and university. Also, the supply of labor force is necessary to facilitate the economic construction and social development. (InK, InL, InINFRA)

Specifically, in the eastern China, to upgrade the industrial structure is our priority and we should also pay attention to the improvement of higher education and investment environment. (InST, InK, InEDU)

Industrial structure, labor force and investment environment show great significance when developing the economy in the central region. (InST, InL, InK). There is huge gap between western China and east in terms of economy, infrastructure and education. The government should support the industrial development and afford more opportunity in higher education and retain the talents. (InEDU, InK, InST)

Table 4.2.2 Results of whole samples data's regression from 2010 to 2016

VARIABLES	(1) National lnGDP	(2) East lnGDP	(3) Central lnGDP	(4) West lnGDP
lnEDU	0.190**	-0.085	-0.006	0.291***
	(0.085)	(0.076)	(0.213)	(0.089)
lnFDI	0.026**	0.008	0.061	0.018
	(0.013)	(0.013)	(0.054)	(0.013)
lnST	0.359***	0.629***	0.511***	0.223***
	(0.050)	(0.042)	(0.133)	(0.049)
lnINFRA	0.034*	-0.003	0.250***	0.221***
	(0.019)	(0.010)	(0.071)	(0.048)
lnK	0.200***	0.026	-0.060	0.213***
	(0.038)	(0.033)	(0.109)	(0.044)
lnL	0.174***	0.047*	0.168	0.269***

	(0.047)	(0.025)	(0.129)	(0.085)
lnOPEN	0.054**	0.278***	0.059	0.047**
	(0.021)	(0.037)	(0.054)	(0.020)
Constant	2.178	1.342	1.958	1.155
	(0.230)	(0.273)	(0.750)	(0.318)
Observations	169	57	46	66
Number of cntry	31	11	8	12
R-squared	0.953	0.991	0.955	0.984

Annotation：*** p<0.01, ** p<0.05, * p<0.1. （）is standard deviation.

As we can see from Table 4.2.2, the results indicate the goodness of fit, the R^2 of four regions are all over 95%. which means over 95% variation in the InGDP can be explained by the variation in the explanatory variables together. The goodness of fit is good.

InEDU is significant on the national level and in the western region. The variable is 1% significant in the two regression indicate a positive correlation on the national level and in the western region which is aligned with what we expected: education is more important in the west China. The coefficient is 0.291 which means 1% increase in the enrollment of higher education will lead to 0.291% increase in western gross regional domestic product. In the 'develop-the-west' strategy, education is one of the big issues that Chinese government are trying to deal with. Chinese Ministry of education focus on the construction of 14 universities in the western region and enlarge the higher education enrollment in the western area. Another path that education stimulate the economic growth through foreign direct investment is proved by Shen and Tian (2002) as we mentioned above. Increasing the human capital is of significance in attracting FDI and uplift economy. However, InEDU is insignificant in the eastern and central region and the coefficients indicate a slightly negative correlation which is different from what we expected. The phenomenon might be explained by the law of diminishing marginal utility to some extent if we consider high-end talents as the input. Even though, they contribute to the construction of city economy, social and culture, they may consume more in terms of public resources.
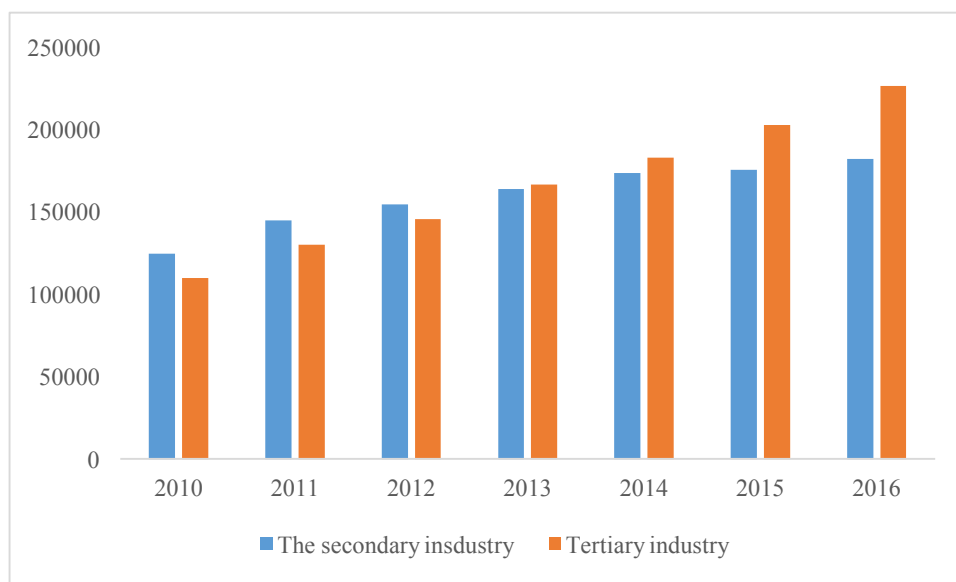
InFDI is 5% significant on the national level while insignificant in the three regions and the coefficients indicate the positive relationship between FDI and GDP. The coefficient in the regression of the whole nation is 0.026, which means 1% increase in the foreign direct investment will lead to 0.026% increase in GDP, while the coefficient in the west is 0.08, which indicates a positive relationship. As we mentioned before, one direct impact on FDI on the economic growth is to make up the capital gap and over 80% of foreign capital flew into eastern China during 2010 to 2016, while the rapid development of the region may attract affluent capital. At this time, the constant flow of foreign capital may crowd out the domestic investment and have negative impact on GDP. There is a positive correlation between InFDI and InGDP in the western region, which is different from the result during 2001 to 2009. de Vita and Kyaw (2009) suggestes that only if countries reach to a minimum level of absorption capacity, they are able to capture the growth enhancing effect of FDI. We believe, with the development of western region, the local enterprises may have the basic capability to absorb the spillover effect of FDI and inward FDI influences GDP positively.

The industrial structure has a positive effect on gross regional domestic product significantly just as we expected. So industrial structure transformation is the issue that we must pay high attention to especially in the eastern region. The coefficient in the regression of eastern area is 0.629, which means 1% increase in the added value of service sector will lead to 0.629% increase in the gross regional domestic product.

The construction of infrastructure is 1% significant on the national level and in the central and western region as we expected. The variable also indicates a positive correlation in the three regression. The negative correlation between InINFRA and InGDP still exits just as same as that during 2001 to 2009.
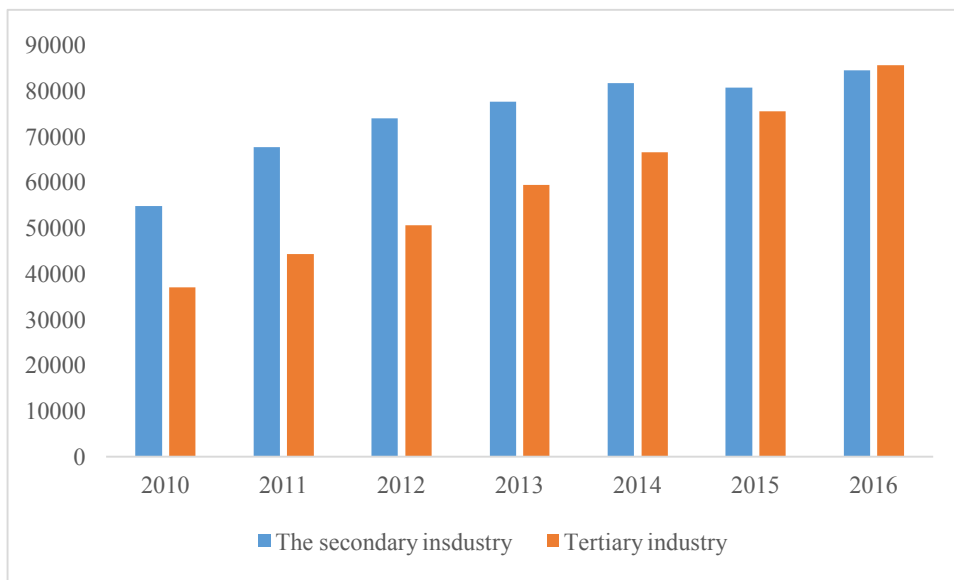
InK is 1% significant on the national level and in the western regions and the coefficients indicate positive correlation between the fixed capital investment and GDP. The coefficient on the national level is 0.2, which means 1% increase in the fixed capital invest will lead to 0.2% increase in GDP. To keep improving the investment environment shows great importance when uplifting the economy.

