Literacy and Education in Contemporary China: Daunting Challenges amidst Rapid Economic Development

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Abstract

Education is undoubtedly playing an important role in economic development. The overall illiteracy rate in China has been decreasing since 1980 but there are still some areas such as the western region and rural areas that continue to suffer from a high level of illiteracy due to the lack of capital inflow and government funding. This has indirectly affected economic growth and development in those particular areas. The government has launched various plans and policies 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 reduce illiteracy and to a certain extent reduce inequality at the regional level. However, due to funding inequalities and shortcomings of government policies, education still faces daunting challenges in contemporary China.

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

Introduction

Illiteracy is one of the most challenging social issues haunting governments today. It is believed that the most crucial means to pull a nation out of poverty and its underdeveloped status is to eradicate illiteracy. Education is considered the root of civilization and has played a significant role in China's long cultural tradition. In general, education in China today is divided into three main categories: primary, secondary and higher education. To ensure that all people receive a proper education, in July 1986, the 'Law on Nine-Year Compulsory Education' was established. Education is also used as an important instrument to overcome inequality and poverty. The government of China, a country with the largest population and human resources among the developing countries, has always been aware of the importance of education in leading the nation's economic development. Over the years, the government has been increasing the funding for public education. Besides funding,

a series of educational laws and regulations have been 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, school enrolment rates at different levels have increased drastically, and so has the average length of education. Over the years, China has also actively participated internationally in the promotion of education. For instance, the Chinese government has 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 and affiliated organizations.

After the Dakar World Forum on Education in 2000, the Chinese government took action, including setting up more fora on education at the national level to build up interdepartmental coordination on education for all and to disseminate China's Action Plan for Education for All (2001–2015) in 2003. Education for All (EFA) proposed by the UNESCO Regional Office for Education in Asia and the Pacific set the year 2000 as the base year for reference and 2001 as the starting year. UNESCO developed six main goals and policies during two planning cycles—the first cycle from 2001 to 2005 and the second cycle from 2006 to 2015 (Chinese National Commission for UNESCO 2008). The first EFA forum was held in Beijing on 9 December 2000. The main objective of this forum was to request a helping hand from the related department to lead an action plan for success. Later, on December 12th and 15th, another forum was held in Beijing for more detailed discussion on the issue of EFA for the Asia–Pacific, including specific plans and suggestions on how to improve matters related to illiteracy in the provinces and municipalities, education quality and rural education; a third forum on EFA, again in Beijing, was attended by the related departments and commissions of the central government, 11 provinces and autonomous regions, social organizations and other international organizations based in China. This third session sought future international cooperation and to conduct exchanges on the progress in the interim assessment of the 10-year EFA programme. These EFA fora played an active role in popularizing the concept and objective of EFA in the society. Intensive efforts were also made to narrow the gap of education development between the eastern, central and western regions, as well as rural and urban areas,

although there is evidence that educational opportunities, as they have always been, are still unequally distributed in today's China.

Education Policies and Development

According to the Sixth Population Census of China (2010), the nation's overall literacy rate 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 (in this article referring to administrative units including 'autonomous regions' and province-level municipalities directly under the central government) such as Sichuan and Tibet are still struggling with low literacy rates. The illiteracy rate varies considerably in different provinces.

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. With the opening up of China in the late 1970s, the country encountered a period of rapid growth and urbanization, which in turn has widened the gap between rural and urban areas. Worrying that the disparity might cause instability, the government has re-demarcated the country from the conventional six regions into three, namely the eastern, central and western, to more effectively promote more equitable development among regions in addition to between the rural and urban areas. Together with the introduction of the law of compulsory education to ensure that children receive proper education since they are the future masters of the country, more schools and universities have been established to accommodate students. To minimize socio-economic inequalities, national policy after 1979 was geared towards overcoming regional disparities, reducing poverty in the rural areas and promoting economic development. Development and problems of education at the regional level (in the eastern, central and western regions) will be discussed in greater detail in the later sections of the article.

