Chapter 1

Introduction

1.1 Principle and Rationale Backgrounds

The role of foreign direct investment (FDI) in economic growth has been a debatable issue in the literature. Different authors have studied the links between FDI and economic growth from different perspectives. However, most of the studies provide different results about their relationship. FDI is considered as a channel for transferring new ideas, technologies and skills to promote technological progress which enhances the total factor productivity (TFP). In this sense, FDI is supposed to play an important role in boosting economic growth.

During the Mao period (1949-1976), China spurned foreign investment and paid back all its foreign loans by 1965. After taking over the political leadership by Deng Xiaoping and adopting the new economic policy at the end of 1978, China was opened up to foreign trade and investment. In the early 1980s, the first Special Economic Zones (including the relatively industrialized cities of Shenzhen, Zhuhai, Shantou and Xiamen located in the southeast coastal area) were set up to absorb direct investment from Hong Kong and elsewhere. FDI inflows grew steadily but remained relatively low during the 1980s due to the poor situation of infrastructure in China.

In 1992, Deng Xiaoping toured Guangdong and Shanghai to encourage a further and much more massive wave of foreign direct investment in the form of wholly-owned subsidiaries of foreign companies which contributed towards the acceleration of GDP growth[1]. From Figure 1.1, it can be seen that FDI inflows peaked at over 45 billion USD in 1998. A further surge in FDI accompanied by China's formal accession to the World Trade Organization (WTO) in December 2001, which

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[1] http://www.chinability.com/FDI.htm

promotes China to be the largest FDI recipient in the world in 2003. By the end of 2009, FDI inflows increased up to over 90 billion USD, which accounts for 1.86 percent of GDP.
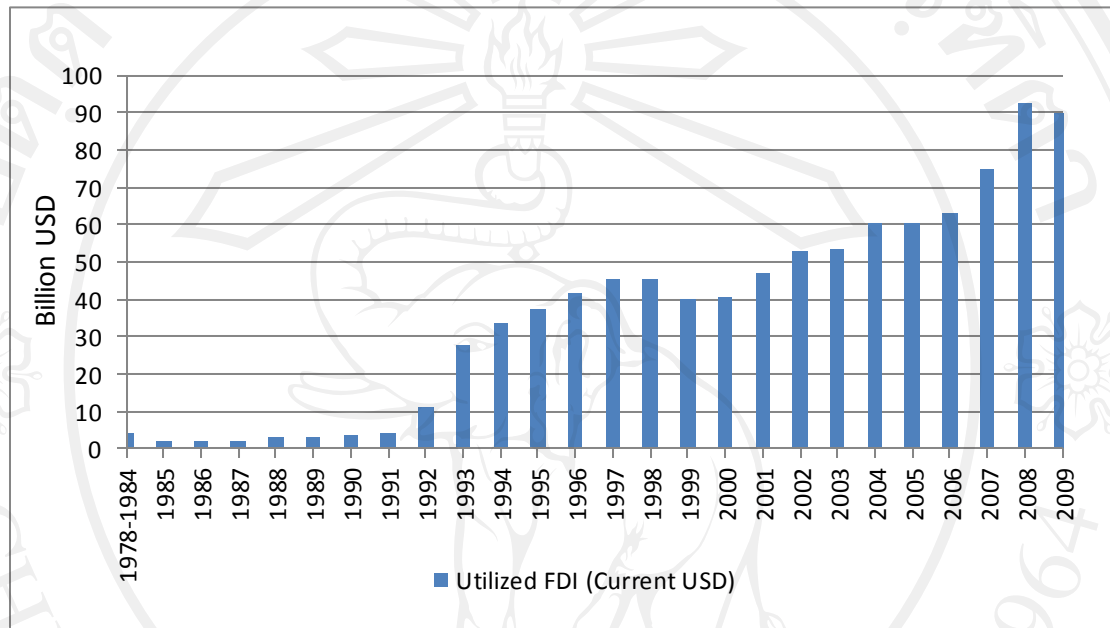
Source: China Statistical Yearbook (2010).