InL is significant on the national level and in the three regions. The coefficients indicate positive relationship between labor force and GDP. The coefficient in the eastern area is 0.047, which means 1% increase in the labor force will lead to 0.047% increase in GDP. The variable indicates a reverse relationship during 2010 to 2016. During 2001 to 2009, there is a negative relationship between InL and InGDP in the eastern region. As we can see from Graph 4.2.4, in the east, the added value of tertiary industry has exceeded that of the secondary industry and taken up large proposition of gross regional domestic product, which might mean that the tertiary industry is mainly labor-intensive. As we can see from Graph 4.2.5 and 4.2.6, in the central and western region, the secondary industry contributes most to GDP, which might mean the secondary industry is mainly labor-intensive in that area.
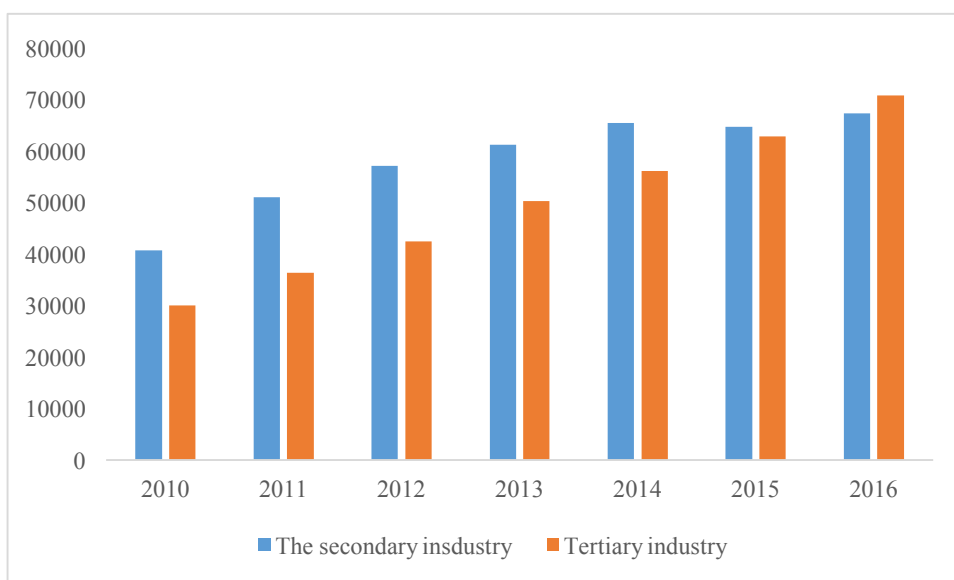

Graph 4.2.3 The added value of the secondary and tertiary industry in the eastern region

Source: National Statistics Bureau of China

Graph 4.2.4 The added value of the secondary and tertiary industry in the central region

Source: National Statistics Bureau of China

Graph 4.2.5 The added value of the secondary and tertiary industry in the western region

Data Source: National Statistics Bureau of China

InOPEN is significant on the national level and in the eastern and western area. The coefficients indicate positive relationship between InOPEN and InGDP on the national level and in the three regions, which is aligned with what we expected. The coefficient in the regression of eastern China is 1% significant and indicates that 1% increase in the total volume of export-import will lead to 0.278% increase in the gross regional domestic product. The possible reason might be that the preferential open policy and natural ports

alongside the eastern coast.

To conclude, just as we expect, we should shift our focus during different period in terms of the development of economy. Wo list the top three variables which contribute most to the economic growth during 2010 to 2016. Nationally, we should also pay attention to the improvement of investment environment and construction of infrastructure and due to the rapid growth of tertiary industry, how to provide high-quality labor force is also needed to be addressed. (InST, InK, InL)

Eastern area is the economic and prosperous region in China. We should grape the opportunity of economic restructure, ramp up service sector and also play exemplary role in promoting the advanced economic pattern among the rest of the country. (InST, InOPEN, InL) Central area demonstrates its desire for talents during the new period when accepting industrial transfer from coastal developed region. (InST, InINFRA, InL) Due to the geographical condition and political reasons, government is an indispensable and fundamental role in uplifting western economic growth. (InEDU, InL, InST) Chinese market system: socialist market economic system and political regime make government as a strategically fundamental role in the development of economy. Hence, in the final part, we will involve the government as the important part to offer some suggestions in terms of industrial upgradation and other prospects. As we can see from the empirical study, FDI still has positive role in the western region and on the national level, specifically in technology spillover, merchandise trade and investment and financing. Therefore, government should still further open markets and encourage foreign capital to flow to the places where need it most.

V. Conclusions and Suggestions

5.1 Conclusions

From the empirical results shown in the Section 4, we conclude several findings as follows and we will provide

suggestions correspondingly.

Finding 1: FDI has worsened the imbalance between western and eastern area during 2001-2009 while FDI is

no longer the cause nowadays. On the contrary, increasing foreign capital utilization in the western region are

able to help to bridge the gap.

Finding 2: Industrial structure transformation plays a highly significant role in speeding up national and

regional economic growth. So does the improvement of investment environment. Hence with the policy

inclination, Chinese enterprises should grape the opportunity to lift their position in the global value chain.

Finding 3: The variables: education and infrastructure are able to help to narrow the imbalance between eastern

and western regions in terms of the economic growth.

5.2 Suggestions

5.2.1 Suggestions for Chinese government

i. Keep improving the investment environment

As we can see from the empirical result, the fixed capital investment affects the economic growth

significantly. According to the 'Doing Business 2018' issued by World Bank, China ranked No.78 among

190 economies in the ease of doing business ranking while New Zealand, Singapore and United States

ranked No.1, No.2, and No.6 respectively. To register a firm in Shanghai requires around 22 days to finish

the procedure while the time in New York city is just 4 days and the average time in South Asia is 15.4

days.[5] According to the restrictiveness index (the range is from 0 to 1) published by Organization for

Economic Co-operation and Development, China is 0.316 in 2017[6] which is higher than that of United

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5 http://www.doingbusiness.org/data/exploreeconomies/china

6 https://data.oecd.org/fdi/fdi-restrictiveness.htm

States (0.089) and India (0.212). These data indicate that there is still a long way for China to further open its market. Chinese government should take actions to relax market access conditions for foreign direct investment, simplify the related procedures and optimize the existing services. In 2014, Chinese government has set up free trade zone in Shanghai and expanded the trial to other provinces. By now, there are 12 free trade zones in China. Chinese government should deepen the reform and specifically in the service sector. Effective actions should also be taken in the tertiary industries to further open finance, education, culture and medical treatment market and relax the access restrictions on child-care, nursery for old-age, architecture design, accounting and auditing, commerce and trade and e-commerce. Some mature reform measures that have been proved effective should be applied to the rest of country.

This measure is applicable on the national level due to the result of our empirical study.

ii. Accelerating the industrial structure transformation and develop high and new technology manufacturing and high-level service industries

From the empirical study, we found that the added value of service sector which indicates the industrial structure shows great significance on the economic growth. Chinese government has also realized the importance and issued some supportive policy, for example 'Made in China 2025' launched in 2015[7] by the State of Council which underline innovation capability, the combination of industrialization and informatization and green manufacturing to support the development of high and new technology, service-oriented manufacturing and producer services and uplift Chinese enterprises' position in the global value chain. Some developed countries also launched similar strategies to take advantage of information technology, such as German 'Industry 4.0'. Chinese government could use German experience for reference to practice into 'Made in China 2025'. The core strategy of 'German Industry 4.0' is the combination of intelligence and Network, that is to establish intelligent plants through exploiting cyber-physical systems, and realize intelligent manufacturing in the end. German government also highlights the consolidation of

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7 http://www.gov.cn/zhengce/content/2015-05/19/content_9784.htm

market and production process. On the production level, information sharing is applied in every steps including design and develop, arrange production plan, manage production process and after-sell maintenance services to achieve vertical integration. On the market level, manufacturer should realize the horizontal integration through advanced supplier strategy and market strategy. The former underlines the synthesis of advanced technology, mature and sound solutions and traditional production technology to yield products featured by intelligence. The latter focuses on the consolidation of German domestic market through high-speed internet that covers different regions, sectors and enterprises. German enterprises are able to rely on the information sharing to subdivide the production technology and then promote the specialization of work. After study 'German industry 4.0', we offer some suggestions on how Chinses government can better implement 'Made in China 2025' strategy: firstly, we should respect enterprises as the main part of the strategy and fully release the potential of enterprises. The coordination should be strengthened among enterprises, sectors and related government departments. International cooperation and financing support should also be stressed. There is still gap between Chinese current technology level and world top level in energy, transportation and other industries. Hence, it is necessary to introduce foreign direct investment. Chinese government should take a lead in cooperation and interaction with American, German advanced enterprises in technology research and development, information sharing, standard establishment, management and business mode innovation and other aspects. Research platform can be jointly set up by MNEs and Chinese enterprises with the support of government in China to acceleration the introduction and transformation of advanced products and technology. Secondly, high-tech medium and small-sized enterprises take an important position in 'German Industry 4.0'. German government has committed itself to deal with the financing, technology, innovation and management problems appeared in the development of medium and small-sized companies. Chinese government should also create transparent, fair and open environment to amplify the synergy between large enterprise and medium and small-sized firms. We should shift from supportive policy to the establishment of services systems for medium and

small-sized enterprises and further open innovative resources. Government procurement, venture capital guidance funds and other resources can be inclined to medium and small-sized enterprises, but the importance of intelligence, individuation and optimization and standardization of complicated production process should be emphasized. Thirdly, talents are the strategic part in manipulating the equipment. China is lack of professionals and inter-disciplinary talents. Just as the empirical study shown, education has a positive effect on the economic growth. Hence, on the one land, Chinese government should reform the current single-disciplinary talents training mode and cultivate talents urgently needed by the social economic development. On the other hand, preferential policies in terms of education, medical treatment, tax, housing allowance and intellectual property can be issued to attract and retain high-quality talents. Fourthly, information security should be attached importance to. Counterparts including technology supplier, asset owners, regulator, international organizations and academic community should be involved in the design and establishment of security management and risk prevention systems.