Education has long been recognized as an important social agent for generating social and cultural changes of rural and urban populations so that inequality and underdevelopment eventually could be overcome. The function of education, schooling and literacy in this context,

FIGURE 1: Economic Regions of China

(a) Six Economic Regions

(b) Three Economic Regions

Notes: Provinces in the officially designated Western Region under the three-region scheme in bold italics. ('Provinces' in this article refer to provincial-level administrative units including 22 *sheng*, i.e. 'provinces', 5 *zizhiqu*, i.e. 'autonomous regions', and 4 *zhixiashi*, i.e. municipalities directly under the central government.)

——— Regional boundaries

Source: Yeoh (2010: 250, Figure 5 and Figure 6).

according to modernization theory, is to generate and foster development. In recent decades, the Chinese government has made a great effort to improve the education system. Laws have been implemented to ensure all citizens, regardless of their background (ethnic group, gender or disability), will be entitled to a proper education with equal rights. Over a period of 50 years, the Chinese education system and its size have made leaps and bounds, making the country's education system the largest in the world.

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 realized that educating the people plays a major role in nation-building. Therefore, a detailed plan was drafted to re-establish and reform its educational policies. As a result, school enrolment increased rapidly. Compulsory primary education was installed in about 91 per cent of the country, and nearly 99 per cent of young children were enrolled in primary schools. At the same time, school dropout and illiteracy rates among middle-aged students declined. After policy reform 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.

TABLE 1: China's Education Statistics

Education	%
Youth (15-24 years) literacy rate (%), 2005-2010*, Male	99
Youth (15-24 years) literacy rate (%), 2005-2010*, Female	99
Number per 100 population, 2010, mobile phones	64
Number per 100 population, 2010, Internet users	34
Pre-primary school participation, gross enrolment ratio (%), 2007-2010*, male	47
Pre-primary school participation, Gross enrolment ratio (%), 2007-2010*, female	17
Primary school participation, Gross enrolment ratio (%), 2007-2010*, male	111
Primary school participation, Gross enrolment ratio (%), 2007-2010*, female	115
Primary school participation, Net enrolment ratio (%), 2007-2010*, male	99
Primary school participation, Net enrolment ratio (%), 2007-2010*, female	99

* Adult literacy rate – Percentage of persons aged 15 and over who can read and write. Gross primary or secondary school enrolment ratio is 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 is 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.
Source: UNICEF (2011).

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 ushered in with policy reforms and modernization emphasizing economic development being 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 1 October 1983). Abandoned educational systems were recovered and science and technology played an important role in the new educational policy. The policy of 'walking on two legs' made its appearance and schools run by the private sector were reused. Private and technical schools were also re-opened. 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.[2]

During Deng's educational reform, there were a few areas destined for reform, such as secondary, tertiary, vocational and technical education. All levels of education needed to be expanded in order to produce more capable and educated people. In addition, the graduate-assignment system of higher education was reformed. Administrators were given authority and decision-making power 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 aiming to 'sweep away illiteracy' (*saochu wenmang*) in 1983. Deng insisted that: 'Education must face modernization, face the world, and face the future' (Tsang 2000). The 'Law of Nine-Year Compulsory Education' was implemented in 1986 to ensure that children received basic education. By that time, primary education was made free and compulsory. Children were given the right to receive at least nine years of education, of which six years were at the primary level and three were in secondary school. To prevent 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. The third zone was for the economically backward areas.

Under the first category, only about 20 per cent of the counties had achieved the nine-year standard education in November 1985. The government then aimed to provide the nine-year standard or vocational education for workers in the coastal areas, inland cities, and moderately developed areas. These regions combined contained 300 to 400 million people. It was planned that 5 per cent of this population would be able to attain a 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 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 the junior-middle-school level was aimed to meet the goals 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 children who completed primary school had met established standards.[3]

During the years before 1980, the first private school was established to fulfill 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 had 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), the majority of those who remained illiterate were, unsurprisingly, women.[4] In 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 eradicating youth and adult illiteracy, developing 100 key universities and key disciplines, and raising educational quality. Realizing the importance of science and technology, in 1995, Jiang Zemin proposed a new national development strategy 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 improving the quality of all levels of education, expanding upper secondary and university enrolment, with a stress on compulsory education, especially in poor areas, reforming pedagogy to encourage students to think critically and be more creative, building up world-class universities, and establishing and developing private educational institutions. The Action Plan also included the continuation of the national nine-year compulsory education programme in rural areas supported by extra government funding, and an expansion of upper secondary school and university enrolment. The target was an enrolment rate for higher education of at least 15 per cent by 2010. To achieve this, provincial governments were given more power over higher education. More private educational institutions were established under the Action Plan. Peking University and Tsinghua University were handpicked by the central government to become world-class institutions. They aimed to reach the level of world-class standard within 10 or 20 years (Sun 2006).