Figure 1.1 *Actual utilized FDI in China during 1978 to 2009 (Current USD).*

Asia has had the highest FDI share in the world since the government's promotion policies especially for Hong Kong and Taiwan. It accounts for 67.33 percent of the total FDI in 2009 (Figure 1.2). Latin American countries account for 16.31 percent of the total FDI. The advanced regions such as Northern America and Europe share only a small part among the total amount of FDI. Northern America makes up 4.08 percent and Europe makes up 6.13 percent, respectively. FDI from advanced economies can be considered as a channel for transferring new ideas, technology and skills. However, most FDI in China can be original designated to the developing countries. Researchers suspect that FDI plays an important role in generating the technology spillover effect that enhances the economic growth.
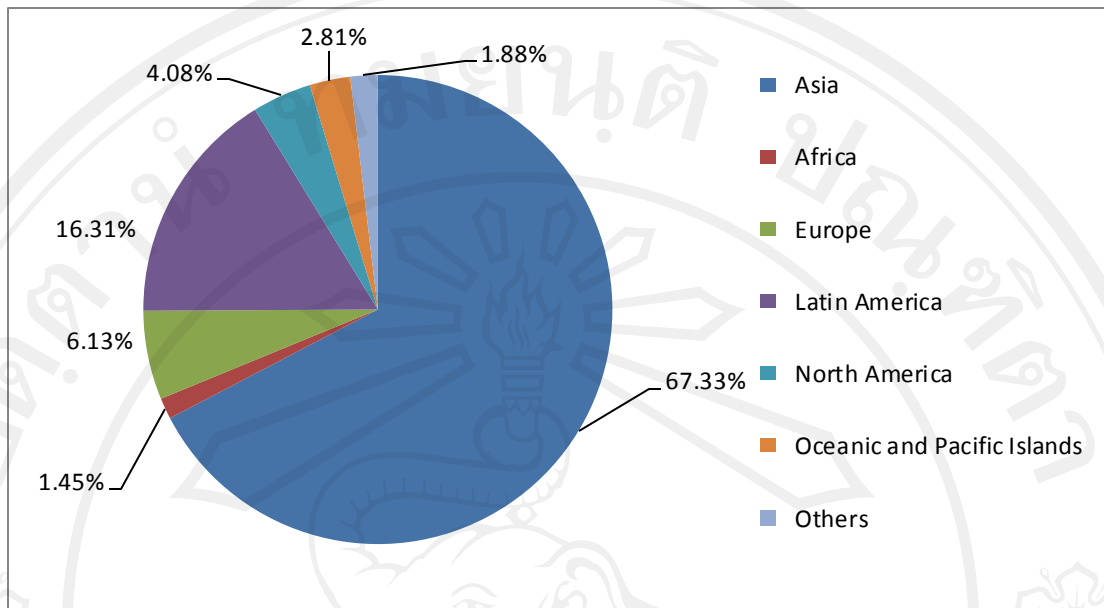
Source: Calculated from China Statistical Yearbook (2010).

Figure 1.2 *Shares of Actual utilized in 2009 by region.*

According to the National Bureau of Statistics of China, the actual utilized FDI from Hong Kong increased to more than 46 billion USD in 2009, which accounts for 51 percent of total actual utilized FDI during that period. Hong Kong, now as a largely self-governing 'Special Autonomous Region' of China itself, has been the largest source of record. However, some of the investments are from various western countries which provide FDI to China via Hong Kong intermediaries (Fung et al., 2002). In recent years, Hong Kong has still remained the most important FDI provider to China, whereas investment from other parts of the world, especially from Western Europe and North America has gained strength in the meantime.