The tertiary industry also plays the strategic role in the industrial structure upgradation. As we mentioned above, 'Made in China 2025' strategy attaches great importance to the development of producer services which deprives from the manufacturing industry and can have linkage effects. Functionally, producer services are able to not only increase the productivity of manufacturing production department and promote innovation microscopically, but also accelerate the economic structural transformation and promote long-term economic growth (Yuan and Rao, 2014). Yuan and Rao (2014) used global input-output model to analyze the effects of globalization on Chinese producer services and structure decomposition analysis to study the main drivers for the Chinese producer services development. They found that globalization results to the stagnation and decrease of the main industrial sector input from the producer services and there is a substitution effect from foreign producer services input to the domestic producer services input, which concentrates upon middle and high-tech industrial sector. These findings may explain why FDI has crowing-out effect in the eastern region since the most Chinese advanced producer services are agglomerate in the

eastern area. Yuan and Rao also suggested that even though the domestic technological change may suppress the development of producer services, foreign technological change and domestic and foreign final demand change can significantly pull the Chinese producer services to develop. Hence, Chinese government should insist on the further open in the services sector and attract FDI, and encourage international trade and domestic final demand increase. Another special issue should be addressed in China: the monopoly of nation-owned enterprises. The substitution effect from foreign producer services, on the one hand, is the result of comparative advantages of China in the global value chain; on the other hand, is largely affected by the monopoly of nation-owned enterprises in the domestic producer services. Yuan and Shao (2010) found that it is hard for private capital to access to natural monopoly industries like post and telecommunications and administrative monopoly industries like banking industry. Hence, Chinese government should break the monopoly, optimize the internal environment and encourage the participation and competition of private capital which can relieve the trend that industrial sectors use foreign intermediate goods to substitute the direct input from producer services. Human capital is especially important in the tertiary industry. The dependence on low-skill labor resources results in the low-end in the global value chain. With the aggravation of aging problem, this issue must be addressed through education and vocational training. These measures are more suitable and effective in the central and eastern region since these area has good industrial base to support the development of high-tech manufacturing industry and service sector. According to the empirical study, Chinese government should focus on the infrastructure construction, and increase the labor input in the western region. Considering the positive effect of FDI, we believe more accurate FDI policy should be issued to narrow down the gap between the western region and the rest of China since the industrial development is the most effective way to retain the labor resources.

iii. Systematic management can be applied to the regional policy when introducing foreign capital in the western region

There are 12 provinces in Chinese western region with 6810 thousand square kilometers area of land which

takes up around 71% of China total area of land while the population is around 0.35 billion, taking up around 28% of nationwide population. With a vast territory, geographical conditions, culture and history, the economic development level and endowment of resources is totally different among different regions. For example, as the comprehensive transportation junction, Sichuan province has always been the most developed region in the western area with 3,293 billion yuan GDP in 2016. Sichuan basin holds many natural resources in store like fossil energy and mineral deposits. With the preferential policy inclination, Sichuan basin has become one of the most important industrial bases in China. The GDP in Tibet Autonomous region in 2016 is 115 billion yuan, much lower than that of Sichuan province. The average altitude of Tibet is above 4,000 meter with complex terrain and relatively adverse climates. Qinghai- Tibet Railway, called as the lifeline for Tibetans, has been completed and open to traffic in 2006. Nowadays, this railway is playing a strategic and crucial role in the economic development of Tibet and Chinese 'One belt One road' initiative. Infrastructure construction is still urgent in Tibet and political issues should be addressed seriously. Hence, it is impractical to implement uniform FDI policies. Central government should adjust measures to local conditions. We can draw lessons from Sweden when formulating regional incentive programs.[8] According to the European Innovation Scoreboard, Sweden has the highest manufacturing productivity in Europe and ranks No.1 for innovation in EU. Sweden remains a high level of appeal to foreign investors and ranks 10th in Word Bank 'Doing Business 2018' report. Sweden follows free trade policy and non-discriminatory principle. Foreign capital has the equal status as domestic capital, and will neither be treated by discrimination, nor by super-nationally. Sweden central and local government are service-oriented and dedicated to offer assistance and guidance. To help backward areas, Sweden government implements regional encouragement policies. North area like Lapland, Norrland, Varmland and other mountainous area, and north pole area are classified into Zone 1. Central mountainous region like Dalarna are classified into Zone 2. Northern coastal area and some southern area are classified into

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8 http://www.mofcom.gov.cn/article/i/dxfw/jlyd/201508/20150801082919.shtml

temporary subsidy zone. The regional encouragement policies can be divided into 5 aspects. The first one is to subsidize the enterprises that invest in product and patent development in the subsidy zone. The subsidies in Zone 1 for medium and small-sized companies are capped at 40% of total investment while that for other enterprises are capped at 35%. In zone 2, the highest subsidy is 20% of approved total investment and extra loan can be reached to the half value of the subsidy. The second one is employment encouragement policy, that is to subsidize the firms that provide long-term job opportunities. The subsidy in Zone 1 can reach to 200 thousand Swedish Krona and reach to 120 thousand Swedish Krona in Zone 2. The third one is in the transportation fees. Enterprises in Norrland, Varmland and Dalarna (in Zone 1 and Zone 2) can get subsidy when transporting raw materials and goods. The subsidy is calculated by the location of enterprises and distance of distribution, will cover up to 50% of total transportation charges. The fourth one is to support the medium and small-sized enterprises that can get 15% subsidy of building and machinery equipment investment. The fourth one is about the reduction of social welfare tax. Enterprises in Zone 1 and zone 2 can get 10% reduction in social welfare tax in addition to some sectors and regions like primary industry. Chinese government can also divide western regions into different economic zone due to the geographical conditions, or industrial base and implement the different degree incentive programs in related aspects and for different industries. For example, due to the ample natural resources and good industrial base in Sichuan province, local government can strive to develop the high-tech manufacturing industry while Tibet has extraordinary landscapes and magnificent culture, tourism can be defined as the strategic industry.

iv. Accelerating the infrastructure construction in the western region and enhancing the higher education construction

As we can see from the empirical study, InEDU and InINFRA stimulate the economic growth in the western region. Even though Chinese Ministry of Education has issues some preferential policy to support the university construction, none of universities in the western region are included in the Project 985 which demonstrated the top academic level of Chinese universities. Hence, more actions should be taken. For

example, we can encourage top universities like Beijing university to jointly open programs with western universities or establish branch school in the western region and accelerate the talents flow. In addition, due to the attraction of metropolis and tons of job opportunity, the retention rate of talents is relatively lower in the western region. Local government should, on the one hand, introduce famous enterprise to set branches and then offer more and high-quality job opportunity, on the other hand, could issues more preferential policy such as relocation allowance to retain talents.

5.2.2 Suggestion for Chinese enterprises

i. Encourage technology innovation, strengthen human resources development and increase R&D expenses

Zhongxing Telecommunication Equipment Corporation, called ZTE for short, the largest telecommunication listed company in China and the fourth largest Network Equipment Manufacturer in the world, is sanctioned by United States Department of Commerce which forbid American companies from selling components for seven years on 16[th]april 2018. The prohibition makes ZTE business activities in jeopardy, since the core components are in the hands of American company, especially the chips. This is obviously still a fluid situation, but we have realized the importance of acquiring the core technology. On the one hand, Chinese enterprises can increase the capability to absorb western advanced technology, on the other hand, we should increase R&D input and improve innovation ability to enhance competitiveness. Human capital should also be taken seriously. Chinese enterprises should establish advanced human capital management system to retain and attract talents. Another effective way to take advantage of universities' resources. University laboratories may have the cutting-edge theory and technology. The cooperation between enterprise and companies is able to increase the efficiency and efficacy in technology development. In addition, the vocational education can cultivate and transmit talents that satisfy the job requirements of enterprises most and decrease the mismatch between the supply and demand among different disciplines.

ii. Accelerate upgrading the structure and integrate online and offline channel

Internet has changed Chinese people's life deeply and influence the business world significantly. The case

study about HEMA we analyzed below is an excellent case to practice the integration of online and offline channel. Chinese enterprises should grasp the opportunity, especially manufacturing industry. In 2017, the State Council issued the guidance on further developing industrial internet, that is to implant internet to industrial machine to fully release the potential and increase the productivity. 'Industrial internet' was put up with General Electric Company in 2011 and is comprised of two main parts of content. The first one is that along with the industrial revolution, thousands of machines, equipment, units and workstations appear. The second one is that the internet revolution along with computing, information and telecommunication systems. The combination of intelligent machine, big data and human resources will provide new opportunities for enterprises and economies. Chinese enterprises should keep pace with the wave to consolidate its production process and its value chain.

5.2.3 Suggestions for foreign enterprises

Chinese government keeps on its way to attract high-end foreign capital especially in hi-tech manufacturing industry and the tertiary industry, however, some MNEs find it difficult to adapt to Chinese diversified market nowadays even they might have conquered Chinese market in the beginning of the twenty-first century. Here I select Chinese retail industry as an example to study the shift of key success factors to shed light on how the foreign enterprises can grasp the new opportunity and be competitive. The reason for why I choose retail industry as an example is that Chinese retail industry is one of the most dynamic sectors and many MNEs find itself hard in operating in the sector. Zuo(2017) suggests that with the Internet attack, the spillover effect in terms of efficiency is weakening apparently and even FDI has crowding-out effect in the real estate industry. The increase in the production technology and absorption capacity of domestic enterprises leave little space for technological spillover effect. In 2014, the third largest retail giant TESCO sold its Chinese business to CR Vanguard after operating in China for ten years. War-mart had been suck in the distribution of counterfeited food products and received huge fine, and is struggling to transformation nowadays.

