Literacy, Education and Economic Development in Contemporary China

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Abstract

Literacy has been conceptualized traditionally as having a major role in developing a nation. Literacy helps to spread awareness among the people of their rights. People with good literacy skills enjoy a higher standard of living, have better opportunities of finding jobs, and are able to continue to learn new skills that will help them in the workplace. A nation with high literacy rate is more likely to attract a large pool of investors and entrepreneurs as well as the inflow of money which in turn have a great impact on the nation’s economy. A society’s economic prosperity and literacy have great influence on each other as they jointly grow together. The purpose of this paper is to examine the role of literacy in the economic development of contemporary China. Five variables, i.e. number of the illiterate and self-educated, primary school enrolment, secondary school enrolment, university and college enrolment and the education length were chosen based on empirical studies, especially the Solow model. Quantitative data were analyzed across China’s twenty-two provinces, five autonomous regions, and four municipalities which are under the direct control of the central government. On the other hand, qualitative data were generated by hypotheses or tested assumptions. The paper reveals that there is a significance relationship between the above-named variables and the economic development as well as the effect of structural changes on the education system, and that literacy is the key to move China forward. However, due to funding inequalities and certain aspects of government policies, some regions and provinces in China remain underdeveloped. Comparison of literacy rates between eastern, central and
western regions were also made to further investigate their impact on the nation’s development.

**Keywords:** education, literacy, illiteracy, China, regions

**JEL classification:** I22, I24, I25, I28

1. Introduction

Education has a significant effect on the economic development of a country, both directly through employment and productivity, better composition of the labour force, division and mobility of labour, etc., and indirectly through higher savings and reducing the size of families. A better educated society will inculcate the right kind of attitudes and skills and at the same time, remove some of the obstacles that hinder social change and progress. Evidence has shown that the better educated or literate person will receive higher personal earnings. In fact, highly educated people can be considered as a scarce supply for which employers in the public and private sectors are willing to pay relatively higher wages at the time of recruitment.

Realizing the importance of literacy in a society, the Chinese government has started to stimulate reforms in education during the late 1980s, emphasizing its role in advocating economic development. Medium- and long-term plans to restructure and improve the quality of education have been drawn by all government bodies to meet new conditions and requirements in building a new and wealthy society in all aspects.

In November 2011, Premier Wen Jiabao 温家宝, while attending the 14th China-ASEAN Summit, urged that education was vital and should be given priority especially for a country which is underdeveloped, as a higher level of education would lead to the promotion of equity and expansion of talent in innovative technology. He also underlined that education plays an important role in promoting economic development. Over the past few decades, the People’s Republic of China (PRC) has achieved magnificent economic development and has successfully raised its level of competitiveness in the world economy. China initiated in the late 1970’s the process of “openness and reform” with the intention to encourage and further promote the modernization of its economy while maintaining to a certain extent a socialist structure. From the beginning of the reform and open-door policies in the late 1970s to 2010, China has achieved spectacular economic growth which saw its real gross domestic product (GDP) increasing amazingly at 9.6 per cent per annum. Besides the great achievement of real GDP per capita which had increased nine-fold, at the same time, real capita income also rose by more than six-fold. China has
been ranked the world’s second largest economy since 2010, after the United States, having surpassed United Kingdom, Japan and France. With consistent and stable growth rates of around 10 per cent over the past 30 years, China has been seen as the fastest-growing major economy in the world (*China Statistical Yearbook*, 2010).

The Chinese economy had experienced tremendous changes and reform due to the evolutionary process of economic necessity. In 2002, China emerged as the largest exporter and second largest importer of goods in the world. In the following year, China’s import growth rate for the first time successfully surpassed Japan. Evidence shows that China’s import growth rate in the first nine months were around 40 per cent, which means that the import growth rate has increased rapidly throughout the year (Lardy, 2003). Later on, in 2010, China with its remarkable GDP per capita of US$7,544 was ranked 94th according to the International Monetary Fund (IMF) report. This shows that China have successfully made the switch from a planned economic system to a mixed economy which is now able to produce goods and services to fulfill various demands of the world. After seeing through how China has appeared as the major contributor to the world economy, World Bank analysts and most others predicted that China would persist in its current achievements (at least 7 per cent of growth rate annually) and continue to achieve progressive economic development at different stages for the next two decades (Thomas, 2006).

However, these fruitful achievements have not been distributed evenly across the eastern, central and western regions in China. Regions which are better educated tend to develop more satisfactorily while regions which are in lack of educated people tend to suffer from poverty. Marshall (1920) argues that the level of labour production in various countries is positively correlated with their expenditures per capita on education and the level of literacy. There are, of course, many factors impeding the economic development of countries like China, but the foremost among them is the general illiteracy which distinguishes them from the developed countries. Hence, while increasing labour productivity is the key to erase poverty in China, the best policy to achieve that has to be through the spread of education and knowledge acquisition.

The magnificent competitive advantages in terms of market size, large pool of labour force, low labour cost and low production cost have played an extremely significant role in promoting China’s economic development. Regional development policies were drawn to foster the development of the country’s three zones: the eastern, central and western. However, in fact, the allocations of funds were more concentrated in the eastern region. Démurger (2001: 103) argues that the problem of regional disparity exists
when statistics show that the GDP per capita of China in the coastal provinces grew faster and some even surpassed the inland provinces, regardless of the relatively poor performance of Liaoning province and the municipalities of Tianjin and Shanghai. The inequality in different regions has become a major issue in the country and the government is obligated to seek long-term solutions. From 1980s to 1990s, the Coastal Development Strategy and Open-door Policy made by the government had doubled up the seriousness of regional disparity between the eastern, central and western regions.

In 2004, the national average level of GDP per capita was US$1,270 (or 10,561 yuan in renminbi/RMB). Among the provinces (sheng 省), zizhiqu (自治区, i.e. autonomous regions) and zhixiashi (直辖市, i.e. municipalities under direct control of the central government), the poorest, Guizhou, had a GDP per capita of US$496 (4,125 yuan), while the richest, Shanghai, had a GDP per capita of US$6,660 (55,307 yuan). According to the World Bank’s global ranking, places like Guizhou are on a par with Sudan and Kenya, which rank 170th and 171st in the world respectively. Shanghai, on the other extreme, can be equated with Croatia and Mexico, ranking 69th and 70th respectively (Golley, 2007).

The issue of regional disparity in China has been extensively studied. Most of the scholars claimed that bigger disparity has created a larger gap between the rich and the poor in the nation. Thus, it is really an unhealthy phenomenon especially for a developing country like China. A large gap within the country may cause the rich to become richer and the poor to become poorer. If the problem reaches a severe situation, the nation’s harmony will be threatened. The government of China is aware of the seriousness of this issue and intends to takes appropriate actions to minimize the country’s regional disparity.

Before the founding of the People’s Republic of China in 1949, the educational system of China was not strongly and systematically built. The enrolment rate for basic education was low with only 20 per cent and illiteracy rate was as high as 80 per cent among the total national population (China Education and Research Network, 2001). However, after the establishment of the People’s Republic of China, the Chinese government has put in vigorous efforts in eliminating illiteracy. The government’s aim has been to ensure that all members of the society would obtain the basic rights for learning. Furthermore, government has also aimed to allow the illiterate to at least obtain the basic abilities which include reading, writing and calculating. With the implementation of the reform and open-door policy by the government, Chinese education had since gone through a fast track of development.
The government of China, a country with the largest population and human resources among the developing country in the world, has always been aware of the importance of education in leading the nation to achieve economic development. Over the years, the government had been increasing the funding for public education. Besides funding, there are also a series of educational laws and regulations enacted such as the “Law on Compulsory Education”, the “Law on Education”, the “Law on Higher Education” and the “Regulation on Elimination of Illiteracy”. China has also been transforming its heavy population burden into the advantages of human resources, thus boosting the sustainable development of its economy and society. With the enforcement of all these educational laws and regulations, the school enrolment rates at different levels had increased drastically, and so did the average educational length. Over the years, China has also been actively participating internationally in the promotion of education. For instance, the Chinese government had attended several important international conferences related to education, including the World Conference on Education for All (1990) and the Dakar World Forum on Education (2000), held by the United Nations or its affiliated organizations.

After the Dakar World Forum on Education in the year 2000, several actions were taken by the Chinese government, including setting up more fora on education at the national level to build up the interdepartmental coordination on education for all and to disseminate China’s Action Plan for Education for All (2001-2015) in the year 2003. The Education for All (EFA) proposed by the UNESCO Regional Office for Education in Asian and the Pacific set the year 2000 as the base year for reference and 2001 as the starting year. UNESCO came out with six main goals and policies during two planning cycles – the first cycle from the year 2001 to 2005 and the second cycle from the year 2006 to 2015 (Chinese National Commission for UNESCO, 2008). The first Education for All (EFA) forum was held in Beijing, China, on December 9th. The main objective of this forum was to request the related department for a helping hand to lead an action plan for success. Later on December 12th and 15th, another forum was held in Beijing to have a more detail discussion on the issue of EFA for Asia-Pacific including specific plans and suggestions on how to improve matters related illiteracy in the provinces and municipalities, education quality and rural education were discussed, and a third forum on EFA, again in Beijing, participated by the related departments and commissions of the central government, eleven provinces and autonomous regions, social organizations and other international organizations based in China. This third session is to seek for a future international cooperation.
and to conduct exchanges on the progresses in the interim assessment of the 10-year programme of Education for All. These EFA fora had played an active role in popularizing the concept and objective of EFA in the society. Intensive efforts were also made to narrow down the gap of education development between the eastern, central and western region, as well as rural and urban areas, although there is evidence showing that educational opportunities, as have always been, are still unequally distributed in today’s China.

2. Historical Background of Education in China

Illiteracy is one of the most unfavourable social issues that haunt governments of nations in this contemporary world. Governments all over the world are putting in every effort to solve this major problem that exists in their countries. It is believed that the most crucial means to pull a nation out of poverty and its underdeveloped status is to continuously eradicate illiteracy. Hence, nations all over the world are aware of the importance of education and they treat literacy as an essential project to develop a nation and at the same time, empower its people. Furthermore, adult literacy is not only seen as an important factor to build up a nation, but also an indicator of its level of civilization. On the other hand, increasing awareness of the role of education in national economic progress has led to various efforts being introduced by Deng Xiaoping and his reformist administration to train and educate the Chinese citizens, with the government and the private sectors getting more and more organized and systematic in training and educating the people.

Education is considered as the root of civilization and has played a significant role in China’s long cultural tradition. Literacy is not only seen as technical skills required for certain jobs but also an important moral template for cultural identity and modernity. Education and knowledge have been highly regarded during the old days in China especially in the age of Confucianism. And these lead to tons of literacy campaigns and talks throughout the 20th century until today (Georgia, 2009). In general, education in China is divided into three main categories, namely primary, secondary, and higher education. To ensure that all the people receive proper education, in July 1986, the Law on Nine-Year Compulsory Education was formally established. It is definitely not an easy task for a nation to achieve high level of literacy. Besides, education is also used as an important instrument to overcome inequality and poverty. The Chinese development strategy also gave a strong emphasis to the eradication of poverty and socioeconomic inequality among the poor at large and within the ethnic communities and regions.
3. Impact of Literacy Level on GDP

The main focus of this paper is on the impact of literacy level on GDP. Based on the Sixth Population Census of China in 2010, the nation’s overall literacy rate has reached its peak at 95.92 per cent (National Bureau of Statistics of China, 2011). Although the overall literacy rate is high and ranked 86th in the world, provinces and zizhiqu such as Sichuan and Tibet are still struggling with low literacy rates. In different provinces the illiteracy rate varies considerably. Scholars believed that low literacy rate tends to affect the development of a particular region. Furthermore, with the various reforms and developments of education in China since the country opened up its economy, there is a need to study the impact of different stages of literacy development on the nation’s GDP.

Literacy in China has always played an ambivalent role in the development of Chinese society whether in Mao Zedong’s time or since Deng Xiaoping’s reforms. Ironically, education and schooling policies implemented by the government have also served to exacerbate ethnic divisions, class differences and inequalities in the country and broaden the gap particularly between the eastern, central and western regions of the country. Together with the introduction of the law of compulsory education to ensure the children received proper education since the children are the future masters of the country, more schools and universities are established to accommodate students, while in order to minimize socioeconomic inequalities, national policy after 1979 was geared to overcoming regional disparities, to reduce poverty in the rural areas and to promote economic development. Education has long been recognized as an important social agent for generating the social and cultural changes of the rural and urban people so that inequality and underdevelopment eventually could be overcome. The function of education, schooling and literacy in this context, according to the modernization theory, is to generate and to foster development.

While the main focus of this paper is on the role of literacy level in the economic development of China, more specifically it aims to analyze the role of literacy level in the country’s different regions in GDP growth and to analyze the relationship between the different stages of literacy development and GDP. Nevertheless, the paper will also examine the inter-relationship of each independent variable with the dependent variable, investigate which regions and provinces do gain most from the increase in literacy level, and proceed to suggest solutions and policy recommendations.

Methodologically, the role of literacy in the economic development of the 22 provinces, five autonomous regions, and four municipalities under
direct control of the central government of China will be evaluated by looking at GDP per capita, number of years of schooling, total enrolment in primary, secondary and higher education and literacy rate. Comparisons will be made of the different literacy rates in different regions as well as GDP. From this, the real differences and factors will be identified and analyzed, and policy recommendations and solutions will be suggested.

Besides, with the opening up of China in the late 1970s, the country has encountered a period of rapid growth and urbanization process which has in turn widened the gap between rural and urban areas. Worrying that the disparity might cause instability, the government has re-demarcated the country into three regions, namely the eastern, central and western, in order to more effectively promote more equitable development between regions in addition to between the rural and urban areas. This paper will thus also examine these three regions to find out which region has the highest literacy rate and whether this has the most significant impact on economic development.