China has been successful in attracting FDI through the last three decades. However, the benefit of FDI on economic growth is still a debatable issue. These debates provide the fundamental rationale to test the relationship between FDI and economic growth in China. Table 1.1 presents the amount of actual utilized FDI and GDP from 1986 to 2009, while Figure 1.3 shows the relationship between time series data of FDI growth rate and GDP growth rate in China during the last three decades.
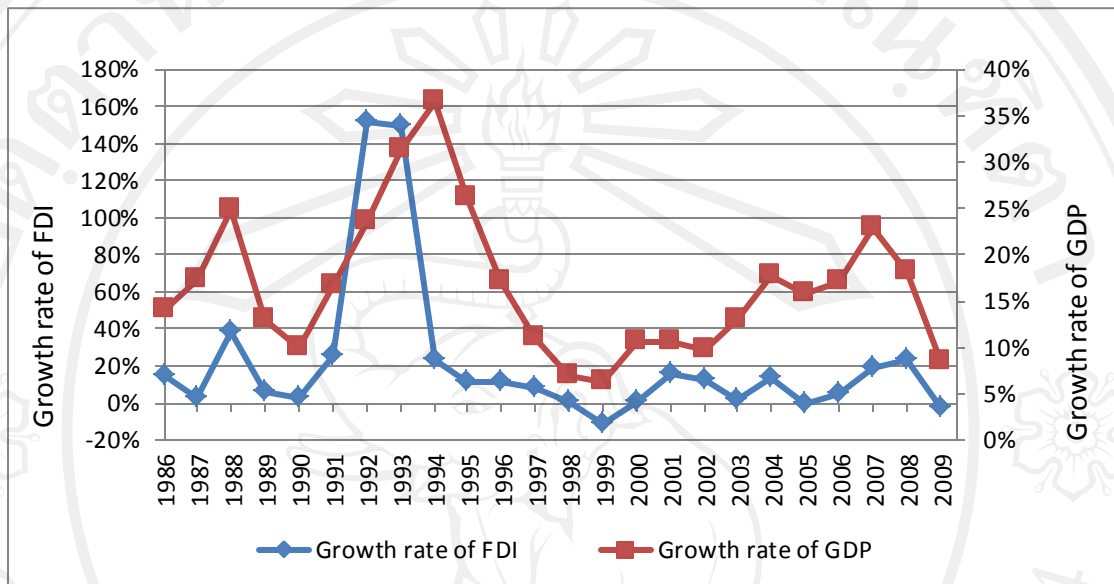
Table 1.1 *Actual utilized FDI and GDP in China during 1986 to 2009 (Current USD).*

Year	FDI (Million USD)	GDP (Million USD)	Year	FDI (Million USD)	GDP (Million USD)
1986	2,244	297,590	1998	45,463	1,019,479
1987	2,314	323,973	1999	40,319	1,083,285
1988	3,194	404,149	2000	40,715	1,198,460
1989	3,392	451,310	2001	46,878	1,324,807
1990	3,487	390,278	2002	52,743	1,453,828
1991	4,366	409,166	2003	53,505	1,640,959
1992	11,008	488,222	2004	60,630	1,931,644
1993	27,515	613,228	2005	60,325	2,256,898
1994	33,767	559,221	2006	63,021	2,712,938
1995	37,521	727,945	2007	74,768	3,494,041
1996	41,726	856,087	2008	92,395	4,519,514
1997	45,257	952,651	2009	90,033	4,984,426

Source: China Statistical Yearbook (2010).

According Table 1.1, the amounts of both actual utilized FDI and GDP have increased dramatically through the period. FDI grew tremendously during 1991-1994, while GDP grew much more smoothly. In Figure 1.3, the growth rate of FDI jumped sharply during 1991-1993, peaked at 152 percent in 1993 since Deng Xiaoping toured Shanghai and Guangdong to encourage a further massive wave of FDI in 1992. The same as FDI growth rate, GDP growth rate increased sharply by 36 percent during 1992-1993. After 1993, despite the amounts of FDI and GDP still increasing, the growth rates have decreased. In 1994, the growth rate of FDI has sharply declined from 152 percent to 23 percent. Since the Asian financial crisis of 1997, FDI decreased from 45.463 billion USD in 1998 to 40.319 billion USD in

1999. However, the Asian financial crisis did not affect China's GDP greatly since there was still a positive GDP growth rate during the recession period.

Source: China Statistical Yearbook (2010).

Figure 1.3 *Growth rate of FDI and growth rate of GDP in China (1986-2009).*

As the world economy recovered gradually, both FDI and GDP have had a stable growth after 2000. Up to 2009, GDP and actual utilized FDI have grown to over 4 trillion USD, and 90 billion USD, respectively. According to Table 1.1 and Figure 1.3, it is quite clear that there are some links between FDI and economic growth since the similar pattern of their growth rate. That is the reason why it is necessary to study the relationship between FDI and economic growth in China.

Human capital is the stock of knowledgeable and skilled labor which produces economic value efficiently. In industrialized countries, workers with skills and talents, which are defined as human capital, play a more important role than raw labor. The stock of skills and talents are increased by investment in human capital through schooling, on-the-job training, and by other means (Dornbusch et al., 2011). An influential article by Mankiw, Romer, and Weil, 1992, suggests that the

production function is consistent with three factors, which share one-third each; physical capital, raw labor and human capital. Adding human capital into the production function is necessary for industrialized countries since empirical evidences of human capital models reveal that investment in education has a positive correlation with economic growth and development (Olaniyan and Okemakinde, 2008).