5.2.3.1 Case study: Chinese retail industry

5.2.3.1 Industry overview:

The retail industry is one of the most promising business fields in China with CN¥12.66tn retail revenue in 2014. Slowing exports, government policy and an increase in volume of domestic markets indicate a strategy shift of the Chinese economy towards satisfying domestic demand. [9]The market is highly fragmented and competitive, with the leading 100 retailers taking up only 6.4% of market share in 2016 and also going through several fundamental trends in Chinese market.[10]

- Rapid urbanization result in the changes of consumption structure: the increasing consumption capabilities of urban residents, including those from the third and the forth-tier cities.

- According to Nielsen's report in 2017, the post-80s have become the main force of domestic consumption with the population of 210 million accounting for 16% of total consumers nationwide. By March, CCI (consumer confidence index) in China has reached to 122.3 which is above America and European countries.[11] With the rising of new middle class, consumer demand upgrading is inevitable situation in Chinese market.

- Chinese consumers have gradually developed a habit: shopping online. The digital buyer penetration in China has reached to 64.8%. Actually, China has become the world's largest online market since 2013. Online consumption of consumer goods has increased significantly from 0.6 percent in 2007 to 12.4 percent in 2017.[12]

- Consumers have gradually developed awareness of products' safety due to many food safety incidents happened in Chinese market.

5.2.3.2 Value Chain[13]:

9 https://www.statista.com/statistics/277810/retail-revenue-in-china/

10 https://www.statista.com/statistics/289211/china-leading-retail-chain-operator-market-share/

11 https://tradingeconomics.com/country-list/consumer-confidence?continent=europe

12 https://www.statista.com/topics/1839/retail-in-china/

13 http://smallbusiness.chron.com/steps-retail-value-chain-69900.html

Many criteria have been used to describe retail value china. Here, we adopt that the retail value chain defines a series of actions that enable businesses to sell their products to customer and involves distinctive functions respectively as follows:

Developing the Product	Managing Inventory	Distributing Inventory	Filling Store Shelves
R&D Manufacturing	Warehouse Management Inventory Management	Logistics	Sale Channels Sales operations Customer Relationships & Sales analytics

The first three steps are related to buy side of retail value chain which involves the retailer sourcing products from suppliers and incurring costs on infrastructure and getting ready to sell[14]. The retailers have to deal with the interaction between their key partners: major brand manufacturers, regional and national suppliers, and local governments. The sell side, also the last step, involves the retailer marketing and selling these products to customers, which directly demonstrates the value proposition of retailers. The main aim is to support the interaction between a retailer and its customers.

5.2.3.3 Traditional Key Success Factors[15]:

i. Location: A fundamental aspect of retailers' operations is to secure the right retail real estate. Wal-Mart is used to choose suburban area to keep low cost in America, which doesn't work in China because of Chinese high shopping frequency and small quantities. To cater for Chinese customers, its retail stores are almost located near residential area or business quarters. Different types of retailers show different preference for locations.

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14 http://www.technofunc.com/index.php/domain-knowledge-2/retail-industry/item/retail-industry-value-chain

15 http://www.ey.com/Publication/vwLUAssets/Retail_Operations_-_Six_success_factors_for_a_tough_market/$FILE/EY_Retail_Operations_-_Six_success_factors_for_a_tough_market.pdf

ii. Localization: As to retailers, especially which tie closely in daily life, such as supermarkets, consumers have demonstrated a preference for and a loyalty to retailers that are native China-based companies. That calls for localization. Sun-Art, Chinese supermarkets, display its stores to give a local "Chinese street look" during spring festivals.

iii. Supply chain: Management of the retail supply chain is of importance to secure getting right amount of products on the shelves on time in a cost-effective way. This will be highlighted due to Chinese large and fragmented market. Chinese strong logistics systems may relieve the pressure. However, how to maintain an integrated and constructive relationship with third party logistics provider remains a key problem to solve. Some retailers even set up their own logistics team, such as JingDong, a Chinese online retailer. Whether in-house or outsourced, retailers struggle to keep efficient retail supply chain operations.

iv. Store labors: With the increasing awareness of consumers' rights, more and more Chinese consumers demand high-quality service. Store labor also is the largest category of controllable non-product cost, it is necessary to control cost and secure flexibility. Strong management in stores labor is the competitive advantage that retailers attempt to get.

Other KSFs involve many aspects of companies' management, for example, the assignment of capital expenditure, management in Stock Keeping Units, which actually lies in that whether the companies' practices are in accordance with the market.

5.2.3.4 Changes: new KSFs

In addition to KSFs above, the recent trends in Chinese market have brought out some new KSFs.

i. Online and offline integrations: The high penetration of ecommerce has become the key fundamental characteristic of Chinese market, which calls for the integration of internet and traditional retail channels, offering seamless shopping experience to consumers. UNIQLO is one example. Customers can fetch goods in brick-and-mortar stores when placing orders online, which require highly cohesive management of Omni-channels. According Nielson's report, consumers demonstrate different demands even when

shopping the same category online and offline respectively. For example, as to facial masks, consumers tend to spending more online. Its online sales increase by 45% in 2016 compared to 13% offline. For retailers, integration is just first step. They must understand the role of online and offline consumption scenarios played in stimulating consumers' targets and demands, and learn to balance products portfolio online and offline. Nielson's survey showed 53% of consumers are willing to buy imported goods due to high quality and safety. Maybe introducing imported products is a good idea to strengthen the distinction of retailers. Over half of the products of Ole' come from different countries, even the prices of goods also sold in other supermarkets are higher in Ole'. The promotion strategy also should focus on different areas. For retailers, the fundamental target is maintaining sustainable growth in Omni-channel.

Industry integration through M&A activities offer a new solution to traditional brick-and-mortar retailers to seek diversified business operations and consolidate resources. In July,2015, Wal-Mart bought the rest shares of YIHAODIAN.com, a well-known online shopping mall whose core business is food category, making it become the wholly-owned subsidiary. This M&A enables Wal-Mart to touch the huge population of online consumers. In April, NanJing XinBai, a local retail chain operator, purchased British old-brand department store' House of Fraser', anticipating asset appreciation from the recovery of British economy.

Here we will elaborate the business model, HEMA XIANSHENG, a supermarket belonging to Alibaba, the Chinese internet giant to demonstrate a vivid example of online and offline integration. HEMA opened its first physical store in Shanghai in 2017. By now, it has expanded to 12 cities (mostly tier 1 and strong tier 2 cities) and has more than 45 store around China.

HEMA is a supermarket specialized in fresh food. Due to the high cost of distribution and low per customer transaction, fresh food is a sector where is crashed little by e-commerce and a perfect experimental field for Alibaba to practice 'New Retail' raised by Jack Ma, the founder of Alibaba, in 2016. We will illustrate its business model in the following aspects:

From the layout, fresh food takes large part in HEMA in terms of area and products units which are mainly

middle and high product. HEMA also has a special zone for dining and support 'buying and making'

business activities, which is similar as Italian retail chain' Eataly'. The supermarket has flow layout as we

can see from the graph which is different from traditional supermarket layout. The highly consumed food is

located closely to entrance and exist. The customer can choose the products more freely.
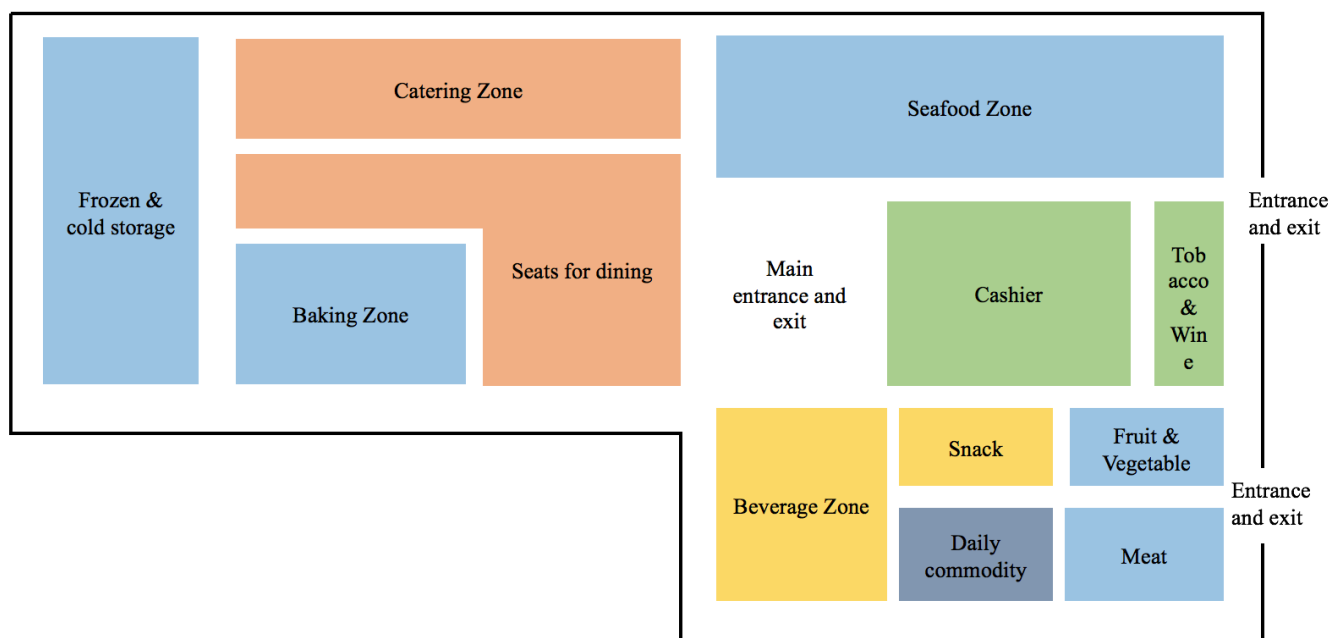
Graph 4.3.1 The layout of HEMA in Xuhui District Shanghai

From the products structure, the featured products of HEMA, lobster and king crab have competitive prices

significantly. However, other commodities compared to traditional supermarkets have premium prices

compared to traditional supermarkets, the prices of which are 9.5% higher. It is a natural way to select

customers who are less sensitive to prices and have higher buying power.