4. Literacy as Instrument for Development

Literacy is generally described as the ability of being able to read and write. There is no clear statement for us on how we can term a person as “literate” but we often assume a learner to be “literate” if s/he has sufficient reading, writing and numeracy skills. In economics, literacy is not as simple as being able to read a set of words or able to recognize symbols and sounds. On the contrary, it involves thinking critically and understanding the situation in the world. A person also needs to react to the situation that has occurred and to be able to find solutions to overcome obstacles s/he is facing. Literacy never ends. It is a continuing process of learning and growing as a self-development evolution. Literacy involves continuous learning and enables individuals to develop their potential and knowledge in a particular field or skill. Literacy leads to education and individuals acquiring basic skills, knowledge, customs and values through education. Individuals will have to apply their accumulated knowledge and skills in the workplace in order to contribute to the society. A society will only develop and be prosperous with the effort of the community. On the other hand, economists have since long ago focused on the role of literacy in economic development. The approaches ranged from a general defense of literacy as a major force in shaping a desirable society “prone” to development to the “precise” econometric measurements of residuals and rates of return to education of the 1950s and 1960s. The attempts to quantify the role of literacy in economic development had flourished since S.G. Strumilin’s work in 1925. On the micro-economic level, there are
studies trying to relate earnings to years of schooling. The works of Walsh (1935) and Friedman and Kusnetz (1946) prepared the ground for many other works that appeared in the 1950s and 1960s, such as those of Schultz (1963), Becker (1965), Blaug (1965), Mincer (1962) and many others. The implications that can be derived from these studies for the importance of literacy to economic development can be summarized as follows: a) A higher level of education or literacy generally commands higher earnings as better knowledge and skills generate higher productivity; b) Education has proven to have rewarding rates of investment. That is why most organizations have been increasing their budgets on training year by year in developing the human capital competences. Alfred Marshall provides empirical data from American experience to argue that the level of productivity of labour in various countries is positively correlated with the expenditures per capita on education and with rates of literacy, while the following conclusion was posited in Arcadius (1965): “There are, of course, many factors impeding development of the economy, but the foremost among them is the general illiteracy which distinguishes a country from all other civilized countries. An increase of labor productivity is the only means to erase poverty and the best policy to achieve it is through the spread of education and knowledge.”

Figure 1 Progression of a Community from Literacy to Development

Historically, the Chinese has placed strong emphasis on education. It was believed that only learning from books is superior (wanban jie xiapin, weiyou dushu gao 万般皆下品，唯有读书高) and all other activities are inferior. In modern Western countries, government officials at each level are elected by voters. For a long time in Chinese history, officials were selected by the nation-wide examinations. Entering the 20th century, the wave of modern science started to flood China. Soon came the “New Culture” movement, which advocated the use of the “spoken Chinese” (baihuawen 白话文). This effectively promoted the expansion of education. Unfortunately, continuous wars interrupted the expansion of education and left many young people uneducated. After the Second World War, the developing countries started to be concerned about the matters of education and policies were launched to promote literacy. The same urgency was felt in China. In 1980, the Shenzhen 深圳 Special Economic Zone was set up as a prototype for economic development. Later, the government finally realized that the lack of literate and trained workers is a major hindrance to attain social and economic development. In reaction to the problems, both formal and non-formal education systems were implemented rapidly (Jin, 1998).

Just like any developing countries’ quest of striving forward, China is no exception. In the quest for modernization, China has always highlighted that education is a critical software in its economic development (Jin, 1998). Over 25 years, China had successfully transformed itself from one of the world’s poorest country to an industrialized country due to the rise in literacy rate among population (Treiman, 2002). Literacy not only provides people an additional and better means of communications, it also plays a significant role in economic development in various ways. Most importantly, literates will raise productivity. Besides, literacy will also contribute to economic development by expediting the exchange of general knowledge of everyone (e.g. in tourism) and indirectly reducing the cost of information exchanges (Blaug, 1966: 402). Many developed countries have shown that there is a close relationship between literacy and their economic development. Literacy increases productivity and in turn enhances economic development. In addition, a pool of productive, trained and skilled manpower will also bring social changes to a nation and realizes the objectives of national policy and development planned by the government (Archana, 2011: 24). Mao Zedong once said: “Sweeping away illiteracy from 80 percent of the population is an important mission for New China. We must work energetically to realize this goal, so that workers and peasants can easily grasp scientific learning (and) become weapons for (class) struggle and (socialist) construction – complete and developed weapons for the people’s democratic dictatorship.” (Qian, 1949)
5. Education Policies and Development

The Chinese government had put in a great effort to improve the education system. Laws had been implemented to ensure all citizens regardless of their background (ethnic group, gender, or disability) will be entitled to gain proper education with equal right. Over a period of 50 years, the Chinese education system and size have made leaps and bounds, making the country’s education system the largest in the world.

Table 1 China’s Education Statistics

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<th>Education</th>
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<td>Youth (15-24 years) literacy rate (%), 2005-2010*, male</td>
<td>99</td>
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<tr>
<td>Youth (15-24 years) literacy rate (%), 2005-2010*, female</td>
<td>99</td>
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<tr>
<td>Number per 100 population, 2010, mobile phones</td>
<td>64</td>
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<tr>
<td>Number per 100 population, 2010, Internet users</td>
<td>34</td>
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<tr>
<td>Pre-primary school participation, Gross enrolment ratio (%), 2007-2010*, male</td>
<td>47</td>
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<tr>
<td>Pre-primary school participation, Gross enrolment ratio (%), 2007-2010*, female</td>
<td>17</td>
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<tr>
<td>Primary school participation, Gross enrolment ratio (%), 2007-2010*, male</td>
<td>111</td>
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<tr>
<td>Primary school participation, Gross enrolment ratio (%), 2007-2010*, female</td>
<td>115</td>
</tr>
<tr>
<td>Primary school participation, Net enrolment ratio (%), 2007-2010*, male</td>
<td>99</td>
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<tr>
<td>Primary school participation, Net enrolment ratio (%), 2007-2010*, female</td>
<td>99</td>
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Notes: * Adult literacy rate – Percentage of persons aged 15 and over who can read and write.
Gross primary or secondary school enrolment ratio – The number of children enrolled in a level (primary or secondary), regardless of age, divided by the population of the age group that officially corresponds to the same level.
Net primary school enrolment ratio – The number of children enrolled in primary school who belong to the age group that officially corresponds to primary schooling, divided by the total population of the same age group.

5.1. Eradication of illiteracy

Prior to 1949, China had a population of approximately 500 million, where 80 per cent of the population was illiterate. Since the establishment of the People’s Republic, the Chinese government has long realized that educating the people plays a major role in nation-building. Therefore, the Chinese government drafted out a detail plan in order to reestablish and reform its educational policies. As a result, school enrolment increased rapidly. About 91 per cent of the country installed compulsory primary education, and nearly 99 per cent of young children were enrolled into primary schools. At the same time, school dropout and illiteracy rate among middle-aged students had overall declined. After reforming and the establishment of open-door policies by the Chinese government since 1978 development had been speeded up, moving the country’s economy towards a level on a par with global standards.

At the end of the decade-long Cultural Revolution, with the passing of Mao Zedong in 1976, Deng Xiaoping’s new era of economic reform was born. Policy reforms and modernizations with emphasis on economic development were planned by the new Deng-led Chinese Communist Party (CCP)\(^1\). During Deng’s era, education remained a great concern of the government, as reflected in this message: “Education should be geared to the needs of modernization, of the world and of the future.” (Message written for Jingshan School by Deng Xiaoping on October 1, 1983) Several efforts were made to promote the Chinese education system in order to attract worldwide attention. Shenzhen was set up as the first economic zone for economic experimentation in 1980. The abandoned educational systems were all recovered and science and technology played an important role in the new educational policy. Policy of “walking on two legs” made its appearance and schools run by the private sector were reused. Private and technical schools were also reopened. Educated people were needed to run the government and to support economic development. Quality of education was considered more important than quantity. Curriculum and methodology were emulated from abroad for advanced training in the scientific fields (Tao, Berci and He, 2005).

During Deng’s educational reform, there were a few areas destined for reform, such as the secondary, tertiary, vocational and technical education. All levels of education need to be expanded in order to produce more capable and educated people. Besides, the graduate-assignment system of higher education was being reformed. Administrators were given authority and decision-making powers to make sure that the progress in educational reform ran smoothly. Reforms of adult education were given more priority, because adults play an important role in economic development.
Campaigns were held and aimed to “sweep away illiteracy” (saochu wenmang 扫除文盲) in 1983. Deng insisted that: “Education must face modernization, face the world, and face the future.” (Tsang, 2000) A Law of Nine-Year Compulsory Education was implemented in 1986 to ensure that the children received basic education. By that time, primary education was made compulsory and free of charge. Children were given the rights to receive at least nine years in education, of which six years were at the primary level and three years at secondary school. As prevention to obstacles that might delay immediate implementation, a nine-year standard compulsory education law was put forward to divide China into three categories. The first category was for cities or the economically developed areas in the coastal provinces and a small number of developed areas in the hinterland. The second group was the towns and villages with medium development. And finally, the third zoning was for the economically backward areas.

Under the first category, in November 1985, only about 20 per cent of the counties had achieved the primarily 9-year standard education. The government then aimed to provide the 9-year standard or vocational education for workers in the coastal areas, inland cities, and moderately developed areas. These regions contain 300 to 400 million of combined population. Five per cent of this population were planned to be able to attain college level of education. The above-mentioned plan was to establish a solid foundation for the intellectuals of China. With that, the Chinese government anticipated that the domino’s effect would increase secondary and university enrolments from the year 2000 onwards.

With a massive 50 per cent of China’s population, the second category consisted of smaller towns and villages with medium development. Only junior-middle-school level was aimed to be accomplished by 1995. At the same time, technical and higher education was also pushed to develop faster. The third category of economically backward areas accounted for about 25 per cent of China’s population. These rural areas which had produced generations of illiterates were left far behind in having standardized and universal primary education. As a result, only 60 per cent of their primary school graduates had met established standard. During the years before 1980, the first private school was established to fulfill the educational needs. The Ministry of Education was abolished in 1985, and the State Education Commission was established. Local authorities were again given power to run primary education. However, the central government faced certain problems, namely limited resources and funds. After the primary school curriculum was standardized, the literacy rate among children increased. However, according to the United Nations Educational, Scientific, and Cultural Organization (UNESCO) reports, the
majority of those who remained illiterate were (unsurprisingly) women (Georgia, 2009). At the same year, the government decided to abolish tax-funded higher education; university applicants with good grades were required to compete with one another for scholarships.

In 1993, the outline of education reform was focused on eradication of youth and adult illiteracy, developing 100 key universities and key disciplines, and last but not least, raising the educational quality. Realizing the importance of science and technology, in 1995, Jiang Zemin proposed a new national development strategy which was focused on education, science and technology. Deng passed away in 1997 and the reform and opening-up plans and policies were continued by Jiang Zemin. The Ministry of Education then came out with an Action Plan for education reform and development. The Action Plan involves developing the quality of all levels of education, expansion of upper secondary and university enrolment, stressing on compulsory education especially in poor areas, reform of pedagogy in order to encourage students to think critically and be more creative, building up world-class universities, and establishing and developing private education institutions. Besides, the Action Plan also included the reform of pedagogy to encourage students’ to have creative and independent thinking and the continuation of the national nine-year compulsory education programme in rural areas supported by extra government funding. There was also an expansion of upper secondary and university enrolment in this Action Plan. Target needed to achieve was set where the enrolment rate for higher education had to reach 15 per cent by the year 2010. In order to achieve this target, provincial governments were given more power to be in charge of higher-education affairs. More and more private education institutions were established under this Action Plan. Jiang in May 1998 first made Peking University and Tsinghua University world-class institutions. Both these universities were handpicked by the central government. They aimed to reach the level of world class standard within 10 or 20 years, in the 21st century (Sun, 2006).

Although many policies were planned to eradicate illiteracy, there are still poor families who face problems in sending their children to school. Richer families are sending their children for extra tuition and hence, the cost of tuition and books has been increasing rapidly. On the other hand, in the rural areas, children are more useful working in the field than going to school and they become the direct victims of the new elitism. Consequently, the number of illiterate youths has increased and the drop-out rate mirrors the rate of overall social dissatisfaction. It is common knowledge where Chinese cheap labour comes from. On the good side, until today, China still has mega-pools of low cost labour which serve to
sustain the country’s competitive edge for further economic growth. In 1993, China’s Ministry of Education (MOE) published an article entitled “Outline for Education Reform and Development” planning budget increase to four per cent of GDP by the year 2000. However, The National Bureau of Statistics revealed in 2001 that China in fact missed this ambitious target by about 30 per cent. Because of such unsatisfied results, Chinese leaders have drafted a new “National Outline for Medium- and Long-term Educational Reform and Development (2010-2020)”. Again, the main objective of this idea is to increase the educational budget to four per cent of GDP. Besides, this educational reform also includes creating a learning society by modernizing the current educational system entirely. Modernizing the current educational system would help China’s human resources to be more competitive and in turn raise their ranking in the world. These educational changes were carried out at all levels of education, including the pre-school, primary, secondary and tertiary level, vocational education, and special education. This education reform overhauled the entire education system in China. In addition, the reform also set new ways in training new teachers. Others include: guaranteed funding were given all over the whole term of education, making the educational system more informal; current law was enforced in line with education management regulations; and conducting tests in areas of education reform to check whether the required fundamental changes were implemented. Furthermore, international educators were imported during the process of reform by the government to jointly run schools, especially at the level of higher education in all fields.

Educational reform at the pre-school level included guaranteeing all children in urban or rural area to be able to access pre-school education. The development of the pre-school education would be more focused on the rural area as compared to the urban area. Besides, the planning also encouraged more social participation and public-private partnership in order to have the pre-school education fully developed. On the other hand, primary and secondary education would be focused on improving the quality of education and reducing students’ academic burden. Tertiary education’s main focus would be to increase student enrolment by diversifying the specialized courses. Improving the quality of education by promoting research-based studies would also be one of the objectives in this educational reform. Modern vocational education was to be established so that the students could adapt to economic changes and restructured market demands. Children in rural areas would be more introduced to the vocational education system to assist them to be away from being poor and uneducated. In the process of reform, the government also focused on the students’ character building, becoming more knowledgeable and their
ability to adapt to economic changes. Enrollment and examination system in secondary and high schools would also be improved. In order to build up a modern educational system, schools’ autonomy would be expanded where school principals would have to take up the overall responsibility. Private sector would be encouraged to build up more private institutions to accommodate more and more students. Besides, the government would also strengthen international exchange and cooperation to attract more foreigners to study in China (Quosdorf, 2010).