China, as one of the most populous and fastest growing economies, has paid more attention to human capital in recent years. Fleisher et al. (2007) concluded that there are two roles for human capital in China: (i) educated workers embody human capital that contributes directly to output in the production process itself; (ii) higher educated human capital plays an important role in total factor productivity (TFP) growth. Infrastructure capital is hypothesized to affect GDP through TFP growth, as is FDI. Nevertheless, there is a traditional sense in China that most people believe the higher academic education will bring higher income. People heavily focus on the academic education rather than the technical education, which leads to the lack of professional technicians and the surplus of the higher academic educated labor.

As shown in Table 1.2, the enrollment of regular institutions of higher education was only 1.88 million in 1986 and had risen sharply to over 21 million by 2009 with an average annual growth rate of 11.52 percent while the enrollment of the specialized secondary schools was 2.56 million in 1986 and had increased smoothly to 7.857 million by 2009 with an average annual growth rate of 5.38 percent. During the period of 1999-2004, the growth rate of enrollment of regular institutions of higher education continually increased by over 20 percent per year, and by the end of 2004, the enrollment of regular institutions of higher education was over three times that of the enrollment in 1999. On the other hand, the enrollment of specialized secondary schools during that period displayed a rather slow growth and even a negative growth rate over 1999 to 2001. It is clear to see that people paid more attention to higher academic education instead of specialized education.

Table 1.2 *Number and growth rate of enrollment in regular institutions of higher education and specialized secondary schools.*

Year	Enrollment of Regular Institutions of Higher Education (H1) (Thousand Persons)	Growth Rate of H1 (%)	Enrollment of Specialized Secondary Schools (H2) (Thousand Persons)	Growth Rate of H2 (%)
1986	1,880	10.39	2,560	11.55
1987	1,959	4.20	2,676	4.53
1988	2,066	5.46	2,794	4.41
1989	2,082	0.77	2,823	1.04
1990	2,063	-0.91	2,950	4.50
1991	2,044	-0.92	3,156	6.98
1992	2,184	6.85	3,428	8.62
1993	2,536	16.12	3,626	5.78
1994	2,799	10.37	4,056	11.86
1995	2,906	3.82	4,483	10.53
1996	3,021	3.96	4,733	5.58
1997	3,174	5.06	5,119	8.16
1998	3,409	7.40	5,416	5.80
1999	4,134	21.27	5,339	-1.42
2000	5,561	34.52	5,032	-5.75
2001	7,191	29.31	4,664	-7.31
2002	9,034	25.63	5,115	9.66
2003	11,086	22.72	5,282	3.26
2004	13,335	20.29	5,694	7.81
2005	15,618	17.12	6,256	9.86
2006	17,388	11.33	6,762	8.09
2007	18,849	8.40	7,405	9.52
2008	20,210	7.22	7,611	2.78
2009	21,447	6.12	7,857	3.23
1986-2009	Average Annual Growth Rate	11.52	Average Annual Growth Rate	5.38

Source: Calculated from China Statistical Yearbook (2010).