From the customer positioning, analyst Rongcong Xu of China Merchants Securities[16] has done a sampling

survey that the per customer transaction of HEMA has reached to 160 yuan while the average per customer

transaction of the traditional fresh supermarket is 60 yuan. And customers aged from 18 to 35 have taken up

over 50% of the whole customer base. We can see that the targeted customers of HEMA is new middle class

in tier 1 and tier 2 cities who have desire for high-quality fresh food and are less sensitive to prices.

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16 In the publication of WeChat official account: myfortytwo

From the distribution, the physical stores are acted as warehouse which endows HEMA higher efficacy compared to fresh food e-commerce. HEMA has its in-house distribution house and every distribution cost per order is 7.5 yuan while the online per customer transaction is around 70 yuan which can totally cover the cost.

We use another graph to demonstrate HEMA's business logic:
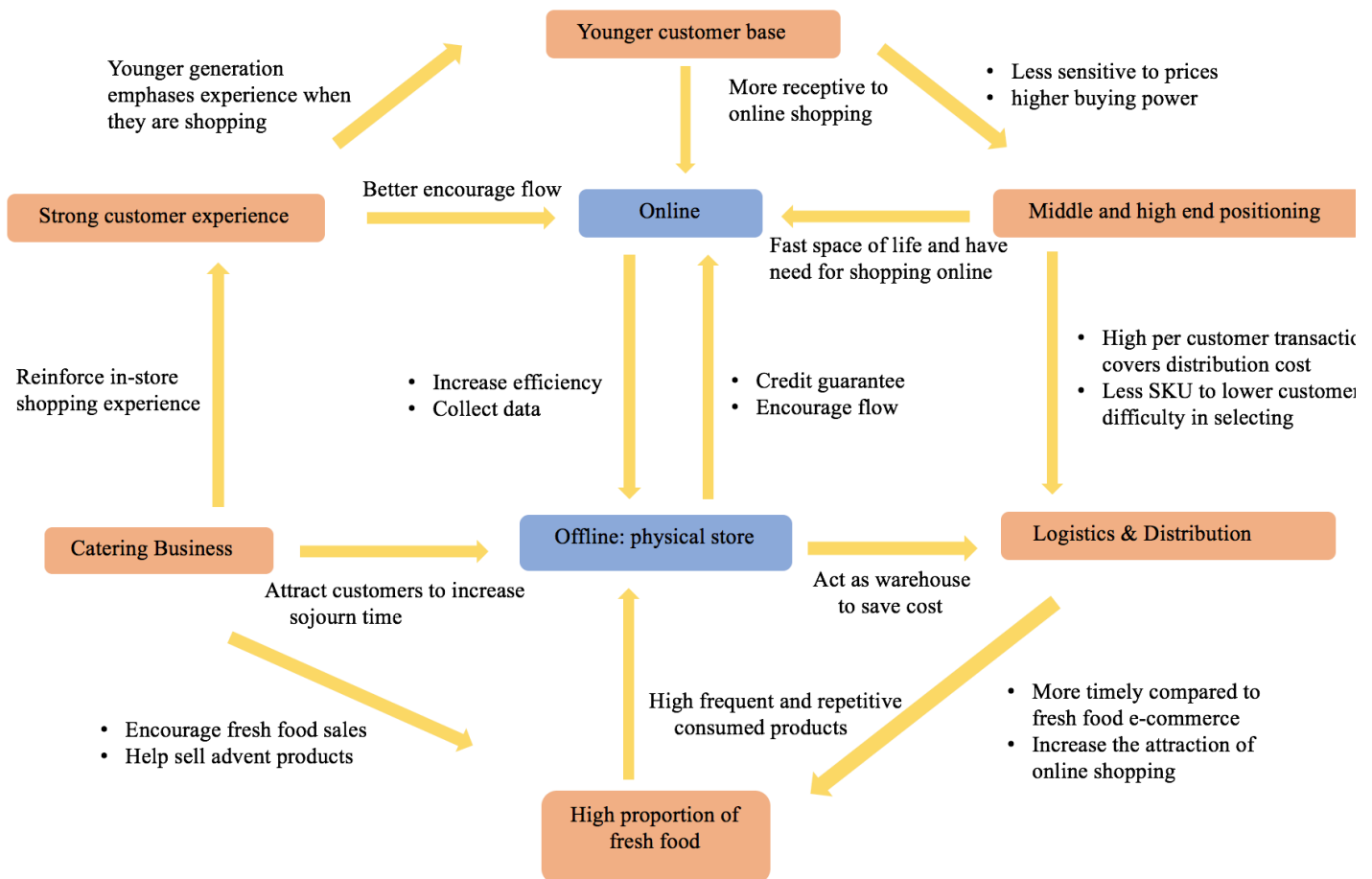
Graph 4.3.2 The business logic of HEMA

The key words of the graph are customer base, customer experience, catering business, distribution, the proportion of fresh food and positioning which can formulate a complete loop circulating online and offline channel.

The younger customers who are accustomed to shopping online have generated the possibility to develop online businesses. Also the characteristics of new middle class: insensitive to prices and relatively higher buying power makes HEMA position itself as a middle and high-end fresh food supermarket. The clear positioning benefits its further marketing activities and communication tools. Chinese younger generation

shows apparent preference and emphasis for user experience. So HEMA set up catering zone to reinforce customer shopping experience and create 'fresh' atmosphere which is tied closely to the positioning of the supermarket. Through strong user experience, physical store credit guarantee and payment guidance, HEMA encourages its offline customers flowing into its online platform and increase consumers' buying frequency. Another advantage of introducing catering business is to drive the sales of seafood and help sell the advent products through various promotion activities. Seafood is the featured products of HEMA. As high frequent and repetitive consumed products, seafood is attractive in the middle class. Combined with catering service which is even higher frequent consumed by customers, this business has taken up huge part of HEMA's revenue.

Starting from the positioning, we can extract another characteristics of targeted customers: they work in a society of fast-paced which naturally generates online shopping and per customer transaction is comparatively high to save time. In order to cater to the demand, HEMA launches less stock keeping units to lower customers' selecting time and also increase efficiency in distribution management. In terms of distribution, the physical stores are acting the role as the warehouses which save the cost and has competitive advantages over fresh food e-commerce in terms of timely service. Customers can get their food around 30 minutes. They can order online just after work and enjoy the delicious and high-quality food upon entering home. The logistics does increases the attractiveness of online order.

According to analyst Rongcong Xv, the mature HEMA can break the even which is significant in the 'New Retail' practices, since behind the strong user business is the inevitable high cost. It is fundamental to find a reasonable cost and revenue structure.

The following is the profit equation, we will look at each components to learn about HEMA's profit structure.

$$Net\ Profit = Operating\ income \times Entire\ gross\ profit\ rate - Operating\ expences(labor\ cost$$
$$+ rental\ cost + depreciation\ of\ equipment)$$

The operating income is comprised of two components: the first one is online per customer transaction plus

online passenger flow volume. The selected high-end customers guarantee the high value per order to cover delivery cost. Offline physical stores keep transmitting passenger flow towards online platform. By now, the online business has taken up over 50% of total operating income. The second one is offline per customer transaction plus offline passenger flow volume. The latter one is naturally higher than the traditional supermarkets, such as War-mart due to its specialty supermarket positioning. The combination of seafood and catering business attracts customers and the big data collected by payment (Alipay) supports its further precision marketing to increase customer loyalty.

The gross profit rate of fresh food is not very high, but as we mentioned above, other categories have a certain premium which increase the entire gross profit rate.

Operating expenses is comprised by labor cost, rental cost and depreciation of equipment. The deliverymen increase the labor cost, but can be covered by high online per customer transaction. Other labor cost is equal to other traditional supermarkets. Rental cost is relatively higher than traditional supermarkets due to late entrance to the market. Depreciation of equipment is fair and there is huge investment into early system research and development. Hence, the profitability of HEMA is stronger than traditional supermarkets. Especially, customers are willing to 'have a taste of what is just in season' due to celebrity effect. If we do not take previous research and development expenses, the payback period per physical store is comparatively short. HEMA is a reasonable 'New Retail' business model.

ii. Brand[17]: A study from Nielson shows that post-80s consumers have become the backbone of China's consumption-drive economy. They not only have higher monthly income but also are more optimistic about their financial situation. They are inclined to consumption rather than savings. The Chinese post-80s, embracing 'Chinese economic reform' and 'one-child' policy when growing up, enjoyed mental and material wealth compared with their parents. So they care more about high quality. Also post-80s is the first generation that embraces western culture after economic independence. They show higher brand awareness

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17 Nielson's report<What's next?>

and loyalty than other generations. As to cater for these groups of generations, retailers must establish distinctive brands. Ole', a premium supermarket brand of state-owned corporation CR Vanguard, has developed rapidly since launched in 2004. It has become a star brand among many sub-brands of its headquarter with 35 retail stores by Sep,2016. In its practice, other than those KSFs mentioned above, it also launched campaigns to emphasize its brand' uniqueness, such as delicate website, launching lifestyle magazines, introducing beverage bottles recycling machine and vegetables QR which traces to the source. In some sectors and districts, the influence of retailers' brand will exceed that of manufacturers' brands. The emergence of consumption force in the third and fourth-tiers cities where foreign brands' radiation is relatively small also offers a new opportunity for local retailers.