The education system in China is fully controlled by the Ministry of Education. People in China are compulsory to have a minimum attendance at school for nine years. The State-run system of public education provides primary schooling for six years and another six years at the secondary level. Primary school starts at age six or seven, while secondary schools are for children from age 12 to 18. The six years of secondary school is a combination of three years of middle level and further three years of higher level. However, some regions and provinces in China could only provide primary education for five years and four years at secondary level. In 2001, only qualified teachers were certified by a system set up by national regulators. In 2005, the government distributed 218 billion yuan to improve rural education. Subsidies were also given to families who could not afford education. According to the United Nations International Children’s Emergency Fund (UNICEF) reports from year 2005 to 2010, Chinese male and female youth aged 15 to 24 had achieved 99 per cent literacy rate.

5.2. Decentralization and Compulsory Education

From the point of view of the education funding and management system, from 1949 to mid-1980s, the Chinese central government was the sole provider of public education, and local governments were but agents of the central government to implement the supply of public education; hence the education expenditure was not much different between regions. By the mid-1980s, with the beginning of fiscal decentralization, the supply of compulsory education gradually underwent transformation whereby the local governments took over from the central government as the main body of provider, and the local governments also began to transfer the task of compulsory education to the next level of authority (Yeoh and Ling, 2012: 246). The “Compulsory Education Law of the People’s Republic of China” implemented in 1986 further officially confirmed the “local responsibility, different levels of management” for compulsory education. Besides the central government schools, the provision of most of the compulsory education became the responsibility of the local government.
with province as the largest unit, but the specific responsibility continued to be shifted down to the next level which had to bear the ultimate responsibility of providing compulsory education – from the municipality all the way down to the county government. Due to the vague division of responsibilities between the village and county government, the provision of compulsory education expenditure was further shifted down to next level of authority, and many local village/township governments had ended up to be the actual fund raiser and providers of local compulsory education, culminating in the situation that compulsory education was no longer obligatory and the benefit principle was brought in play when the cost of education ultimately fell on the shoulders of the rural families as beneficiaries of compulsory education. Though rural provision of education began to be partly shifted back to the county level after the 2001 rural tax reform, the overall burden was still at too low a level (Sun, Chen and Yu, 2010).

Under such decentralized system, the basic education expenditure responsibilities originally shouldered by the central government have been transferred to the local governments. The central government besides bearing the payment of salaries and other basic items is no longer directly involved in local education decision-making. Among the local governments who are bearing the responsibilities for basic education, county- and township-level governments have become the most important source of funding for local public education expenditure. In stark contrast to most advanced countries where the central government is bearing the major portion of the cost of compulsory education, China’s current pattern of fiscal burden distribution for compulsory education expenditure is as follows: 78 per cent being borne by the village/township-level government, 9 per cent by the county-level government, 11 per cent by the province-level government and 2 per cent by the central government. It is clear that under such a system, the existence of severe horizontal imbalance between localities would inevitably result in inequality in educational opportunity due to the resulted interregional and urban-rural disparity in the provision of compulsory education, a cause for concern indeed as the country moves into the current period of the 12th Five-Year Plan. In short, since the mid-1980s, through the 7th, 8th, 9th, 10th and 11th Five-Year Plan periods, the Chinese government implemented the world’s largest ever fiscal decentralization of education, and the decentralized system thus established had negatively impacted upon the local governments’ investment in basic education, leading to the rapid increase in the private burden of education cost and even to the “education-induced poverty” phenomenon in the poverty areas with many rural families struggling under the heavy burden of tuition fees (Yuan and Chen, 2010).
6. The Categories of China’s Education System

The Chinese government’s main objective is to achieve economic development through developing the country’s education system. Strategies and plans are formed to deepen the reform of the educational system. Subsidies and investments in education are given by the government at all levels and the private sector is also encouraged to run education in order to fulfill the needs of the country. China’s school education is divided into a few levels, namely primary education, secondary education and tertiary education. Figure 2 shows a complete picture of the school system in China.

6.1. Primary Education

China’s primary education system began with the pre-school level, followed by elementary-level primary school. For pre-school or kindergarten level, children are admitted at an age as early as three years old. By the

<table>
<thead>
<tr>
<th>Age</th>
<th>School Years</th>
<th>Pre-School Education (Kindergarten, prep school)</th>
<th>Primary School Education</th>
<th>Common Junior Middle School</th>
<th>Secondary Vocational Education (Secondary polytechnic school, technical school, and vocational senior middle school)</th>
<th>Adult Elementary Education</th>
<th>Higher Vocational Education</th>
<th>Post Training and Continuous Education</th>
<th>Self-Education Examination</th>
<th>On-the-job Postgraduate Degree Education</th>
<th>Doctor Degree Education</th>
<th>Master Degree Education</th>
<th>Undergraduate Education</th>
<th>Associate College Degree Education</th>
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age of six they will be eligible for elementary school. Children in pre-
school only learn the basics of native language. Their study is based on
fun-learning where they will play games, learn dancing, singing as well as
art. The curriculum for pre-school are more on character building where
children are supposed to be given a chance to learn the values of Truth,
Kindness and Beauty. After all, educationists generally believe in building
the foundation of a person in terms of personality and character at the
earliest age possible.3

Elementary school is for children from age 6 to 11. They start from
the first grade, rising through to grade five or six, following a set system.
There are two semesters in one academic year; each semester consists
of 19 weeks which means 38 weeks in a year. One week is reserved for
snowy days and for vacations or holidays, and there is a provision of 13
weeks per year. Primary schools all over China are usually run by the local
educational authorities, or in other words, the government. However, there
are also private primary schools which are owned by private enterprises
and individuals. Generally, primary school curriculum in China consists
of Mandarin, mathematics, music, art, physical education, history, and
geography. Practical work experiences are also integrated within and
around the school grounds. Mandarin and mathematics are the major
subjects taught in primary schools. These occupy almost two thirds of the
class time. Social and nature science take up about eight per cent of the
class time. Putonghua 普通话 (national spoken language, i.e. Mandarin)
is used in school since kindergarten and the fundamental of putonghua
learning, the pinyin 拼音 transliteration system, is taught in lower grades
and kindergarten. English Language is introduced at grade three and
is treated as a foreign language. In addition, politics and moral studies
are also taught as general knowledge subjects with the emphasis on the
love for the motherland, Communist Party and people at large. There are
some primary schools which, through extra curriculum activities, involve
students in recreation and community services. These are done at least
once a week.

6.2. Secondary Education

Secondary education in China is for children aged 12 to 17. This level of
education is divided into two types – a normal secondary school and a
technical or vocational studies education. A standard secondary education
known as high school is broken up into a junior middle school followed
by a senior middle school. Normally, junior middle school takes up three
to four years while senior middle school involves another three years
in education. Students in the first three years of junior middle school
are compulsory to finish their studies, with no tuition fees. After the students have finished their three years of compulsory education, they will proceed to senior middle high school. Students are not forced to further their studies at this level where a minimal payment for tuition fees will be charged. Generally, high-school years have two semesters which start respectively in September and February.

Local governments and various private businesses are given authorities to run the schools. Private authorities who run the secondary schools have to ensure that these schools are at the same level as those schools run by the State. Private secondary schools often offer more specialized education and focus on the vocational bent (China Education and Research Network, 2000). Normally, students who graduate from junior middle schools will tend to proceed with their studies in senior middle schools. A minority of them will move to vocational high schools or secondary professional schools for further studies.

6.3. Tertiary Education

Students who have successfully graduated from secondary senior middle high schools will have an opportunity to further their studies in universities, colleges, institutes and vocational colleges. Higher education offers courses for undergraduate, postgraduate, and doctoral degrees. Higher education in China is more on research studies. Students will have to compete with one another to enter a university or college in the national entrance examination. Selection of students is fully based on the marks in the national entrance examination. Getting into a university in China is tough and highly competitive due to the fact that the universities only recruit the best scorers in accordance with the students’ academic ability.

Students who have enrolled into universities and colleges will have to be responsible for their own tuition fees, accommodation costs and other addition expenses. Only students from teachers’ colleges are exempted from such school fees with the terms and conditions whereby graduates are required to serve in primary and secondary schools for at least five years. However, students who have financial problems can apply for loans from the China Industrial and Commercial Bank with the terms and conditions applied. To gain priority in obtaining scholarships or study loans, students need to have achieved good results. If they are specializing in the fields of education, forestry, marine and sporting activities, and are willing to work in unfavourable areas or conditions, the chances of gaining a scholarship will be much higher. Upon graduation, students’ loans are to be cleared by their immediate employer in full amount. The students will then repay
their employers, through wage deduction, the loan amounts by installments over five or more years.  

7. Literacy and Language Reform

According to the Chinese government statistics, out of nearly 1.1 billion of population in China in year 1985, there are at least 230 million people who were illiterate. The Chinese government believes that illiteracy can be attributed to the difficulty of mastering the Chinese characters. Chinese words were traditionally written in what are known as fantizi 繁體字 (“complex characters”) used since the ancient time, which people sometimes find to be complicated and hard to memorize. To overcome illiteracy, the government of the People’s Republic of China had early on made an important move to adopt a system of jiantizi 简体字 (“simplified characters”), aiming at standardizing the language, making it easier to write and learn, integrating Chinese writing into a common language and at the same time, achieving unity in terms of linguistic or literacy foundation. The process began in the year 1951, when a plan for language reform was introduced by the government with three main objectives which include standardizing Mandarin into a common language, simplifying the traditional characters into simpler characters, and last but not least, introducing pinyin transliteration in Latin alphabets. Finally in 1956, putonghua as Modern Standard Chinese was used in schools and students from pre-school and primary school are required to learn it. Later in 1977, putonghua was introduced throughout China, especially in government and party as well as the national broadcast media. Although the government in China put in tons of effort in promoting putonghua, the government found that it was difficult to eradicate illiteracy especially in the rural areas. Literacy rate declined between 1966 and 1976 due to political disorder. However, scholars believe that the decline of literacy rate may also be due to the ineffectiveness of rote learning where what is gained can be easily forgotten due to the lack of usage.

8. Literacy and Regional Disparities

According to the sixth population census in 2010, China had achieved a literacy rate of 95.92 per cent. However, there is a huge gap between regions/provinces and in terms of illiteracy rate. Statistics show that three quarters of these illiterates are from the rural areas which are economically underdeveloped. There are seven provinces/zizhiqu with the highest illiteracy rates, i.e. Yunnan, Ningxia, Anhui, Gansu, Guizhou, Qinghai
and Tibet (Table 2). Tibet’s illiteracy rate, at 37.77 per cent, is the highest among these seven provinces/zizhiqu, while Qinghai’s illiteracy rate, just over ten per cent, is just right behind Tibet. Anhui, Gansu and Guizhou vary between eight and nine per cent, and the illiteracy rate of Yunnan and Ningxia are above six per cent. Table 2 shows that the people in the western part of China suffer from high illiteracy rate.\(^5\) China’s open-door policy and economic reforms since 1978 have indirectly increased the country’s GDP per capita. However, the income and wealth disparities among different regions and provinces are deteriorating. Growing regional imbalances between the eastern, central and western regions are also noted by many scholars (e.g. Cai, Wang and Du, 2002; Yang, 2002; Chang 2002; Fleisher and Chen, 1996, 1997).

Besides experiencing a lack of financial resources which include money and assets, people in the western region are also having difficulties in accessing services like education. There is also a possibility where the poor cannot afford the services provided. However, there are also some urban and rural people who cannot access the infrastructure because they are not entitled to it due to a lack of certain documents. As a result, the poor people remain poor and uneducated and this will affect their next generation as well. Poverty limits people in improving themselves even though the facilities are well prepared. Education is essential for the poor people in rural areas because they need knowledge to move forward. The consequences of the lack of education are visible and these indirectly widen the rural-urban disparities. Hence, we can conclude that high illiteracy rates in rural areas will lead to regional disparities.

Despite the overall improvement in the education system, many poor people are still not able to enjoy the benefits. Official provincial-level data revealed an astonishing difference in illiteracy rates of rural provinces. Illiteracy is among the highest in the west of China and it has the lowest declining rate. The poorer townships made up of about 35 counties which include those in Yunnan, Guizhou and Guangxi are still being supported by the World Bank (Hannum and Wang, 2004). The average enrolment is ten per cent lower than the national average for the same age group (Piazza and Liang, 1998: 257).

Generally, the impact of literacy on economic development draws many opinions. The majority of scholars are of the opinion that literacy does bring changes to economic development. Hence, the Chinese government from time to time needs to upgrade the country’s education system in order to better meet the market demand. Besides, policies and plans need to be drawn so that the educational institutions can compete with those in the developed countries.
Table 2 Population and Illiteracy Rate in Different Provincial-Level Administrative Units (22 sheng*, 5 zizhiqu+ and 4 zhixiashi#), 2010

<table>
<thead>
<tr>
<th>Illiteracy Rate Ranking</th>
<th>Administrative Division</th>
<th>Population</th>
<th>Illiteracy Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beijing 北京 zhixiashi</td>
<td>19,612,368</td>
<td>1.70</td>
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<td>2</td>
<td>Jilin 吉林</td>
<td>27,462,297</td>
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<td>3</td>
<td>Liaoning 辽宁</td>
<td>43,746,323</td>
<td>1.93</td>
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<tr>
<td>4</td>
<td>Guangdong 广东</td>
<td>104,303,132</td>
<td>1.96</td>
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<td>5</td>
<td>Heilongjiang 黑龙江</td>
<td>38,312,224</td>
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<td>6</td>
<td>Tianjin 天津 zhixiashi</td>
<td>2,938,224</td>
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<td>7</td>
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<td>35,712,111</td>
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<td>8</td>
<td>Xinjiang 新疆 Uygur zizhiqu</td>
<td>21,813,334</td>
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<td>Fujian 福建</td>
<td>6,894,216</td>
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<td>Inner Mongolia / Nei Mongol Mongol zizhiqu</td>
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<tr>
<td>19</td>
<td>Chongqing 重庆 zhixiashi</td>
<td>28,846,170</td>
<td>4.30</td>
</tr>
<tr>
<td>20</td>
<td>Hubei 湖北</td>
<td>57,237,740</td>
<td>4.58</td>
</tr>
<tr>
<td>21</td>
<td>Shandong 山东</td>
<td>95,793,065</td>
<td>4.97</td>
</tr>
<tr>
<td>22</td>
<td>Sichuan 四川</td>
<td>80,418,200</td>
<td>5.44</td>
</tr>
<tr>
<td>23</td>
<td>Zhejiang 浙江</td>
<td>54,426,891</td>
<td>5.62</td>
</tr>
<tr>
<td>24</td>
<td>Yunnan 云南</td>
<td>45,966,239</td>
<td>6.03</td>
</tr>
<tr>
<td>25</td>
<td>Ningxia 宁夏 Hui zizhiqu</td>
<td>6,176,900</td>
<td>6.22</td>
</tr>
<tr>
<td>26</td>
<td>Anhui 安徽</td>
<td>59,500,510</td>
<td>8.34</td>
</tr>
<tr>
<td>27</td>
<td>Gansu 甘肃</td>
<td>25,575,254</td>
<td>8.69</td>
</tr>
<tr>
<td>28</td>
<td>Guizhou 贵州</td>
<td>34,746,468</td>
<td>8.74</td>
</tr>
<tr>
<td>29</td>
<td>Qinghai 青海</td>
<td>5,626,722</td>
<td>10.23</td>
</tr>
<tr>
<td>30</td>
<td>Tibet / Xizang 西藏</td>
<td>3,002,166</td>
<td>37.77</td>
</tr>
</tbody>
</table>

Notes: * province
+ “autonomous region”
# “direct-ruled/independent municipality”, i.e. municipality under the central government.