Figure 1.4 shows the relationship among the growth rates of GDP and two kinds of human capitals. According to Figure 1.4, the growth rates of GDP, enrollment of regular institutions of higher education (H1) and enrollment of specialized secondary schools (H2) show similar trends during the period 1988 to 1997. However, the growth rates reveal huge differences since 1998, which seem to have no linear relationship among each other anymore. The growth rate of H2 has kept declining since 2000 which means that people are not interested in technical education. In this study, it is presumed that there is positive relationship between economic growth and the interactions of FDI and two kinds of human capitals. From this aspect, this study will examine whether different human capitals benefit economic growth through the channel of FDI differently.
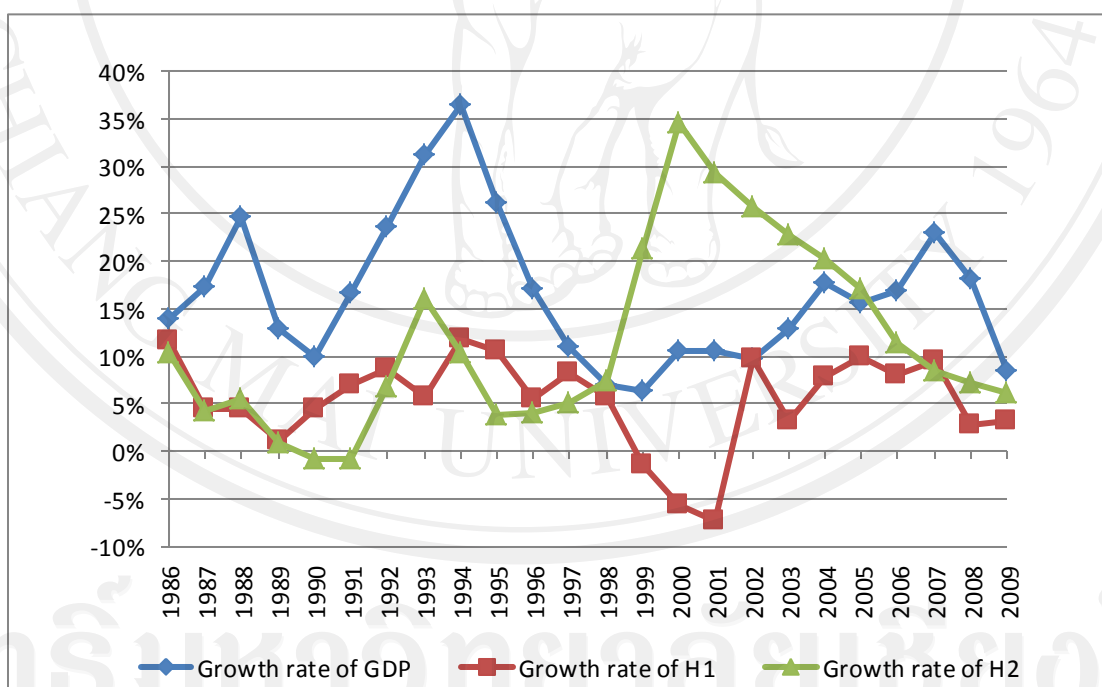
Source: Calculated from China Statistical Yearbook (2010).

Figure 1.4 *Growth rates of GDP, enrollment of regular institutions of higher education (H1) and enrollment of specialized secondary schools (H2).*

This study tests the relationship between FDI and economic growth as well as the relationship between economic growth and the interactions of FDI and two different kinds of human capitals (namely knowledgeable human capital and technical human capital) following the model proposed by Borensztein et al. (1998) by using a panel data approach. It employs panel unit root tests, panel cointegration tests, panel dynamic ordinary least squares (DOLS) estimation as well as panel Granger causality tests associated with vector error correction model (VECM) methodology, which have been rarely studied in the literature for relationship among FDI, human capital and economic growth, and which are even rarer to be used in China.

1.2 Purpose of the Study

The impact of FDI on economic growth has received great attention in empirical studies. A number of studies test the effect of FDI on economic growth through human capital variables. However, various definitions of human capital cause different impacts on economic growth. This study is aimed at testing the relationship between FDI and economic growth as well as the relationship between economic growth and the interaction of FDI and human capital. Since different educational backgrounds generate different human capitals. Human capital employed in this study will be defined into two types: knowledgeable human capital and technical human capital, respectively. There are three objectives in this study:

1) To investigate the long-run impact of FDI on China's economic growth.

2) To test whether FDI together with human capital can generate a positive effect on economic growth.

3) To test which kind of human capital is much more efficient in enhancing China's economic growth together with FDI.

1.3 Advantage of the Study

The main methodological advantage of this study is the use of panel unit root tests, panel cointegration tests, panel dynamic ordinary least squares (DOLS) estimation as well as panel Granger causality tests associated with vector error correction model (VECM) methodology, which have been rarely studied in the literature for relationship among FDI, human capital and economic growth, and which are even rarer to be used in China.

There are two other benefits from this study as follows:

Firstly, the results may be useful for the policy makers in China for making decision in attracting FDI. Furthermore, it is also useful for policy makers to allocate FDI resource more efficiently into different regions to promote economic growth.

Secondly, the study examines not only the role of FDI in China's economy but also emphasizes the significant role of human capital in enhancing economic growth. It will provide insights into the impact of FDI on economic growth through different human capitals. The results might be useful for policy makers to build up a more suitable education system which reinforces China's economic growth.

1.4 Scope of the Study

The study examines Chinese secondary data during the period 1995 to 2009. According to the availability of data, data is based on a panel of 30 provinces and municipalities. China has 31 provinces and municipalities, but Tibet is excluded because it does not attract significant FDI throughout the period. Since the unavailability of some data, the study will employ an unbalanced panel.