Digital marketing is the key opportunity in establishing brand awareness and loyalty that every retailer should grasp. According to PWC' s report in 2015, 78% Chinese consumers will click mobile advertisement that relates to their interests and social media has more influence in purchase decision. 41% of Chinese consumers, twice than Americans, use social media to study brands. Many FMCG companies have foreseen social media as one of the most effective communication tools and established digital marketing department. Maybe, retailers should follow this strategy.

iii. Experience[18]: Shopping experience is another decider that retailers should pay attention to, especially for department stores and shopping malls since the experience offered by brick-and-mortar stores is irreplaceable. Comprehensive shopping malls should integrate the environment, culture, service and diversified consumption content which involves category portfolios upgrade, infrastructure etc.

iv. Technology: The core value of technology is to increase efficiency and effectiveness. How to integrate new technology into existing operations remain a big challenge. For example, the Chinese retailers acquire ample data from sound online payment system to analyze their customers. However, it is challenging to

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18 https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/consumer-business/deloitte-cn-cb-2014dsoppingcenterchainbrandmerchantsdevelopment-zh-150129.pdf

screen useful data and establish long-term working mechanism to recognize and retain customers.

v. Social liabilities: According to PWC's investigation in 2016, 58% of CEO from universal retail industry believe that corporation social liability will become the core issue among all the businesses in the following 5 years due to higher pressure from consumers' attention on products' sources and corporation behaviors. 28% Chinese consumers say that products' source is the determinant whether they increase volumes in local retailers. This trend will be strengthened with the increasing consumption force of Millennials. It is a challenge but also an opportunity.

5.2.3.5 Conclusions:

These changes are profoundly shaping Chinese market. In order to survive, develop and succeed, retailers must embrace the trends and actively adjust their business models and development modes but also stick to the core spirit of retail industry 'understanding what your customer wants to buy, offering it at a price they are prepared to pay and making sure it is available when they want to buy it'.

VI. Limitations and future studies

Despite the quality of analyses employed above, we believe there are two limitations existing in our study.

The first limitation is due to the availability of data, we insert ST, that is the added value of the tertiary industry, to indicate the economic structure. Even though the variable is significant in our empirical study in the individual regression of three regions and on the national level, which underlines the importance of transforming the industrial structure. We believe the high and new technology manufacturing industry and producer services are the main engine for the economic structure upgradation, however, the added value of the tertiary industry is largely contributed by the real estate industry in the time period we analyzed, which might reduce the accuracy of the variable in measuring the industrial structure.

The second limitation is that we assume bad performance of foreign enterprises in retail industry through the performance of some leading companies in the qualitative way. A quantitative study related on the Chinese dynamic markets, especially Internet impact on the productivity of foreign enterprises can be conducted to further give more solid evidence to my case study.

These limitations could be overcome in the future studies and future researcher could tap the topic through relatively small industries, for example, whether FDI in the real estate industry stimulate Chinese economic growth. We offer a new view from foreign enterprises, for example, a more detailed and thorough case study could be done about one single foreign enterprises or in one single industry: how the foreign enterprises localized in China and whether the spillover effect existing from Chinese enterprises to foreign enterprises. This area might reveal more managerial implications for business world.

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Summary

I.   Introduction

1.1 Research background and Significance of topic

In the beginning of The Reform and Opening, China has taken advantage of the huge domestic market,

cheap labor cost, relatively developed infrastructure and preferential policy to attract foreign investors.

Many MNEs have realized the great potential of Chinese market and then tons of FDI are flowing into

China. Since 1993, China has always been the most attractive market in the developing countries and since

2002, China has been the top three countries in terms of absorbing FDI. In 2017, the actual using value of

FDI is 131.04 billion dollars. FDI is a significant component of Chinese component.

It is widely believed that FDI has stimulated Chinese economic growth through facilitating capital

formation, supplying job opportunity, promoting international trade and other channels. From 1993 to 2016,

the average annual GDP growth rate is 14.74%, but also show the great imbalance between western, central

and eastern region.

The location distribution of FDI also indicates the imbalance and the southern area takes up more than 80%

of foreign capital. Even though the 'dualistic nature' of Chinese economy are the joint product of many

attributes: history, natural conditions, government opening policy, location advantage and other factors. I

believe the imbalance of FDI distribution also exacerbates the economy imbalance. In addition, in terms of

annual growth rate of FDI, the history of using FDI also experiences different stage which shows the

emphasis shift of government policy. In 2017, with the release of 'Notice on some measures to enlarge

opening-up and actively use foreign capital' and 'Notice on several measures to promote the growth of

foreign capital ', Chinese government show its determination in attracting FDI but its focus on the quality of

FDI at the current stage . So research on the relationship between FDI and economic growth in different

region during different period help us acquire the deep understanding of new requirements of absorbing FDI

at present and have theoretical significance in offering suggestions to government on how to increase the

efficacy in attracting and absorbing FDI in central and western area. I also have a chance to take economic theory into account when setting the empirical model, for example, Endogenous Growth Theory.

Another concern rises now. With Chinese fragmented market and fast upgradation of consumer's demand, many MNEs also have some pain in operating in China. For example, as the giant in FMCG industry, P&G kept its glory since entering China in 1988. However, from 2014 to 2015, P&G sales revenue declined and its market share was cannibalized by some Chinese local brands. After taking some significant measures, its performance recovered in 2017 but further adaption is still needed. In the Suggestion Section, I am also trying to shed a light on how to adapt to Chinese market from MNEs' perspective which might give some implications for further study.

1.2 Literature review

FDI is widely regarded as an important engine to stimulate domestic economy in the host country. Many scholars have conducted the research related to the relationship between FDI and economic growth, however, result varies: some have found that a positive relationship exists while some found a weak or negative or even no relationship. The use of different methods and research on different regions and countries generated those heterogeneous results. Wang and Wong (2009) distinguished FDI into 2 major components: greenfield investments and cross-border mergers acquisitions (M&A) since they believe that using total FDI might blur its effects which has been shown in the previous literature. They used data from 84 countries from 1987 and 2001 and suggest that the growth effect of greenfield investment is significantly positive, while that of M&A is negative. In addition, there is no limitation on the level of human capital, if the host country captures the growth enhancing effect of FDI from greenfield investment, while the host country must reach a minimum level of human capital for M&A to impact on economic growth positively. Iqbal Chaudhry.M, Mehmood.A and Saqib Mehmood.M(2013) used the ARDL co-integration approach to study the relationship between FDI and economic growth in China and suggest that the net FDI contributes to economic growth in the host economy, however, the contribution of net FDI strongly rely on the prevailing economic environment. Their

research also suggest other variables as the determinants for uplifting Chinese economy, i.e. GFC (Gross fixed capital formation) and GFCE(General government final consumption expenditure).

Chinese scholars also notice the imbalance of Chinese economy and FDI distribution. Some analyzed the factors that lead to the unbalanced geographical distribution, for example, Under the framework of New Economic geography, Huang and Chai (2006) used the Chinese provincial data to analyze the location choice of FDI. The research suggested that the tradition FDI location variables, such as labor cost and preferential policy could not fit well in explaining FDI distribution in China, however, variables derived from New Economic geography, i.e. local technology innovation capability, market size and the history of using FDI show significance. Some scholars study the influence of FDI on regional economic development, for example, Wei (2002) used the data from 1985-1999 to study the relationship between FDI and Chinese regional economic growth and suggested that FDI could explain 90% of the difference of GDP growth rate between eastern and western area in China. Yan and Liu (2010) used econometric analysis approach to prove the FDI had deteriorated the imbalance of Chinese. Yang and Jiang (2014) studied the relationship from industry perspective. They used the panel data from 1997 to 2011 and suggest that FDI as the direct capital form has negative impact on economic growth of the secondary and tertiary industry in the southern part of China and has little impact on that in the central and western China.

II.   The theoretical basis of FDI

2.1 The definition of FDI

According to International Monetary Fund, FDI is defined as 'a category of international investment that reflects the objective of a resident in one economy (the direct investor) obtaining a lasting interest in an enterprises resident in another economy (the direct investment enterprises)'. FDI is different from international indirect investment which is largely comprised of stock and securities in two ways: FDI emphasis the existence of long-term relationship between the foreign investors and the invested corporations in the host economy and also pays much attention to the actual control over the management of the enterprises. Nowadays,

MNEs has become the main form of FDI.

2.2 The theoretical basis

In order to analyze the mechanism thoroughly, we learn about the theories related to FDI and economic growth. The theories include Economic Growth Theory, International Investment Theory and the theoretical basis of developing countries absorbing FDI.

The economic growth theory can be divided as classical, neoclassical and endogenous growth theory. Endogenous growth theory is one of the theoretical basis when I construct the empirical model. Different from neoclassical theory, endogenous growth theory relaxes some assumptions and endogenizes related factors. Arrow(1962), R.Lucas(1988) and other scholars have some research on the question. They believe that endogenous technological progress is the determinant among other factors that stimulate the economic growth: on the one hand, society and corporations can invest in the labor through education, traning and other learning activities to get high-quality (high-productive) human capital; on the other hand, they can also realize physical capital accumulation alongside technological progress through innovation and creation, research and development. These improvements enable the endogenesis of technical progress, human capital and other factors. These economists believe that with the technological progress, the factor returns increase correspondingly and there is a positive correlation between the long-term growth rate and technological progress. However, the new economic growth theory evolves into dynamic model from static assumption since R.Vernon(1966) put up with Product Life Cycle, for example, South-North trade mode developed by P.Segeratrom.