9. Empirical Analysis

This part of the paper uses an empirical model to determine whether literacy plays a significant role in the economic development of China. The designing of instrument and choosing of samples are concentrated on China’s literacy rate, the GDP in the country’s 22 provinces, five autonomous regions, and four municipalities under the direct control of the central government.

Literacy is known as one of the important factors affecting economic development. Every year, the government of China allocated millions of yuan for education, especially primary and secondary education. Since the government views it as an important tool and has spent millions in ensuring every pupil enjoys the privilege, it is important to evaluate the role of literacy from time to time. In weighing the role of literacy and the importance of economic development, we need to look into how well the literacy affects economic development in contemporary China. Besides, it is also useful to find out whether literacy affects economic growth in different regions and provinces. In trying to find out how far literacy helps the Chinese in economic development, this study adopts Blaug’s (1966)’s framework concentrating on the quality of education demanded as reflected in adult literacy and primary school enrolment. For the general aspect, the education system and its background will also be considered.

It needs to be emphasized that the methodological approach used here represents a combination of both qualitative and quantitative methods. By using both of these approaches, it is envisaged that appropriate data will be obtained for analysis. The advantage of using a combination of different forms of approaches is that it helps the researcher in gathering various data sets which are to be used as a basis for assumption, interpretation, justification and forecasting. As what Bryman (1988) suggests, a “best of both worlds” approach is where the qualitative and quantitative approach should be combined. According to Creswell (2003), using a mixed methods design represents the most effective way to capture both quantitative and qualitative results. In this study, qualitative approach is used to explain the linear and non-linear autonomous differential equations as in the Solow model. In quantitative research, GDP per capita, total enrolment in primary education, adult literacy, years of schooling and literacy rate in general were collect. Multiple regression analysis was used to examine the relationship between these variables.

9.1. The Model

Literacy rate has been seen in earlier studies to have significant influence on economic development. Besides that, primary school enrolment, years
of schooling and adult literacy have always been playing an important role in economic development. Since economic development is closely linked to economic growth, we have adopted GDP as our independent variable. In general, it may be speculated that GDP per capita would increase as the literacy rate increases and decrease as the literacy rate decreases. Based on relevant theoretical considerations, the model assumes that economic growth is influenced by literacy rate, primary, secondary and tertiary education enrolment rate and education length. The formulation of the link between economic growth and the factors mentioned above can be derived as follows:

$$\Delta GDP_t = f(ILL_t, PSE_t, SSE_t, UCE_t, EL_t)$$

where

$$\Delta GDP_t$$ = economic growth as measured by the changes in GDP from 1980 to 2010

$$ILL_t$$ = the illiterate and self-educated

$$PSE_t$$ = primary school enrolment

$$SSE_t$$ = secondary school enrolment

$$UCE_t$$ = university and college enrolment

$$EL_t$$ = educational length

To test whether a dependent variable is related to more than one independent variable, the ordinary least square (OLS) method is used in this analysis. OLS is also a technique that allows additional factors to enter the analysis separately so that the effect of each can be estimated. It is valuable for quantifying the impact of various simultaneous influences upon a single dependent variable (Sykes, 1993).

Therefore, the general form of a prediction equation from regression model is as below:

$$GDP_t = \beta_0 + \beta_1 ILL_t + \beta_2 PSE_t + \beta_3 SSE_t + \beta_4 UCE_t + \beta_5 EL_t + \mu$$

The above equation means that the sources of changes in GDP are the variation in ILL, PSE, SSE, UCE, and EL respectively. The dependent variable $$GDP_t$$, which is the GDP per capita in country $$t$$ is the focus of the study and it is used to predict or explain changes in the dependent variable. On the other hand, $$ILL_t$$, $$PSE_t$$, $$SSE_t$$, $$UCE_t$$, $$EL_t$$ are the independent variables. We organize the explanatory variables into three groups: $$ILL_t$$ represents literacy rate, $$PSE_t$$ represents primary school enrolment, $$SSE_t$$ represents secondary school enrolment, $$UCE_t$$ represents adult literacy and $$EL_t$$ represents educational length.
Furthermore, the Chow Test will also be used to test the structural stability. It may happen that there is a structural change in the relationship between the regressand Y and the regressors. The values of the parameters of the model do not remain the same through the entire time period. Structural change may be due to government policy changes, external forces and so on.

Structural stability for two separate time-periods:

\[ Y_t = \beta_{11} + \beta_{12}X_{2t} + \beta_{13}X_{3t} + \ldots + \beta_{1k}X_{kt} + \mu_{1t} \]

\[ Y_t = \beta_{21} + \beta_{22}X_{2t} + \beta_{23}X_{3t} + \ldots + \beta_{2k}X_{kt} + \mu_{2t} \]

where

\[ H_0: \beta_{11} = \beta_{21}, \beta_{12} = \beta_{22}, \beta_{13} = \beta_{23}, \ldots, \beta_{1k} = \beta_{2k} \]

\[ H_1: \text{at least one of pairs is not equal} \]

The hypothesis above shows that \( H_0 \) implies that there is no structural change (i.e. parameter is stable) while \( H_1 \) implies that the function has undergone a structural change between the two periods. The F-test for structural stability is as below:

\[ F = \frac{(SSE_p - SSE_1 - SSE_2)/k + 1}{(SSE_1 + SSE_2)/(n_1 + n_2 - 2k - 2)} \sim F_{k,(n_1+n_2-2k-2)} \]

where

\( SSE_p \) is the residual sum of squares from the pooled regression;

<table>
<thead>
<tr>
<th>Variables</th>
<th>Signs</th>
<th>Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILL</td>
<td>−</td>
<td>GDP decreases as number of illiterates and the self-educated increases.</td>
</tr>
<tr>
<td>PSE</td>
<td>+</td>
<td>GDP increases as primary school enrolment increases.</td>
</tr>
<tr>
<td>SSE</td>
<td>+</td>
<td>GDP increases as secondary school enrolment increases.</td>
</tr>
<tr>
<td>UCE</td>
<td>+</td>
<td>GDP increases as university and college enrolment increases.</td>
</tr>
<tr>
<td>EL</td>
<td>+</td>
<td>GDP increases as educational length increases.</td>
</tr>
</tbody>
</table>
SSE_1 is the sum of the residual sums of squares from the first group regressions;
SSE_2 is the sum of the residual sums of squares from the second group regressions.

9.2. The Data

After studying different data sets used by previous scholars, it was decided that provincial-unit literacy data (i.e. those of the provinces, zizhiqu or “autonomous regions”, and zhixiashi or “centrally administered municipalities”/CAM) would be used in this study to measure whether literacy rate affects the economic growth in different “provincial units”. The major source of such data consists of various years of the China Statistical Yearbook published by the National Bureau of Statistics. Besides the main economic data, this source also provides important figures in different fields such as primary school enrolment, secondary school enrolment, university and college enrolment, educational length, and GDP per capita. Besides this, the collection of data was enhanced through internet search and literature review.

A total of 31 “provincial units” (provinces, centrally administered municipalities (CAM) and autonomous regions as shown in Figure 3) were covered in this study. From the provincial-unit data and information collected, we would examine the country’s literacy level and economic development, as well as local and central government policy and support.

The literature on Chinese regional development tends to adopt one of two regional categorizations. The first divides China into three regions: eastern, central and western. The second classification represents a dichotomy of dividing China into the coastal regions and the inland regions before the country shifted in the mid-1980s to the abovesaid trichotomous division. The trichotomous categorization hence usually refers to the three-region demarcation that has been followed since the Jiang Zemin administration introduced the “Western Regional Development” (xibu dakaifa 西部大开发) strategy. The eastern region comprises the eleven mainly coastal provinces/zhixiashi of Beijing (zhixiashi), Fujian, Guangdong, Hainan (the large island which was a part of Guangdong until 1988, when it became a province in its own right), Hebei, Jiangsu, Liaoning, Shandong, Shanghai (zhixiashi), Tianjin (zhixiashi) and Zhejiang. The central region includes the eight provinces of Anhui, Heilongjiang, Henan, Hubei, Hunan, Jiangxi, Jilin and Shanxi. The western region covers the twelve provinces/zhixiashi/zizhiqu of Chongqing (zhixiashi, after its separation from Sichuan province in the late 1990s), Gansu, Guangxi (zizhiqu of the Zhuang ethnic minority), Guizhou, Nei
Monggol (i.e. Inner Mongolia – zizhiqu of the Mongol ethnic minority), Ningxia (zizhiqu of the Hui ethnoreligious minority), Qinghai, Shaanxi, Sichuan, Xizang (i.e. Tibet – zizhiqu of the Tibetan ethnic minority), Xinjiang (zizhiqu of the Uygur ethnic minority) and Yunnan. Thus, the central and western regions are largely comprised of the provinces (sheng)/zhixiashi/zizhiqu of the inland regions. It can also be noted that under the “Develop the West” strategy, all the ethnic minority zizhiqu (“autonomous regions”) are categorized as western regions.

9.3. The Variables

Following many studies, GDP per capita is employed as the dependent variable. GDP refers to the market value of all the finished goods and services produced within a country’s borders in a specific time period.
GDP is considered as an indicator which reflects a country’s standard of living. Besides, GDP is calculated on an annual basis where it includes all of public and private consumption, government outlays, investments and exports less imports that occur within a defined territory (Investopedia, 2012).

The basic formula for calculating GDP is as follows:

\[ Y = C + I + G + (X - M) \]

where

\[ Y \] = gross domestic product (GDP)
\[ C \] = consumer spending
\[ I \] = investment made by industry
\[ G \] = government spending
\[ X \] = exports
\[ M \] = imports

One of the independent variables in this model is the average illiterate and self-educated. As we explained earlier, education is only one of the significant variables in economic growth. The importance of the various sources of economic growth is different in different countries and in different periods of history. No factor can serve as a universal key explanation of growth; a combination of many factors appears to be required. Until the past few decades, however, economists generally attempted to offer explanations of differences in growth between countries in terms which placed a very heavy emphasis on the growth of physical capital and number of workers, and which paid little or no attention to changes in the quality of the labour force. Yet, an increase in the skills and knowledge of a population through education raises productivity and real income in the same manner as an increase in technological advancement. Moreover, the improvement in the educational quality of human capital appears to have been very large in the twentieth century in many countries, and various studies in recent years suggest that education is one of the most imperative factors that contribute towards economic growth (Bertram, 1966). Due to the fact that education is directly related to literacy, literacy rate (or conversely, illiteracy) is adopted as an explanatory variable in this model.

The second and third independent variables in the present study are the primary and secondary school enrolment. Maddision (1991) finds out that high levels of GDP per capita are closely related with high levels of primary and secondary education enrolment. Evidence shows that, at the individual level, more years of schooling lead to higher income.
The element of university and college enrolment is another salient point to be explained in this model. In Bloom, Canning and Chan (2005), it is concluded that higher education will benefit both the public and private sector. Private gains include higher salaries, better and attractive employment prospects as well as a better capability in saving and investment. With these benefits, individuals will be able to improve their quality of life. On the other hand, public channels are able to boost economic development through technological advancement. In the competitive world today, a nation cannot afford to be short-sighted by not continuously developing adult education apart from the mainstream education system, especially after the notion of lifelong learning has been widely acknowledged as a structure for further educational policy. Continuing learning or education of the older generations, particularly those who are illiterate or under-educated, can be a major contributing factor in enhancing their children’s success in education. Adult education also beefs up economic gain as in a more technologically advanced society, graduates are more equipped to use new technologies and innovations. A country which invests in adult education will be more likely to accelerate technological diffusion and indirectly lower the knowledge gap between the rural and urban area.

With the development of science and technology in the 21st century, technology usage in industries has been advancing rapidly. In short, machine and computer have become a must in everyone’s working environment. Therefore, workers need to have higher education as well as vocational skills in order to meet the market demand (Chinese National Commission for UNESCO and Chinese Adult Education Association, 2008), and in this way an adult who is originally literate will now be able to seek a better job and contribute to the economy through increasing production. This will in turn leads to increase of GDP in a country.

Finally, another important variable to be added in here is the average length of education. Scholars have assumed that years of schooling deliver the same increase in knowledge and skills regardless of the education system (Hanushek and Woessmann, 2007). Hence, a significant positive relationship should be found between economic development and number of years of schooling.

9.4. Data and Methodology in Previous Studies

There is a variety of data and methodologies used by various authors. Each of the methods carried out has a slightly different result as different tools are used to measure inequality. According to Adelman and Morris (1968: 1201), researches on literacy have often stressed that economic
growth and the development of human resources are intimately related. However, literacy solely depends on the primary schooling rate. Above all, the successful establishment of an industrial base requires the creation of a literate, trained labour force committed to urban industrial patterns of living. Barro (1991: 432) did a study on the impact on growth of different human capital measures using cross-country data from 1960 to 1985 and concluded that both primary and secondary school enrolment rates and adult literacy rates contributed significantly to a country’s economic growth. Bashir and Darrat (1994: 69), by using similar data from 32 Islamic developing countries during the same period of 1960 to 1985, also came out with the same results of better primary and secondary educations having a significant positive impact on the country’s output growth. Loening (2002), using time series data from Guatemala for years 1950 to 2002, found that more times or years spent in schooling had a positive and significant impact on the country’ economic growth.

On the other hand, there are also studies where literacy has no or negative effect on economic development. Lau, Jamison and Louat (1991) found that primary education had a negative effect on economic growth in Africa and Middle East and North Africa, insignificant effects in South Asia and Latin America, and its effects were only positive and significant in East Asia. Dasgupta and Weale (1992: 125) found that there were no significant relationship between adult literacy and income growth. Data on changes in adult literacy during the years 1960 to 1980 and changes in per capita income growth during the years 1970 to 1980, for the 51 poorest countries in the year 1970, were used to test the significance level. Benhabib and Spiegel (1994: 152) also found no changes comparing average length of education with the country’s economic growth. Similar findings by Pritchett (1996), using cross-national data from 1960 to 1985, also found no significant improvement of workers’ productivity, in corresponding to more average years spent in schooling. Sachs and Warner (1997: 184), using different tests to measure human capital literacy on the effect on economic growth, found minimum impact or improvement in their results. They found a statistically significant S-shaped relationship with maximum effect when literacy rates were neither very low nor very high.

However, there is evidence of a positive correlation between higher levels of education and a nation’s GDP development. Démurger (2001: 102) explored a spread of 24 provinces over the period from 1984 to 1998 to examine the relationship between the proportions of population with higher education. He found that there was a positive influence on the per capita growth of China. Later on, Chen and Feng (2000: 8) did a research on the period from 1978 to 1989, covering 29 provinces, and found that
the proportion of university enrolment did have a significant impact on economic growth rates at the provincial level.

9.5. Findings

Our data were collected from the China Statistical Yearbook and was analyzed and tabulated. The Eviews version 6 was used in the analysis of quantitative descriptive data, whereas the qualitative descriptive data were analyzed by way of interpretation by the researchers. The Ordinary Least Square (OLS) method was used to analyze the variables’ relationships. With reference to the data, five variables, namely average illiterate and self-educated (ILL), total number of students enrolled in primary (PSE), secondary (SSE) and university and college education (UCE), average length of education (EL), were selected for this study. They were evaluated against their relevancies to Gross Domestic Product (GDP) per capita in US dollar (USD). As such, an analysis based on tabulated data from 1980 to 2010 was conducted to test their relationships. Besides these, the Chow Test was also used to examine whether there was any structural change in between 1980 and 2010. Furthermore, the relationships among the variables which were divided into those of the eastern, central and western region were also tested. The main reason to run the analysis for these three groups was to find out whether there was a significant difference between the eastern, central and western region and last but not least, to find out what were the factors that had affected the disparity between these regions in China.

The OLS results for the influence literacy on economic development are as below:

Equation 1:

$$ GDP = -29743.84 - 27.0289 ILL - 0.0023 PSE + 0.0107 SSE + 0.0002 UCE + 2977.292 EL $$

From equation one, we found that the OLS results for the independent variables such as average illiterate and self-educated (ILL), secondary school enrolment (SSE), university and college enrolment (UCE) and average length of education (EL) were equivalent to the estimated results. However, only primary school enrolment (PSE) as an independent variable has inverse results in the OLS. Regarding whether there is a significant relationship between the dependent variable and the independent variables, the results show that there are three independent variables, i.e. SSE, UCE and EL, which are significant at the 5 per cent level while PSE is significant at the 10 per cent level. Besides, the results also show that
there is an insignificant relationship between GDP per capita and ILL. This basically means that by holding other independent variables constant, if the average of illiterate and self educated increases by 1 per cent, gross domestic product per capita is expected to decrease by USD27.02892. Gross domestic product per capita was found to decrease by USD0.002322 as the number of students enrolled in primary school increased by one person, holding other independent variables constant. Besides this, by holding other independent variables constant, if the secondary school student enrolment increases by one person, gross domestic product per capita is predicted to increase by USD0.010694. Furthermore, holding other independent variables constant, with an increase of one person in university and college enrolment, gross domestic product per capita increases by USD0.000215. Finally, holding other independent variables constant, if the average length of education increases by one year, the gross domestic product per capita is expected to rise by USD2977.292.

From these results, we know that education plays a significant role in China’s economic development. Among primary (n₁), secondary (n₂) and tertiary education (n₃), we found that there were greater demand for secondary and higher education. We now look into the growth of education in China at the primary, secondary and higher levels. The periods of 1980-1989, 1990-1999 and 2000-2010 were examined. In the first period, n₁ increased by 6.76 per cent, n₂ by 10.11 per cent, and n₃ by 56.21 per cent. In the second period, n₁ decreased by 18.14 per cent, n₂ by 3.42 per cent, and only n₃ increased by 72.43 per cent. During the third period, n₁ decreased by 21.11 per cent, n₂ by 1.78 per cent, and only n₃ increased by 23.03 per cent. Overall, total number of students enrolled in primary schools throughout these thirty years (1980 to 2010) was decreasing. In the secondary level, there were fluctuations in total student enrolment. However, these minor fluctuations did not give any negative impact to GDP.

9.6. Demand for Education and Problem of Fees

Contrary to the primary and secondary education level, total number of students enrolled in tertiary education increased drastically from the year 1980 to 2010. This was due to the effort of the Chinese government to achieve their dream in building world-class research universities. This goal has been strongly advocated by the government over the past 20 years, during which the expansion of higher education had successfully produced a large quantity of skilled workers. However, according to Lauder, Brown and Ashton (2008) in McKinsey Quarterly, among these graduates, only one tenth were qualified and were able to fulfill the requirements in
multinational companies. This is contrary to the Chinese government’s aim, which is to compete in higher-value industries. However, this indirectly shows that universities are playing an important role in developing a person’s knowledge and trained talent in order to compete in the global economy (Wang, 2008).

In the old days, Confucius’s thought and teachings are deeply entrenched in the Chinese society. In Confucius’s teachings, it is believed that one can only function when one sticks to the ethics as shown in Table 4. The major principal in Confucian education is that if a person strive to work hard, endure and overcome difficult circumstances, s/he will acquire rewarding returns later in life. Education is seen as a family effort which requires sacrifice, time and money. Parents are willing to sell their houses, land or even get themselves into massive debts in order to send their children to university. Parents believe that education can raise a person’s identity, quality and status. In a nutshell, education and knowledge constitute a key factor in developing a nation especially in this era of global knowledge economy.

Table 4 Teachings of Confucius

<table>
<thead>
<tr>
<th>Chinese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li 禮</td>
<td>Ritual, manners, politeness</td>
</tr>
<tr>
<td>Xiao 孝</td>
<td>Love and respect among the family members</td>
</tr>
<tr>
<td>Yi 義</td>
<td>Righteousness</td>
</tr>
<tr>
<td>Ren 仁</td>
<td>Benevolence, humaneness (heart of Confucian philosophy)</td>
</tr>
<tr>
<td>Zhong 忠</td>
<td>Loyalty</td>
</tr>
</tbody>
</table>

Source: China Knowledge, 2010.

An important trend to be observed in Table 5 during the period under review is that with the rise in GDP per capita, the demand for education has grown at all levels but the demand for primary education has started to drop since 1990 onwards, the demand for secondary education increases and decreases over the last 30 years while higher education springing up like mushrooms, or “bamboo shoots after the spring rain”, as the Chinese adage goes. Primary education coverage in China is considered almost universal. The total number of students enrolled in the year 1998 reached 98.9 per cent; only provinces/zizhiqu/zhixiaoshi such as Chongqing (94.3 per cent), Qinghai (92.1 per cent) and Tibet (81.3 per cent) have primary enrolment rate which is lower than 95 per cent (Liang, 2001: 5). However, due to family planning (one-child) policy imposed in 1979 by the government, the annual rate of population growth started to drop.
It can be observed in Table 6 that the annual rate of population increase in China started to drop since the year 1980 (1.86 per cent), all the way to 0.18 per cent by 2010, and as a result, China experienced decreasing number of primary school age children in those years after 1980. Besides decreasing population growth rate, China’s reform and policy of openness also affect the government’s ability to provide public goods such as education. State funding for education has declined steadily and the funding responsibility has been gradually shifted to the local governments. The local governments, in turn, have shifted this burden to the schools to generate their own funding. In order to generate income, schools then charge all kinds of fees to overcome the shortages in funding.
Fees range from ten to hundreds of yuan and sometimes, even over a thousand yuan for a year. Thus, most of the schools at that time were fully relying on collecting fees and doing other businesses in order to generate funds (Lin, 1999). High school fees have hindered poor families’ ability to send their children to school.

9.7. Yi Fei Zhi and Liang Mian Yi Bu

In order to end the wanton charging of fees by schools and to further regulate and strengthen the fee management system of schools to reduce the economic burden of families with school-age children especially the rural poor, the government began implementing the one-fee system (yi fei zhi 一费制) in the poor areas. One-fee reform was remarkably effective in stopping education cost from rising too fast and in reducing peasant families’ liabilities, as well as to a certain extent increasing the rate of enrolment. However, it had been warned that the fee reduction also has the tendency to compromise the quality of education, due to schools’ financial difficulties and debts (Yeoh and Ling, 2012: 241). On the other hand, as one of the seven prongs of the western regional 2004-2007 plan to achieve comprehensive nine-year education and basically eliminate youth and adult illiteracy in the western region by 2007, the “two exempts and one subsidy” (liang mian yi bu 两免一补) scheme aims at solving the problem of children of poor families in backward areas attending school. Under this scheme, the central government provided free textbooks, while the various tiers of the local governments took up the responsibility of exempting poor students from sundry fees and subsidizing boarding expenses. Liang mian yi bu specifically targets compulsory education stage students living in rural areas (with main source of family income being agriculture), studying in rural (including village, township and county town) primary and secondary schools, who are unable to pay for textbooks, sundry fees and boarding expenses due to economic difficulties of their families (also including county-level students with disabilities). Zhongguo Fazhan Baogao 2007 indicates that central government expenditure for this purpose in 2004 amounted to 1.17 billion yuan, with 32 per cent of students from poor families in the central and western regions provided with free textbooks. The number of primary and secondary students from poor families in the rural compulsory education stage benefiting from free textbooks in the central and western regions reached about 30 million people. Nationwide government expenditure for rural compulsory education amounted to 184 billion yuan in 2006, exempting all 52 million students at rural compulsory education stage in the western region and part of the central region from school and sundry fees, providing free
textbooks for 37.3 million students from poor families, and subsidizing living expenses for 7.8 million boarding students. To further strengthen the development of rural foundational education, the report notes that the central government has also decided to extend the liang mian yi bu scheme to all rural areas nationwide to provide educational opportunity for more children from poor families.

9.8. Length of Education

Secondary education in China includes junior education, senior education or vocational and technical schools. Before this, primary school enrolment has been found to be dropping year by year. This had indirectly affected the total secondary school enrolment. As the number of students in primary schools decreases, the number of students who continue their studies in secondary school will also decrease. Due to this, the Chinese government imposed the Law on Nine-Year Compulsory Education which took effect on July 1, 1986. Children are compulsory to enter primary school for six years and junior secondary school for another three years. However, when a student reaches the senior education level, they can choose to continue or discontinue their education. The normal causes of declining enrolment of students in secondary level are lacking of fund and higher fees charged at senior or secondary schools.

The length of education is directly linked to the total student enrolment in primary, secondary and tertiary education. If the total number of students enrolled in each of these levels of education increases, the length of education will also increase.

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP per capita (USD)</th>
<th>Average Illiterate &amp; Self-educated (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>2385</td>
<td>45.78</td>
</tr>
<tr>
<td>1985</td>
<td>3290</td>
<td>28.97</td>
</tr>
<tr>
<td>1990</td>
<td>8124</td>
<td>15.60</td>
</tr>
<tr>
<td>1995</td>
<td>12918</td>
<td>10.86</td>
</tr>
<tr>
<td>2000</td>
<td>14704</td>
<td>8.31</td>
</tr>
<tr>
<td>2005</td>
<td>16051</td>
<td>5.92</td>
</tr>
<tr>
<td>2010</td>
<td>18588</td>
<td>2.85</td>
</tr>
</tbody>
</table>

Table 7 shows an inverse relationship between the proportion of the average illiterate and self-educated and GDP per capita. Nowadays, careers which require science, mathematics and technology are well established in developed countries which have high proportions of literate population. As China’s tremendous growth is in fact attributed to the sudden increase of capital investment from the year 1979 to 1994 which had made the country more productive and competitive, the increase of literates in China would enable the country to attract more capital investment which would indirectly lead to better technology, new machinery and enhanced development in infrastructure. In short, better human resources would help to raise GDP.

9.9. F-Test for Structural Stability: The Chow Test

A series of data may contain structural change due to policy changes or a sudden shock to the economy. In order to test whether this occurs in a structural break between the years from 1980 to 2010, the Chow test was used. The model uses an F-test to determine whether a single regression is more efficient, compared to two separate regressions involving splitting the data into two sub-samples. In this study, we separate the data into two periods. The first period involves the year 1980 to 1997 and the second period is from the year 1997 to 2010.

Referring to Equation one, we thus separate the data into two time-periods:

1980 to 1997 (First period)

\[
GDP_t = \beta_{11} + \beta_{12}I_{LL2t} + \beta_{13}PSE_{3t} + \beta_{14}SSE_{4t} + \beta_{15}UCE_{5t} + \beta_{16}EL_{6t} + \mu_{1t}
\]

1998 to 2010 (Second period)

\[
GDP_t = \beta_{21} + \beta_{22}I_{LL2t} + \beta_{23}PSE_{3t} + \beta_{24}SSE_{4t} + \beta_{25}UCE_{5t} + \beta_{26}EL_{6t} + \mu_{2t}
\]

We assume that

\[H_0: \beta_{11} = \beta_{21}, \beta_{12} = \beta_{22}, \beta_{13} = \beta_{23}, \beta_{14} = \beta_{24}, \beta_{15} = \beta_{25}, \beta_{16} = \beta_{26}\]

\[H_1: \text{at least one of pairs is not equal}\]

As a result, we find that at \(\alpha = 0.05; F_{0.05,6,19} = 2.628318\).