The classical International Investment theory includes Monopolistic Advantage Theory, Internalization Theory, Eclectic Theory of International Production and Theory of Comparative Advantage. These theories explain the motivation for MNEs to invest abroad.

In the development economics, many scholars analyzed the necessity of developing countries to exploit FDI. For example, R.Harrod suggested that FDI could be used to increase the saving rate; Ragnar Nurkse believed

the indirect an direct benefits of FDI could accelerate the capital formation. The most classical one is Two-gap Theory developed by Hollis B. Chenery and Strout. They believed that there is a gap between the resources needed by the developing countries to realize the economic objectives and the domestic maximum supply and absorbing external resource could make up the gap. Two-gap model suggested foreign capital can be used to make up the foreign exchange gap and savings gap in the developing countries, which could enhance the level of domestic investment and promote economic growth. Two-gap theory emphases the significance and necessity of introducing foreign capital, however, it just focuses gross demand for foreign resources but neglect the structure of needed resources and negative impact of foreign capital. On this basis, three-gap and even four-gap models were developed. These 'gap' model have the theoretical significance when developing countries introduce the foreign direct investment.

III. The characteristics of FDI in China

In the early 1978, Chinese government has launched many policies directed at foreign investment to encourage FDI inward, and the mass market and cheap labor cost in China has attracted millions of investors abroad. Taking into accounts the absolute value of FDI, the annual growth rate, government policy and macro economy environment, we can divide the development stage of FDI in China into four time-period.

Period 1 (1983-1991) Start-up period

In the beginning of Chinese Reform and Open, foreign investors tended to hold conservative attitudes towards Chinese investment environment. The total value of inward FDI is relatively small and the absorbing efficiency of host economy is quite low. So the Chinese government has enacted preferential policy in tax, tariffs and other related field to attract more foreign investors and also accelerated the opening pace. The annual growth rate is 54.3% in 1984. However, due to some political reasons in 1988-1990, the inward FDI flow declined but recovered in 1991. During this period, the direct positive impact on China economic growth from FDI is relatively low but the foreign invested corporations has a strong demonstration effect.

Period 2 (1992-2000) Rapid growth period

In 2000, the actual using value of FDI increased by 269.9% since 1992 and reached to 407.2 billions of dollars which is much more than 43.7 billions of dollars in 1991. The main reasons are as follows, firstly, Chinese Reform and Open has entered a new stage and established the socialist market economic system as the Reform target. The open area has stretched into central China and more and more preferential policies has been launched by each level of government to encourage FDI inward. Secondly, in the 1990s, as American economy soared and the economic globalization deepens, the global surplus capital is hunting for new potential market. Even though, the FDI has fluctuated during 1997-1999 due to Asian Financial Crisis, FDI indeed contributes a lot to the fast growth of Chinese economy.

Period 3 (2001-2009) Fast growth period

China has officially joined WTO in 2001which marked the new stage of Chinese openness and government keep consummating polices and regulations which improves the investment environment and increases the market transparency. FDI enterprises on the mainland enjoy national treatment. The annual growth rate of FDI from 2001 to 2009 are mostly above 10% except some special years affected by global macro economy situation.

Period 4 (2010-now) Slow but stable growth period

In 2010, the real using volume of FDI has reached 1000 billions of dollars for the first time. However, the annual growth rates are mostly below 10%. In 2013, President Xi proposed that Chinese economy has entered into 'New Normal' period and face the challenge on upgrading the industry structure. With the increasing labor price, China may not be the priority when multi-national enterprises invest in labor-intensive operations.

We also found several characteristics of FDI in China as follows:

3.1 FDI location choice in China

The southern area in China takes more than 80% of foreign capital while the proportion of foreign investment absorbed by western area is increasing slowly year by year. By 2016, the amount of total investment of foreign invested enterprises has reached to 490,608 in the central China, 327,486 in the west respectively which are

much more than 38 times of those in 1992. The central and western China still have great potential in attracting FDI. However, from the discussion about the industry selection below, we can clearly see the FDI inclination towards service sector. Eastern China has accumulated the competitive advantages over market environment, industrial matching capacity and talent pool and the labor cost advantage in western area weakens. In addition, with Free Trade Zones launched successively in the east, eastern area goes ahead again in terms of government policy. The distribution of FDI in location will continue polarization in the future.

3.2 FDI industry selection

The proportion of FDI flowing to primary industry keeps steady (around 1.5%) and from 2001 to 2005, foreign investment in the secondary industry accounted for more than 70% of total FDI in actual use, and mainly focused on manufacturing industry. However, the absolute predominance has declined annually since 2006, correspondingly with the rise of service sector. In 2011, FDI in tertiary industry exceeded that in the secondary industry which accounted for more than 50% of disbursement of foreign capital for the first time. Foreign investors have found the great opportunity in Chinese service sector. And the hottest area in service sector in 2016 is retailing, finance, real estate and leasing and commercial services. However, if we look into detailed industries, manufacturing and real estate are the top 2 industries in terms of FDI inward, with 28.2% and 15.6% of total actual using of FDI respectively in 2016. By the end of 2017, the number of newly foreign invested manufacturing enterprises is 4986 with year-on-year growth of 24.3%. Manufacturing industry is still the hottest area in attracting foreign investors where we have observed the structural changes. In 2017, FDI in high-end manufacturing has increased by 22.9%.

3.3 Sources of FDI

Asia has been the major source of FDI inward since 2001 with the average proportion above 60%.

According to the data released by China's Ministry of Commerce, in 2017, the actual investment made by the top 10 countries and regions accounted for 95.1% of the country's total. Hong Kong is the largest source of FDI all the time. According to the statistical caliber set up by Chinese National Statistics, investment from

Hong Kong, Macao and Taiwan are classified into Foreign Direct Investment due to the different market operational mechanism. Asia countries and regions contribute the most with supplement from European countries and America; ethnic Chinese contribute more than other foreign investors.

3.4 The problems in current FDI situation

From the characteristics we analyzed above, we can identify several problems existing in the current FDI situation.

Problems 1: High pressure on attracting foreign capital

According to the '2017 World Investment Report' published by United Nations Conferences on Trade and Development, the FDI flowing to Asian developing regions have decreased by 15% in 2016. The actual value of using FDI has decreased 2% in China in 2016. With the American 're-industrialization' strategy, British rejuvenation and other developing countries further opening markets, China bear high pressure on attracting and absorbing high-quality FDI.

Problem 2: the imbalanced distribution of FDI

As we analyzed above, the majority of FDI is flowing to eastern area. Open market environment, mature infrastructure, advanced associated industries, talents and preferential policy in the eastern region may enlarge the gap, which may intensify the economic polarization.

Problem 3: 'de-industrialization' of FDI

As we mentioned above, FDI in the service sector has surpassed that in the secondary industry. But the majority of increase in the tertiary industry may attribute to the increase in the real estate industry, which increases the bubbles in Chinese real estate industry and has negative impact on healthy economic growth in the long run.

IV. Empirical model and regression

In order to investigate the relationship between economic growth and FDI and other economic variables during different time period, and compare the difference between the southern, central and western area in China, and

also learn from related economic theory and previous studies and consider the availability of data, I set the empirical model as follows:

$$GDP_i = \alpha + \beta_1 INFRA_i + \beta_2 OPEN_i + \beta_3 L_i + \beta_4 FDI_i + \beta_5 EDU_i + \beta_6 K_i + \beta_7 ST_i + \varepsilon_i \quad (1)$$

where GDP= Gross Domestic Product (when the regression is carried on national level) or Gross Regional Domestic Product (when the regression is carried on provincial level)

INFRA= tonnage mileage by all means of transportation which indicates the infrastructure condition

OPEN= total export-import volume which indicates the level of open market

L= quantity of urban employment

FDI= Foreign Direct Investment

EDU= enrollment of higher education which indicates the quality of human capital

K= Fixed Capital investment which indicates the investment environment

ST= the added value of the tertiary industry which indicates the industry structure

In order to eliminate the multicollinearity of the function, I do the logarithmic transformation on the variables:

$$INGDP_i = \alpha + \beta_1 ININFRA_i + \beta_2 INOPEN_i + \beta_3 INL_i + \beta_4 INFDI_i + \beta_5 INEDU_i + \beta_6 INK_i + \beta_7 INST_i + \varepsilon_i$$
(2)

I will start from related date from two time period (2001-2009 and 2010-2016) to compare between different regions and also insert a variable ST_i to investigate the effect of industrial structure. During the empirical analysis, we combine the data from provinces with time, which is known as Panel Data. Pane Data are multi-dimensional data containing individuals (in our case, provinces), indicators and time period. Panel data increases the degree of freedom of sample and are more accurate than other liner regression model.

The data comes from 'China Statistical Yearbook' over the years, National Statistics Bureau database and CNKI database.