Since

\[F-\text{statistics} (2.669158) > F_{0.05,6,19} (2.628318)\]
we reject $H_0$\textsuperscript{12}. In conclusion, there is a structural change between the two periods, that is, the parameters of the demand function have changed. Structural change occurs due to the education reform that happened before 1997.

According to the *China Statistical Yearbook* (2010), China’s GDP per capita had risen since the year 1980 and reached a peak at USD13,810 in the year 1997. Later, in the year 1998, GDP per capita in China decreased to USD12,598 – a decline of about 10 per cent. The GDP loss indicates structural change in China after the Asian financial crisis of 1997 which hit most of the Asian countries.

### 9.10. Education Reform

In April 1986, the Chinese government imposed a Nine-Year Compulsory Education Law which is universalized in all urban and rural areas. All the young and middle-aged citizens, i.e. those aged 15-45 including the ethnic minorities, were made compulsory to receive nine years of education in primary and secondary schools. During the first six years of implementation, junior high school education was expected to become universal among cities and the coastal areas, and it was to become universal in the countryside as well within ten years. Imbalanced investment between higher education and basic schooling has led to the government’s goal being unaccomplishable. Hence, citizens in rural and remote areas still suffer from illiteracy. Besides, there is also a need to adjust the wages of primary and secondary school teachers because many of them are still underpaid.

Realizing that China had lagged behind many other developing countries in Asia, the government in the year 1993 reissued the Chinese Educational Reform and Development Programme, insisting that the nine-year compulsory education is a must in order to eradicate illiteracy among young and middle-aged adults. The reform’s objective had been placed as the highest priority and must be achieved. Policies drafted and planned were as below (Chinese National Commission for UNESCO and Chinese Adult Education Association, 2008):

i) Policy-making was done in a more programmatic way in which the conditions of the regions or provinces were clearly specified.

ii) Plannings were done by the government of the regions and provinces themselves.

iii) Guidance were based on categories of schools, programmes, and geographic areas.

iv) Implementations were followed by steps.
Table 8 shows an analysis of China’s educational attainment for people who aged six and over in 1997. In the year 1990, the illiteracy rate of the total population was approximately 18 per cent. However, this figure had decreased drastically to 10 per cent after much efforts by the government. According to the data in Table 8, 41 per cent of the population had completed six years of education which include six years of primary education, about 32 per cent of the population had completed nine years of education (six years of primary education and three years of lower secondary education), nine per cent of the population had completed 12 years of education (six years of primary education, three years of lower secondary education and three years of higher secondary education) and two per cent of the total population had completed three or more years of college education. Although education reform began before the year 1997, the figures show that there was a lag of effect after the enforcement of the Chinese Educational Reform and Development Programme.

10. Reasons of Unequal Compulsory Education Opportunities in China

The income gap between cities and and counties or towns is getting wider and wider. According to the latest data released by the National Bureau of Statistics of China (2011), the net income per capita of China’s urban residents was 19,109 yuan. This figure was estimated to increase 11.3 per cent year by year. On the other hand, residents in counties and towns only achieved net income per capita of 5,919 yuan which was increasing by 14.9 per cent per annum (Zhang, 2011). The average urban income was three times higher than rural average income. The main factor that contributed to this income disparity was the subsidy allocation by the government. Primary education in urban areas is fully supported by the
State while rural education is left to the sponsorship of the children’s families and local collectivities (villages and townships).

Considering the importance of education in a developing country, the Chinese government is facing challenges in improving the rural areas’ standard of living. Education is believed to be a main factor in allowing the residents to be free from burdens and worsening living conditions. Urban education obtains more attention from the central government and the resources allocated to them are also double those allocated to the counties and towns. Due to the lack of resources and funding in the rural area, children from the peasant and poor families have no choice but to drop out from school when they reach junior high, some even at primary level. Hence, these rural children indirectly lose their opportunity to continue their studies at the secondary and tertiary level. Rural children are indeed in a disadvantaged position. The facts and figures show that the urban youth have more than three times of chances to be admitted to colleges or universities compared to the youth in the rural areas due to uneven and unfair distribution of aid by the government. Based on the research from the Peking Academy of Education and Science, rural students enrolled at Tsinghua University declined from 20.8 per cent in the year 1998 to 17.6 per cent in the year 2000. Similarly, rural students enrolled at Peking Normal University fell from a high 30.9 per cent in the year 1998 to 22.3 per cent in the year 2000 (Teng, 2005).

To implement compulsory education in rural and urban areas is an arduous task for the Chinese government, especially in the rural areas. Even though laws such as the “Compulsory Education Law” and the “Rule for the Implementation of the Compulsory Education Law of the People’s Republic of China” were implemented in the year 1986 and 1992 respectively, primary schooling in rural areas is still not universalized. In the year 2002, the percentage of compulsory education in rural areas only achieved 76 per cent. In some rural areas, high enrolment rate was reported to conceal an even higher dropout rate. It is difficult to trace an accurate dropout rate or the genuineness of the statistics provided. The issue of uneven and unsettled financial relationship between the central government and localities is the cause of low-quality education in the rural areas. Insufficient funding and resources in the rural areas lead to school facilities being unable to be maintained and inability to provide school teachers as well. Lack of teachers is considered as a most common matter that happens in rural China. It is not surprising that teachers in rural areas will leave and shift to work in the urban areas in order to seek better salaries and additional allowances such as housing, pension and medical allowances. In areas such as Yunnan province and a place called Gong County, according to M.F. Teng, there were more than 60 schools in the
villages while there were only one or two teachers who were in charge of teaching all subjects at all grade levels (Teng, 2005).

Undeniably, the government should have come out with plans to overcome the problem of unequal distribution rather than shedding the responsibility with the excuse of limited resources. One of the members in the Education, Science, Culture and Public Health Committee of the National People’s Congress named Liu Bin claimed that governments at different levels should take up the responsibility in providing funds in order to realize the mission of universal compulsory education. In the year 2001, the township-level government was primarily placed as the main supplier for the provision of local primary education. However, problem occurs when there was a lack of financial input from the central government. In the end, the township governments would have no choice but to collect extra charges from the peasants for funding their children’s primary education. To be fair, the central government has put in efforts to lessen the peasants’ financial burden, and to further clarify and explain the financial relationship between the centre and the localities. In the year 2001, the county-level government was being placed as the major funding contributor for the provision of rural primary education through the “Decision on the Reform and Development of Primary Education” issued by the State Council. Later, in the year 2002, the State Council in the “Directive Concerning the Improvement of the Organizational Structure of Rural Compulsory Education” further explained that the county governments were mainly in charge of funding the rural areas to improve their quality of education and popularize compulsory education. The central government would serve to play a supporting and facilitating role. Besides, the central government was also responsible for drafting rules and regulations, policies as well as guidelines for all levels of governments, and distributing funds to the eastern, central and western part of China. Village and township governments were solely in control of arranging and monitoring local educational development (China Education Daily, 2002).

After several policies and regulations have been made to clarify the responsibilities of governments at different levels, the counties have gained more power in controlling the collection and spending of educational funds and resources. Keeping track on the cash-flows is assumed to be an easier task, but governing and keeping the villages and townships away from corruption is much more difficult to undertake. Although the rural residents are promised to get better opportunities of education, enhanced resources, full support from the government and society, the fundamental problem of insufficient educational funding for rural areas remains unsettled. Furthermore, county, village and township governments
often take a long time to be fully accessible to new policies and take up the increasing support from the central and provincial fiscal transfers and private donations from society.

11. Division of Eastern, Central and Western Region of China

Mainland China can be divided into three major economic regions which have different endowment of natural resources, socioeconomic conditions as well as developmental characteristics. The division of eastern, central and western region of China is mainly based on the level of economic development and the geographical location of the regions. Even though China appears as a strong economy, inequality in development among the 31 provincial-level administrative units has worsened since the implementation of the reform and open-door policy by the government in the late 1970s.

The eastern region includes the 11 provinces and zhixiashi (municipalities directly governed by the central government) of Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan, accounting for 11 per cent of the total land area of China. The eastern region of China is facing seas and islands, has flat terrain and good formation conditions in agriculture, and endowed with aquatic products, petroleum, iron, salt and other resources (Figure 4). This region has developed well since the implementation of the open-door policy, and possesses superior geographic location, strong and high-quality technological prowess, and a strong industrial and agricultural base. Undeniably, the eastern region has always been playing an important role in leading the overall economic development of China.

The central region includes the eight provinces of Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei and Hunan, accounting for 18 per cent of the total land area of China. The central region is located in the inland, with plateau in the north, hills in the south, and plains distributed throughout as the base of food production. Besides, the central region is endowed with energy resources and a variety of metals and non-metallic mineral resources, and has good and strong heavy industry foundation.

The western region includes the twelve provinces, zizhiqi (autonomous regions) and zhixiashi of Sichuan, Chongqing, Inner Mongolia, Guizhou, Yunnan, Tibet, Shaanxi, Guangxi, Gansu, Ningxia, Qinghai and Xinjiang, accounting for 71 per cent of the total land area of China. The western region has a vast territory, high and complex terrain including plateaux, basins, deserts, grasslands, and in most parts of the alpine, water scarcity is making the landscape not conducive to the growing of crops. Due to the lack and late development of this region, there exists a huge
economic development and technical management disparity between this region and eastern and central China. However, the western region has great potential for development due to its large land area which is rich in mineral resources.

12. Economic Growth and Educational Development at Regional Level

It has been widely noted that the problem of poverty in ethnic minority areas, mostly concentrated in the western region, features special causes, problems and manifestations, hence requiring constantly increasing inputs and efforts, and in particular, enhancement of the relevance and focus of
the measures (Yeoh and Ling, 2012: 239-240). Figure 5, Figure 6 and Figure 7 take a general look at various facets the problem. The measures required involve improving the basic quality of the labour force by way of poverty alleviation through education, developmental poverty alleviation through focusing on supporting the development of industries with special ethnic characteristics, channeling enterprises in the eastern region to found new ventures in the western region’s ethnic areas, and the combination of poverty alleviation and ecological construction as well as other similar measures. Regarding poverty alleviation through education, it can noted that in the past, besides the standard poverty assistance fundings, other government departments also implemented some poverty assistance programmes and investments directly aimed at the poverty areas including the compulsory education projects for the government-designated poverty areas implemented by China’s Ministry of Education. This compulsory education programme mainly focuses on the government-designated and province-designated poverty counties. The first phase of the programme began at the end of 1995; and a total amount of investment from the central government of 3.9 billion yuan by 2000 (Zhongguo Fazhan Baogao 2007). The second phase was implemented during the tenth five-year plan period of 2001-2005, with investment from central government amounting to 5 billion yuan.

Figure 5 China: Education Level of Labour Force by Region

Source: Yeoh (2008: 44), Figure 10. Data from Zhongguo Xibu Nongcun Quanmian Xiaokang Zhibiao Tixi Yanjiu, 2006, p. 72, Table 5-1.
Figure 6 China: Illiteracy in Ethnic Zizhiqu and Multiethnic Provinces
(Illiteracy rate; National ranking of illiteracy rate)

Source: Yeoh (2010b: 591), Figure 8. Data from Zhongguo Minzu Fazhan Baogao, 2001-2006, p. 230, Table 16 (original source: Zhongguo Renkou Wenhua Suzhi Baogao, 2004).

Figure 7 China: Average Education Level in Ethnic Zizhiqu and Multiethnic Provinces (Years of schooling; National ranking of education level)

Source: Yeoh (2010b: 591), Figure 7. Data from Zhongguo Minzu Fazhan Baogao, 2001-2006, p. 231, Table 17 (original source: Zhongguo Renkou Wenhua Suzhi Baogao, 2004).
Occupying solely 11 per cent of land, the eastern region with 11 provinces and zhixiaoshi was the main power driving China’s economic development. In the year 2006, the total GDP of the eastern region accounted for 59 per cent of the total GDP in China. Furthermore, the eastern region also enjoyed a large share of foreign direct investment (FDI) at 92.7 per cent. The uneven development between the eastern, central and western region has always been recognized by the government, and so is the importance of increasing investment by both domestic and foreign firms in bringing better development to the central and western region. Especially only when there is large amount of foreign investment, these particular regions will be able to build up basic infrastructure and human resources with technological skills and knowledge. The eastern region has always been the best performer among the three regions. Later, in the periods 1987-1990 and 2007-2010, total FDI flows into the central region started to grow from below 4 per cent to 17 per cent. On the contrary, the eastern region which had always been ahead of other regions in terms of economic development and capital inflow suffered a decrease of total FDI inflows of 89 per cent in the first period (1987-1990) to 75 per cent in the second period (2007-2010), implying that there occurred a moderate shift of FDI inflows from the eastern to the central region. Nevertheless, GDP remains a key indicator of the size of a country’s or province’s economy. GDP reveals a region’s level of development, educational development and wealth. In year 2006, China’s GDP per capita achieved US$2,049. In spite of this, by looking at education and economic development, gaps can still be observed between various provinces. Table 11 shows that Shanghai with US$7,276 GDP per capita ranked first, followed by Beijing, the second highest, with a GDP per capita of US$6,341. Guizhou with the lowest GDP per capita (ten times lower than that of Shanghai) ranked at bottom.

Table 9 Comparison of Three Regions in 2006 (%)

<table>
<thead>
<tr>
<th>Item</th>
<th>Eastern</th>
<th>Central</th>
<th>Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>12.6</td>
<td>15.9</td>
<td>71.5</td>
</tr>
<tr>
<td>Population</td>
<td>39.5</td>
<td>32.5</td>
<td>28.0</td>
</tr>
<tr>
<td>GDP</td>
<td>59.0</td>
<td>23.9</td>
<td>17.1</td>
</tr>
<tr>
<td>Foreign Trade</td>
<td>92.7</td>
<td>3.5</td>
<td>3.8</td>
</tr>
</tbody>
</table>

### Table 10 Top 10 Biggest Economies in China at Provincial Level in 2006

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Province/ Zhixiashi</th>
<th>GDP (billion yuan)</th>
<th>GDP (US$ billion)</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Guangdong</td>
<td>2620.4</td>
<td>333.8</td>
<td>Eastern</td>
</tr>
<tr>
<td>2</td>
<td>Shandong</td>
<td>2207.7</td>
<td>281.2</td>
<td>Eastern</td>
</tr>
<tr>
<td>3</td>
<td>Jiangsu</td>
<td>2164.5</td>
<td>275.7</td>
<td>Eastern</td>
</tr>
<tr>
<td>4</td>
<td>Zhejiang</td>
<td>1574.3</td>
<td>200.5</td>
<td>Eastern</td>
</tr>
<tr>
<td>5</td>
<td>Henan</td>
<td>1249.6</td>
<td>159.2</td>
<td>Central</td>
</tr>
<tr>
<td>6</td>
<td>Hebei</td>
<td>1166.0</td>
<td>148.5</td>
<td>Eastern</td>
</tr>
<tr>
<td>7</td>
<td>Shanghai</td>
<td>1036.6</td>
<td>132.1</td>
<td>Eastern</td>
</tr>
<tr>
<td>8</td>
<td>Liaoning</td>
<td>925.1</td>
<td>117.8</td>
<td>Eastern</td>
</tr>
<tr>
<td>9</td>
<td>Sichuan</td>
<td>863.8</td>
<td>110.0</td>
<td>Western</td>
</tr>
<tr>
<td>10</td>
<td>Beijing</td>
<td>787.0</td>
<td>100.3</td>
<td>Eastern</td>
</tr>
</tbody>
</table>


### Table 11 Twelve Provinces/Zizhiqu/Zhixiashi with Above-Average GDP Per Capita in 2006

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Province</th>
<th>GDP per capita (US$)</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shanghai</td>
<td>7276</td>
<td>Eastern</td>
</tr>
<tr>
<td>2</td>
<td>Beijing</td>
<td>6341</td>
<td>Eastern</td>
</tr>
<tr>
<td>3</td>
<td>Tianjin</td>
<td>5166</td>
<td>Eastern</td>
</tr>
<tr>
<td>4</td>
<td>Zhejiang</td>
<td>4027</td>
<td>Eastern</td>
</tr>
<tr>
<td>5</td>
<td>Jiangsu</td>
<td>3652</td>
<td>Eastern</td>
</tr>
<tr>
<td>6</td>
<td>Guangdong</td>
<td>3588</td>
<td>Eastern</td>
</tr>
<tr>
<td>7</td>
<td>Shandong</td>
<td>3021</td>
<td>Eastern</td>
</tr>
<tr>
<td>8</td>
<td>Liaoning</td>
<td>2759</td>
<td>Eastern</td>
</tr>
<tr>
<td>9</td>
<td>Fujian</td>
<td>2726</td>
<td>Eastern</td>
</tr>
<tr>
<td>10</td>
<td>Inner Mongolia</td>
<td>2546</td>
<td>Western</td>
</tr>
<tr>
<td>11</td>
<td>Hebei</td>
<td>2153</td>
<td>Eastern</td>
</tr>
<tr>
<td>12</td>
<td>Heilongjiang</td>
<td>2062</td>
<td>Central</td>
</tr>
</tbody>
</table>

Of the entire eastern region, Guangdong as the biggest GDP contributor to China’s economy was the first province to open its door to the world. GDP in Guangdong achieved 2620.4 billion yuan (or US$333.8 billion) in the year 2006. The size of Guangdong’s economy had been said to be more or less the same as that of Poland which had the biggest economy in emerging Eastern Europe. In early 2005, Shandong had surpassed Jiangsu in becoming the second biggest economy in China with a high GDP of 2207.7 billion yuan (or US$281.2 billion). Jiangsu, the third largest economy in China, had a GDP of 2164.5 billion yuan (or US$275.7 billion). Table 10 shows that among the top ten biggest provincial-level economies in China, eight provinces/zhixiashi were in the eastern region; only one was in the central region (Henan) and one in the western region (Sichuan).

The fact that 10 out of 12 provinces/zhizhiqu/zhixiashi with above-average GDP per capita were in the eastern region serves to show the economic strength of the eastern region. Another two provinces/zhizhiqiu of Heilongjiang and Inner Mongolia with above-average GDP per capita were in the central and western region respectively. Among the twelve provinces/zhizhiqiu/zhixiashi with above-average GDP per capita in the year 2006, Shanghai, Beijing and Tianjin had GDP per capita more than US$5,000 while Zhejiang, Jiangsu, Guangdong and Shandong were with GDP per capita less than US$5,000. On the other hand, Liaoning, Fujian, Inner Mongolia, Hebei and Heilongjiang achieved GDP per capita at a level of less than US$3000.

12.1. Eastern Region

With economic and social development as well as increase of funding by the government, China had been able to lower the number of illiterates from the year 1995 to 2010. Figure 8 shows that Shandong has experienced the largest changes in the number of illiterates. The number of illiterates in Shandong became lower each year, decreasing from 14,228 people to 12,076 people by the year 2000. The number declined further to 9,516 people and 5,917 people in the year 2005 and 2010 respectively.

In early 1995, Beijing and Tianjin had the lowest number of illiterates among the provinces/zhixiashi, with 685 people and 661 people respectively. By the year 2010, there were 440 illiterates in Beijing and 381 illiterates in Tianjin. Besides Beijing and Tianjin, other provincial units such as Shanghai and Hainan also achieved low numbers of illiterates at below 1,000 people in the year 2010, and Liaoning at below 2,000 people. Overall, the number of illiterates in the eastern region has been dropping from year to year due to faster economic development and larger funding and support from the government.
In the early period of China’s reform, the Chinese government directed all their concentration and efforts to building up the coastal areas which traditionally had a comparatively more developed and advanced infrastructure and a well-built economic base. Since the coastal areas guaranteed a much higher rate of return on FDI in contrast with other regions, the Chinese government had concentrated its promotion of regional economic development there and this had indirectly created more job opportunities in these areas (Chen and Zheng, 2007). When a place is more developed and has more employment opportunities, people are forced to learn more to adapt themselves to the rapid changes associated with development, and this illustrates that education is a major factor in achieving economic development.

### 12.2. Central Region

During the years 1995-2010, the number of illiterates started to drop gradually in all provinces/zizhiqu/zhixiashi. While it was a good sign that more and more citizens were being educated, the problem of regional disparities persisted. Figure 9 shows the number of illiterates across the central region from the year 1995 to 2010. Anhui and Henan had continued to be the provinces with highest number of illiterates from 1995 to 2010.
In the year 1995, the number of illiterates in Anhui was 11,836 people, while Henan had the largest number (13,897 people) of illiterates. With government action in universalizing the nine-year compulsory schooling, the numbers of illiterates in both of these provinces were successfully reduced by about 50 per cent by 2010 with only 6,181 illiterates remaining in Anhui and 5,278 illiterates in Henan respectively.

On the other hand, the number of illiterates in Jilin was below 1,000 people in the year 2010. Heilongjiang, Shanxi and Jiangxi also had lower number of illiterates from year to year, with below 2,000 people who were illiterate in 2010. Although the provinces in the central region still suffer from having a large number of illiterates, it is obvious that the total number of illiterates across these eight provinces had decreased in stages from the year 1995 to 2010.

12.3. Western Region

While we have observed that the eastern region and central region are having decreasing number of illiterates, the number of illiterates in the western region still remains high. At the same time, the total FDI inflows to the western region, while fluctuating, remain mainly below 10 per cent. The rising regional inequalities have pushed the Chinese government...
to respond with policy amendments to tackle the problems. In fact, the government remains providing most of their funding to the coastal regions until the end of the year 1999 when the Chinese government officially introduced the “Western Development Strategy” (xibu da kajfa). This new strategy aimed to reinvent another China, focusing on the western region, including the rebuilding of transport, energy and telecommunications infrastructure, attracting more foreign investment, and promoting the nine-year compulsory schooling to produce more skilled workers. In year 2006 alone, a total of 1 trillion yuan was paid out in order to rebuild the infrastructure in western China.

To further speed up the development of education in the western region, the Chinese government again came out with the “‘Two-Basically’ Breakthrough Plan for the Western Region” (2004-2007). Several essential moves had been taken to accomplish this plan. Firstly, the central government put in a total of 10 billion yuan to launch the “Project of Constructing Boarding Schools in the Rural Areas”. This project aimed to meet the requirement of almost 2.2 million boarding students for their basic living and learning.

The second project named the “Project of Modern Distance Education for Rural Primary and Secondary Schools” used up a total of 11.1 billion yuan funded by the central government. A distance education network

Figure 10 Numbers of Illiterates across Western Region from 1995 to 2010

![Chart showing numbers of illiterates across Western Region from 1995 to 2010](chart10.png)

covering rural areas all over China linking up all tertiary, secondary and primary schools in the western region would be established under this project to allow the students of rural primary and secondary schools in the western region to share excellent educational resources (Chinese National Commission for UNESCO and Chinese Adult Education Association, 2008). These efforts of the government had finally paid off when the number of illiterates in the western region indeed decreased. Figure 10 shows that while the number of illiterates in Sichuan remained high in the year 2010 with a total of 6,276 people and Gansu, Shaanxi, Guizhou and Yunnan were still having more than 2,000 illiterates, the number of illiterates had in general been declining steadily after the introduction of those massive projects and plans.

Besides introducing those projects and plans, the central government also insisted on the coastal region helping the west. In May 1996, a city-to-city and province-to-province aid programme between the eastern and western region was commenced by the central government to narrow down the regional disparities (Tian, 2004: 621). With more investment inflows, the provinces/zizhiqu/zhixiashi in the western region would be able to expand their current infrastructure especially in terms of science, technology and education where more schools could be built to fulfill the region’s basic needs. More skilled labour could be trained to keep up with the pace of development.

13. Evidence of Smaller Regional Disparity

In the year 2000, after few attempts made by the Chinese government in encouraging the nine-year compulsory education across China, it claimed to have successfully eradicated 85 per cent of illiteracy of the whole population of the country. In the following year, China then reallocated its efforts and funds for promoting the nine-year compulsory education to the western region which had remained poor and lagged behind other regions of the country, together with the government’s target to bridge the gap between the rural and urban areas.

The net enrolment rate in primary schools of China accelerated and reached 99.15 per cent by the year 2008. Furthermore, it can be observed in Figure 11 that the urban-rural as well as regional disparities were reduced to a less significant level. Figure 11 also shows that during the years from 2003 to 2009, the eastern region had the highest primary school enrolment rate compared to the central and western region. The western region remained to be the lowest either in educational development or in primary school enrolment rates throughout this period. On the contrary, we also found out that the gross enrolment rates of junior secondary schools
Figure 11 Net Enrolment Rates of Primary Schools by Region, 2003-2009 (%)


Figure 12 Gross Enrolment Rates of Junior Secondary Schools, 2003-2009 (%)

from the year 2003 to 2006 across the regions in China had increased progressively year by year. In the year 2003, the junior secondary enrolment rate was only at 88.6 per cent and yet this number had increased to 97 per cent six years later (Figure 12).

Since launching the Western Development Strategy, the promotion rate in the eastern region of primary school graduates to junior secondary schools had risen from 94.89 per cent in 2003 to 98.42 per cent in 2006. The western region with an underdeveloped economic and educational foundation also experienced drastic growth, with a promotion rate of 90.55 per cent in 2003 increasing to 97.09 per cent by the year 2009. Promotion rates in county city and towns went beyond 100 per cent whereas the promotion rates of the rural areas had fallen off because a vast number of primary school graduates from the rural areas had migrated to cities and towns to further their studies (Figure 13).

After looking at the primary and secondary school enrolment rates, we now focus on adult literacy. From the year 1990 to 2000, China successfully eliminated an average of 4 million illiterates per year and 46.5168 million people were freed from illiteracy. According to the Fifth National Population Census of the year 2000, the illiteracy rate of population aged 15 or above had declined from 80 per cent of the total

Figure 13 Promotion Rates of Primary School Students to Junior Secondary Schools, 2003-2009 (%)
Figure 14 Declining Trend of Illiterate Population Aged 15 or Above and Illiteracy Rate from 1949 to 2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Total of Illiterate Population (100 million)</th>
<th>Rate of Adult Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td>80</td>
<td>3.2</td>
</tr>
<tr>
<td>1964</td>
<td>52.4</td>
<td>2.33</td>
</tr>
<tr>
<td>1982</td>
<td>34.49</td>
<td>2.3</td>
</tr>
<tr>
<td>1990</td>
<td>22.22</td>
<td>1.82</td>
</tr>
<tr>
<td>1995</td>
<td>16.5</td>
<td>1.45</td>
</tr>
<tr>
<td>2000</td>
<td>9.08</td>
<td>0.85</td>
</tr>
</tbody>
</table>


Population in the year 1949 to 9.08 per cent of the total population by the year 2000. It can be observed in Figure 14 that there was a drastic decline in adult illiteracy rate. In brief, according to official data, the Chinese government had accomplished its goal of eliminating illiteracy among population aged 15 and above since 1993.

As we mentioned earlier, China’s regions are basically divided according to the level of economic development and geographical location. China’s ethnic minorities are mostly residing in the western region, as reflected in the higher ethnic diversity shown in Figure 15. In the early years, areas in the western region had lagged behind those in the other regions in terms of education, with extremely high illiteracy rates. However, with the government stepping up its efforts in guaranteeing the citizens their basic rights to education, the adult illiteracy rates in areas such as Ningxia, Gansu, Yunnan, Guizhou and Tibet had declined, though they were still less than the national average set by the government (Figure 16).
Tibet still remained as the provincial unit with the highest adult illiteracy rate throughout the years from 1982 to 2000. However, this particular zizhiqu had successfully reduced its adult illiteracy rate to below 50 per cent by the year 2000. Also by the year 2000, other provinces/zizhiqu such as Xinjiang, Guangxi and Sichuan had managed to reduce their adult illiteracy rates to below 10 per cent. Most of the provinces/zizhiqu such as Inner Mongolia, Ningxia, Gansu, Yunnan, Guizhou and Qinghai had their adult illiteracy rates at between 20 to 30 per cent in the year 2000. Apparently, the degree of regional inequality had dropped after 20 years’ effort in promoting education. It is a fact that the decline in the number of illiterates would indirectly affect a country’s competitiveness, and China’s achievements in this aspect have definitely played a major role, by producing more skilled and knowledgeable workers, in the

Figure 15 China: Ethnic Diversity by Province/Zizhiqu/Zhixiashi

Note: For the computation of the ethnic diversity/fractionalization index (EFI), with a range of 0–1 from hypothetically complete homogeneity to hypothetically perfect diversity, see Emile Kok-Kheng Yeoh, “Ethnic Fractionalization: The World, China and Malaysia in Perspective”, in this volume. EFI for China as a whole is only 0.125, indicating high homogeneity.