Since the data is short panel, we firstly use F test and Hausman Test and then decide that fixed effects regression model is a better choice. We observe heteroscedasticity in our regression and use PSCE model to make amendment. The regression results are as follows:

Table 4.1 Results of whole samples data's regression from 2001 to 2009

VARIABLES	(1) National lnGDP	(2) East lnGDP	(3) Central lnGDP	(4) West lnGDP
lnEDU	0.095**	0.069***	0.023	0.532***
	(0.040)	(0.018)	(0.038)	(0.194)
lnFDI	0.052***	0.000	0.006	-0.037
	(0.013)	(0.009)	(0.012)	(0.049)
lnST	0.039***	0.789***	0.713***	0.195
	(0.014)	(0.025)	(0.068)	(0.201)
lnINFRA	0.107***	-0.012	0.013	0.092
	(0.026)	(0.011)	(0.022)	(0.131)
lnK	0.422***	0.081***	0.120***	0.479***
	(0.025)	(0.017)	(0.042)	(0.138)
lnL	0.231***	-0.086***	0.300***	0.860
	(0.070)	(0.030)	(0.089)	(0.539)
lnOPEN	0.101***	0.067***	0.089***	-0.299***
	(0.024)	(0.013)	(0.023)	(0.087)
Constant	1.673***	1.771***	-0.317	-1.222
	(0.383)	(0.139)	(0.523)	(2.511)
Observations	278	99	72	107
Number of cntry	31	11	8	12
R-squared	0.968	0.997	0.996	0.844

Annotation：*** $p<0.01$, ** $p<0.05$, * $p<0.1$. （）is standard deviation.

As we can see from Table 4.2.1, the results indicate the goodness of fit.

All in all, we list the first three variables that contribute most to the economic growth during 2001 to 2009.

On the national level, we should keep improving investment environment and enhance the construction of infrastructure and university. Also, the supply of labor force is necessary to facilitate the economic construction and social development. (lnK, lnL, lnINFRA)

Specifically, in the eastern China, to upgrade the industrial structure is our priority and we should also pay attention to the improvement of higher education and investment environment. (lnST, lnK, lnEDU)

Industrial structure, labor force and investment environment show great significance when developing the economy in the central region. (InST, InL, InK). There is huge gap between western China and east in terms of economy, infrastructure and education. The government should support the industrial development and afford more opportunity in higher education and retain the talents. (InEDU, InK, InST)

Table 4.2 Results of whole samples data's regression from 2010 to 2016

VARIABLES	(1) National lnGDP	(2) East lnGDP	(3) Central lnGDP	(4) West lnGDP
lnEDU	0.190**	-0.085	-0.006	0.291***
	(0.085)	(0.076)	(0.213)	(0.089)
lnFDI	0.026**	0.008	0.061	0.018
	(0.013)	(0.013)	(0.054)	(0.013)
lnST	0.359***	0.629***	0.511***	0.223***
	(0.050)	(0.042)	(0.133)	(0.049)
lnINFRA	0.034*	-0.003	0.250***	0.221***
	(0.019)	(0.010)	(0.071)	(0.048)
lnK	0.200***	0.026	-0.060	0.213***
	(0.038)	(0.033)	(0.109)	(0.044)
lnL	0.174***	0.047*	0.168	0.269***
	(0.047)	(0.025)	(0.129)	(0.085)
lnOPEN	0.054**	0.278***	0.059	0.047**
	(0.021)	(0.037)	(0.054)	(0.020)
Constant	2.178	1.342	1.958	1.155
	(0.230)	(0.273)	(0.750)	(0.318)
Observations	169	57	46	66
Number of cntry	31	11	8	12
R-squared	0.953	0.991	0.955	0.984

Annotation：*** $p<0.01$, ** $p<0.05$, * $p<0.1$. （）is standard deviation.

As we can see from Table 4.2.2, the goodness of fit is good.

To conclude, just as we expect, we should shift our focus during different period in terms of the development

of economy. Wo list the top three variables which contribute most to the economic growth during 2010 to 2016. Nationally, we should also pay attention to the improvement of investment environment and construction of infrastructure and due to the rapid growth of tertiary industry, how to provide high-quality labor force is also needed to be addressed. (InST, InK, InL)

Eastern area is the economic and prosperous region in China. We should grape the opportunity of economic restructure, ramp up service sector and also play exemplary role in promoting the advanced economic pattern among the rest of the country. (InST, InOPEN, InL) Central area demonstrates its desire for talents during the new period when accepting industrial transfer from coastal developed region. (InST, InINFRA, InL) Due to the geographical condition and political reasons, government is an indispensable and fundamental role in uplifting western economic growth. (InEDU, InL, InST) Chinese market system: socialist market economic system and political regime make government as a strategically fundamental role in the development of economy. Hence, in the final part, we will involve the government as the important part to offer some suggestions in terms of industrial upgradation and other prospects. As we can see from the empirical study, FDI still has positive role in the western region and on the national level, specifically in technology spillover, merchandise trade and investment and financing. Therefore, government should still further open markets and encourage foreign capital to flow to the places where need it most.

V. Conclusions and Suggestions

Study from the section III and IV, we offer some suggestions for the three important players in the Chinese economy.

5.1 Conclusions

Finding 1: FDI has worsened the imbalance between western and eastern area during 2001-2009 while FDI is no longer the cause nowadays. On the contrary, increasing foreign capital utilization in the western region are able to help to bridge the gap.

Finding 2: Industrial structure transformation plays a highly significant role in speeding up national and

regional economic growth. So does the improvement of investment environment. Hence with the policy inclination, Chinese enterprises should grape the opportunity to lift their position in the global value chain.

Finding 3: The variables: education and infrastructure are able to help to narrow the imbalance between eastern and western regions in terms of the economic growth.

5.2.1   Suggestions for Chinese government

i.   Keep improving the investment environment

As we can see from the empirical result, the fixed capital investment affects the economic growth significantly. Chinese government should deepen the reform and specifically in the service sector. Effective actions should also be taken in the tertiary industries to further open finance, education, culture and medical treatment market and relax the access restrictions on child-care, nursery for old-age, architecture design, accounting and auditing, commerce and trade and e-commerce. Some mature reform measures that have been proved effective should be applied to the rest of country.

ii.   Accelerating the industrial structure transformation and develop high and new technology

 manufacturing and high-level service industries

From the empirical study, we found that the added value of service sector which indicates the industrial structure shows great significance on the economic growth. Chinese government has also realized the importance and issued some supportive policy, for example 'Made in China 2025' launched in 2015[19] by the State of Council which underline innovation capability, the combination of industrialization and informatization and green manufacturing to support the development of high and new technology, service-oriented manufacturing and producer services and uplift Chinese enterprises' position in the global value chain. Some developed countries also launched similar strategies to take advantage of information technology, such as German 'Industry 4.0'. Chinese government could use German experience for reference to practice into 'Made in China 2025'.

19 http://www.gov.cn/zhengce/content/2015-05/19/content_9784.htm

According to the empirical study, Chinese government should focus on the infrastructure construction, and increase the labor input in the western region. Considering the positive effect of FDI, we believe more accurate FDI policy should be issued to narrow down the gap between the western region and the rest of China since the industrial development is the most effective way to retain the labor resources.

iii. Systematic management can be applied to the regional policy when introducing foreign capital in the western region

There are 12 provinces in Chinese western region with 6810 thousand square kilometers area of land which takes up around 71% of China total area of land while the population is around 0.35 billion, taking up around 28% of nationwide population. With a vast territory, geographical conditions, culture and history, the economic development level and endowment of resources is totally different among different regions. Hence, it is impractical to implement uniform FDI policies. Central government should adjust measures to local conditions. We can draw lessons from Sweden when formulating regional incentive programs. Chinese government can also divide western regions into different economic zone due to the geographical conditions, or industrial base and implement the different degree incentive programs in related aspects and for different industries.

5.2.2 Suggestion for Chinese enterprises

i. Encourage technology innovation, strengthen human resources development and increase R&D expenses

Chinese enterprises should establish advanced human capital management system to retain and attract talents. Another effective way to take advantage of universities' resources. University laboratories may have the cutting-edge theory and technology. The cooperation between enterprise and companies is able to increase the efficiency and efficacy in technology development. In addition, the vocational education can cultivate and transmit talents that satisfy the job requirements of enterprises most and decrease the mismatch between the supply and demand among different disciplines.

ii.   Accelerate upgrading the structure and integrate online and offline channel

Internet has changed Chinese people's life deeply and influence the business world significantly. The combination of intelligent machine, big data and human resources will provide new opportunities for enterprises and economies. Chinese enterprises should keep pace with the wave to consolidate its production process and its value chain.

5.2.3 Suggestions for foreign enterprises

Some MNEs find it difficult to adapt to Chinese diversified market nowadays even they might have conquered Chinese market in the beginning of the twenty-first century. Here I select Chinese retail industry as an example to study the shift of key success factors to shed light on how the foreign enterprises can grasp the new opportunity and be competitive. The new KSFs are online and offline integration, brand, experience, technology and social liabilities. Foreign enterprises could adapt to Chinese market trends and learn from some excellent Chinese enterprises such as HEMA to develop their own business logic in China.

VI.   Limitations and future studies

Despite the quality of analyses employed above, we believe there are two limitations existing in our study. The first limitation is due to the availability of data, we insert ST, that is the added value of the tertiary industry, to indicate the economic structure. The accuracy of data is questionable since the high and new technology manufacturing industry and producer services are the main engine for the economic structure upgradation while the added value of the tertiary industry is largely contributed by the real estate industry in the time period we analyzed.

The second limitation is that we assume bad performance of foreign enterprises in retail industry through the performance of some leading companies in the qualitative way. A quantitative study related on the Chinese dynamic markets, especially Internet impact on the productivity of foreign enterprises and the spillover effect from Chinses enterprises to foreign enterprises can be conducted to further give more solid evidence to my case study.