Source: Yeoh (2011: 418), Figure 1, computed with data from the 2000 population census.
country’s economic success today after more than 30 years of efforts in reform and development.

The above analyses were based on data gathered from the *China Statistical Yearbook*. The detailed presentation and discussion portray a clear picture of different levels of education respectively playing an important role in economic development. The overall illiteracy rate in China has been decreasing since 1980 but there are still some areas like the western region and rural areas that continue to suffer from a large number of illiterates due to the lack of capital inflow from investors and funding from the government. This has indirectly affected the economic growth and development in those particular areas. On the part of the government, various plans and policies have been launched to overcome or ameliorate the problems of educational and economic inequality especially in the western region, and with all these efforts the government has been able to successfully eradicated a major part of illiteracy and also to certain extent reduce inequality at the regional level.


Figure 16 Changes in Adult Illiteracy Rates of Ethnic Areas in China from 1982 to 2000

![Chart showing changes in adult illiteracy rates from 1982 to 2000 for different ethnic areas in China.](chart.png)
14. Conclusion

China’s spectacular educational growth has benefited its provinces and regions unevenly according to the empirical results of this study. China’s speedy growth over the past 30 years has pulled hundreds of millions of its citizens out of poverty and turned China into the “factory of the world” (Davis, 2011). However, China still remains as one of the countries with the highest degree of regional income inequality in the world (Jian, Sachs and Warner, 1996: 15). The low GDP and underdevelopment of the rural areas and the western region of China can be in the main attributed to the lack of the availability of education. People who lack education and knowledge will definitely find themselves difficult to function in advanced societies (Stevens and Weale, 2003) due to their low employability. On the contrary, education will lead to higher employability and a low unemployment rate will be conducive to a nation’s rapid development in the current world.

The main intention of this study is to find out how far literacy helps a country to develop. Pertaining to that, facts and data and various scholars’ opinions were sought in this research. Firstly, we looked into the education policies drafted by the government and examined the effectiveness of these policies. Secondly, the education system and language reform of China were discussed. Thirdly, we evaluated the literacy rates, enrolment rates of different levels of education, length of education and levels of GDP in the different regions of the country. Together, all the above-mentioned aspects would serve to answer the research question of the study. For this study, data were taken from the China Statistical Yearbook for the years from 1980 to 2010. In terms of methodology, the Ordinary Least Square (OLS) method, Chow test and Solow model were used to support the analysis. The data was analyzed quantitatively using the Eviews version 6. As for the qualitative data, they were analyzed interpretatively.

We have investigated the relationship between GDP per capita and the average number of the illiterate and self-educated, total number of students enrolled in primary, secondary and university and college education along with the average length of education. In addition, we also discussed about the structural changes in between the first period from the year 1980 to 1997 and the second period from the year 1997 to 2010. Finally, we have also examined the educational development in the different regions of the country which had indirectly affected the economic development of these regions.

In this study, we found that the average number of the illiterate and self-educated did affect the economic development of China. Literacy produces more and better-quality employment opportunities. For instance, if a country has high literacy rates, it will indirectly catch the attention of
foreign investors and entrepreneurs to come to invest. Hence, there will be large inflow of investments and factories and new enterprises will be established. Government will then be able to collect substantial taxes collected from these new enterprises and the taxes collected can be used to improve the infrastructures. These new enterprises will also in turn generate more employment opportunities for the new generation, hence directly trimming down the unemployment rate.

On the other hand, we found that the primary school enrolment was insignificant. In May 1985, “Resolution on Educational System Reform” was launched by the Chinese government and with this the local governments were assigned the total responsibility for primary education. Schools with insufficient funds were unable to provide proper education to the children. Consequently, the local governments shifted some of the burden of fees to the parents, and this had indirectly impeded the poor families’ sending their children to school. This was especially a problem where funding was unequal between rural and urban areas (Tsang, 2000; Hannum, 1999). Shortly later, in 1986, the “Law of Nine-Year Compulsory Education” was officially introduced throughout China level by level according to the different areas’ situations of socioeconomic development. By 1990, parts of the areas and regions were expected to achieve goals as targeted but in reality as stated in the official government statistics, only 76 per cent of the counties fulfilled the target aimed, and the population of those counties constituted 91 per cent of the national total (He, 1996). Furthermore, China’s One-Child Policy had led to a decrease in total population. All these could explain why the decrease of students enrolled in primary schools seems to have had no effect on economic development.

While primary school enrolment seems to have insignificant impact on economic development, secondary school enrolment did have some effect on GDP in China. It can be observed that secondary education enrolment indeed fluctuated throughout the years from 1980 to 2010. Normally, if primary school enrolment increases, secondary school enrolment will also increase unless there are students who drop out from school due to their families’ financial problems. On the other hand, university and college enrolment also has an impact on economic development. Parents believe that without a certificate, their child will be unable to find a good job. A job with a proper income promises better standard of living and in turn, a person will be able to spend more and this will lead to higher demand for products and services. The increase of productivity will greatly help overall economy growth, especially in the long run.

Students’ enrolment rate at different levels of education is related to the length of education. A person with a higher level of knowledge and
skills is more likely to contribute to economy growth and development. Trained or skilled workers who are highly productive are more attractive to foreign investors. More capital inflows will allow investors to build more factories and firms and in turn create more job opportunities. A nation with a low unemployment rate tends to grow rapidly. China’s 95.92 per cent literacy rate has enabled the country to enjoy its current manufacturing boom with its economy being worth US$5.8 trillion (Flanders, 2011).

In 1997, there was a structural change due to the government’s reissuing of the Chinese Educational Reform and Development Programme in the year 1993. This programme was targeted to lower illiteracy among young and middle-aged adults. While results are encouraging, the problem of regional disparity between the eastern, central and western region still impedes the government’s effort in economic development. The eastern region with better geographical location and extra funding from the government has been able to develop faster compared to the central and western region. With the launching of the Western Development Strategy (xibu dakaifa) later in the year 1999 with the aim to narrow down the development gap and inequality between the regions, the number of illiterates in the western and central region had gradually decreased after continuous efforts had been made to combat illiteracy. Yet, the issue of regional disparity still remains a problem and focus of concern by the government in contemporary China.

There have been various suggestions on educational reform from the National People’s Congress (NPC) of the People’s Republic of China. According to China Daily, Lu Zhongzhu, a representative from eastern China’s Anhui province, who is a deputy of the congress, believes that only with more financial aid from the government for education in the central and western region, development would be possible for these regions. Besides, there is also a need to increase the salary of rural teachers and send migrant workers for further job training. Another deputy of the NPC, Yu Guoqing, has the same opinion as Lu’s that more support should be given for education in the central and western region. Furthermore, Yu also urges the government to guarantee the equality of support in promoting compulsory education. On the other hand, Zhong Hongyu, a representative from Hubei province in the central region, comments that China should study how foreign countries invest in their education because education is completely tied to a nation’s prospects and it also guarantees a nation’s competitiveness in global market.19

After the enforcement of Nine-Year Compulsory Education Law, government had indeed doubled up its investment in the education sector. However, Paintal (2006: 58) comments that rural and urban areas are still being divided in terms of literacy rates, and gaps between these areas
will widen even further. Schools for disabled children should be set up. However, this special education should follow the “family-community” approaches where support from the community is needed compared to the institutional provisions. Basic education is vital for these children to survive and fulfill their basic needs (Rong and Shi, 2001: 122). Besides the matter of funding and the availability of special education, the government should also concentrate on women’s education, as the majority of girls in the rural areas are in fact illiterate. It is believed that education for girls is the key to the health and nutrition of the population which constitute the major contributor to economic development (UNICEF, 1999). On the other hand, according to Blaug (1966: 394), a higher fraction of funds should be allocated to adult education because literate adults have better job opportunities and are more likely to receive higher income. Scholars also commented that besides increasing its investment in education, the Chinese government should offer more attractive incentives to ethnic and other minority groups, including _inter alia_ exemption from school fees and book fees, uniforms and stationery. Furthermore, direct subsidies such as those to transportation, and for school meals and other extra charges should also be given to the poor families in order to lessen their burden (Rong and Shi, 2001: 123).

While the present research was only conducted on five variables, namely illiteracy rate, primary school enrolment, secondary school enrolment, university and college education and the education length, evaluation of the impact of education and literacy on China’s economic development in the future could include the role of women’s education in economic development as in this rapidly changing technology-driven world, women are playing an increasingly significant role in stimulating economic growth. Besides, women’s better education inevitably has an effect on the fertility rate which will in turn affect economic growth. More studies on illiteracy rate and school enrolment rates in China which focus on age groups and gender should also be conducted.

In its effort to achieve higher economic growth for the country, the Chinese government has always been seeking solutions to upgrade the country’s educational system. Since literacy have such an important role in economic development, it is essential for the Chinese government to continuously evaluate the country’s educational policies and plans. The outcomes from the evaluations should ensure that policies and plans are focused on catering for the educational needs of the society and promoting economic development. Last but not least, a balanced allocation of educational funds is most crucial in ensuring the equality of development at the regional level. All in all, literacy remains the ultimate living source of economic development.
Notes

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1. Or more officially, the “Communist Party of China” (CPC).
5. See Figure 3 for official designations for the eastern, central and western region. Figure 5 (for the western region), with year 2000 data, gives a higher set of illiteracy rates.
6. Due to space constraint, much of the discussion on theoretical consideration and statistical testing has been left out from this paper. Those interested are requested to contact the authors for the details.
7. Such regional demarcations are by no means solely geographical, since other criteria such as the level of economic development, living standards and even bureaucratic customs are also taken into consideration (Yeoh, 2006: 249). To be called “western” in this case carries the connotation of being remote, poor, and backward in economic development. Thus, for a region, to be classified as “western” or otherwise is not geographically destined, but rather subject to negotiations. For instance, whether to include the two ethnic minority regions of Guangxi Zizhiqu (of the Zhuang) and Inner Mongolia Zizhiqu (of the Mongols) as western regions posed some problems for the State
Development and Planning Commission during the demarcation process, since geographically the southern province of Guangxi is not a landlocked inland province but partly coastal, adjacent to the prosperous Guangdong province, and has always been considered an eastern, coastal province, and Inner Mongolia is actually more central than western. The central government’s acceptance of Guangxi’s appeal for its status to be changed from eastern to western, citing a relatively backward economy and poverty in many of its counties, drew strong opposition from other regional governments such as Hubei and Hunan, since such a change in status means that the formerly “eastern, coastal” Guangxi which has benefited in the past from favourable treatment during the period of development of the eastern coastal regions would now benefit again under the new “Develop the West” strategy by turning into a “western” region. Despite the objections, Guangxi’s ardent lobbying effort paid off. Taking a cue from Guangxi’s effort, Inner Mongolia follow suit. The official rationales for the inclusion of the Guangxi Zhuang Zizhiqiu and Inner Mongolia Zizhiqiu as western regions are the fact that they are ethnic minority areas, that they are geographically bordering the “West”, that they are rich in natural resources but backward in economic development, and that they bear resemblances to the southwestern and northwestern regions. On the contrary, the “central regional” Hubei, Hunan and Shanxi provinces that sit on the line dividing the western and central regions all failed in their appeals to get included as western regions. The only consolation they got was that the Enshi Zizhizhou 自治州 (“autonomous prefecture”) of Hubei and Xiangxi Zizhizhou of Hunan – the only ethnic minority areas (both are Tujia and Miao prefectures) of the respective provinces – were included as western regions, the result of a compromise between the central government and the two provinces. The absence of any ethnic minority “autonomous area” rendered the Shanxi province unable to benefit from such a compromise. (Sasaki, 2001:23) It is not difficult to understand some of these provinces’ envy. Hubei and Hunan (as well as Shanxi), now considered as “central”, are in fact sitting on the line separating the western and central regions. Although there are allegations that Guangxi’s and Inner Mongolia’s appeals were accepted because there was someone from Guangxi sitting on the Western Leading Group and leaders living in Beijing were disturbed by sandstorms that became increasingly serious because of the worsening desertification in Inner Mongolia that is close to Beijing, the fact is that the Ministry of Agriculture had argued for the inclusion of these two farming regions in the “West”, probably to expand its commitment to the western regional development (ibid.:23).

8. Due to space constraint, details of these OLS results have been left out from this paper. Those interested are requested to contact the authors for these details.

9. “Yu hou chunsun 雨後春笋”.


11. The seven prongs are 1) implementation of the rural boarding school system; 2) implementation of the “two exempts and one subsidy” system to assist
schoolchildren of rural families with economic difficulties in the western region; 3) long-term modernization of the rural primary and secondary schools; 4) greatly strengthening the teaching team in the rural areas of the western region; 5) deepening the reform in teaching and learning, and enhancing quality of education; 6) expanding and strengthening direct assistance in education; 7) clear demarcation of the responsibilities of various levels of government in implementing this plan.

12. Due to space constraint, details of these results have been left out from this paper. Those interested are requested to contact the authors for these details.


15. Data are for 2000.

16. [http://www.chinaknowledge.com/]

17. [http://www.chinaknowledge.com/]

18. The official figures which show that Tibetans constitute 96 per cent of the population, demographically dwarfing the Han to a mere 4 per cent, have been disputed by the Tibetan government-in-exile who claims that “accelerating Han population transfer into Tibet […] has reduced the Tibetan people to a minority in their own land […] and today] there are over 7.5 million non-Tibetan settlers in Tibet including Chinese and Hui Muslims, compared to six million Tibetans” (Cook and Murray, 2001: 141). However, such allegations of population transfer is rebutted by the Beijing government, who argues that “the only Han Chinese living in Tibet are specialists who have gone there voluntarily to help in the region’s development […] and they] make up less than five per cent of the population and many of the people are there for only a few years before returning home” (ibid.).


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