Although many policies aimed to eradicate illiteracy, there are still poor families who face problems 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. However, 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 cheap Chinese labour comes from. On the positive side, China still has huge pools of low-cost labour 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', with a planned budget increase to 4 per cent of gross domestic product (GDP) by the year 2000. However, the National Bureau of Statistics revealed in 2001 that China in fact had missed this ambitious target by about 30 per cent. Because of such unsatisfactory results, Chinese leaders have drafted a new 'National Outline for Medium- and Long-term Educational Reform and Development (2010-2020)'. Again, the main objective is to increase the educational budget to 4 per cent of GDP. This educational reform also included creating a learning society by modernizing the educational system entirely. Modernizing the current educational system would help China's human resources be more competitive and in turn raise their ranking in the world. These educational changes were carried out at all levels of education, including pre-school, primary, secondary and tertiary levels, vocational education and special education. This education reform overhauled the entire education system in China. In addition, the reform also established new ways to train new teachers. Other changes included: guaranteed funding over the whole term of education; making the educational system more informal; enforcing current law 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 access to pre-school education. The development of pre-school education would be more focused on the rural areas. The plan also encouraged more social participation and public–private partnerships to fully develop pre-school education. 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 was also one of the objectives in this educational reform. Modern vocational education was to be established so that students could adapt to economic changes and restructured market demands. Children in rural areas would be introduced more to the vocational education system to help them out of poverty and illiteracy. 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. Enrolment and the examination system in secondary and high schools would also be improved. Schools' autonomy would be expanded and school principals would have to take up the overall responsibility. The private sector would be encouraged to build up more private institutions to accommodate more students. In addition, the government would also strengthen international exchange and cooperation to attract more foreigners to study in China.[5]

In summary, the education system in China is fully controlled by the Ministry of Education. It is compulsory for Chinese citizens to attend school a minimum of 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, 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 a 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 the 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 2005 to 2010, Chinese male and female youth aged 15 to 24 achieved a 99 per cent literacy rate.

Decentralization and Compulsory Education

From the perspective of education funding and management, from 1949 to the mid-1980s, the Chinese central government was the sole provider of public education. Local governments were simply agents of the central government to implement public education; hence, 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 local governments took over from the central government as the main provider of public education, and the local governments began to transfer the task of compulsory education to the next level of authority (Yeoh and Ling 2014: 209). The 'Resolution on Educational System Reform' was launched in May 1985 by the Chinese government, assigning to local governments full responsibility for primary education. 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. The central government schools, the provider of most of the compulsory education, became the responsibility of local governments, with provinces being the largest unit; however, specific responsibility continued to be shifted downward 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 the next level of authority, and many local village/township governments ended up being the actual fundraisers for and providers of local compulsory education. This culminated in the situation where compulsory education was no longer obligatory and the benefit principle was brought into 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 a decentralized system, basic education expenditure responsibilities originally shouldered by the central government have been transferred to local governments. The central government, aside from paying for salaries and other basic items, is no longer directly involved in local education decision-making. Among the local governments bearing the responsibilities for basic education, county- and township-level governments have become the most important source of funding for local public education. In stark contrast to most advanced countries, where the central government bears the major portion of the cost of compulsory education, China's current pattern of the fiscal burden for compulsory education expenditure is as follows: 78 per cent is borne by the village/township-level government, 9 per cent by the county-level government, 11 per cent by the province-level govern-

ment and 2 per cent by the central government. It is clear that under such a system, a severe imbalance between localities would inevitably result in inequality in educational opportunity due to the 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, beginning with the 7th Five-Year Plan, the Chinese government has implemented the world's largest ever fiscal decentralization of education, and the decentralized system thus established has negatively impacted local governments' investment in basic education. This has led to the rapid increase in the private burden of education costs and even to 'education-induced poverty' in poor areas, with many rural families struggling under the heavy burden of tuition fees.[6]

Literacy and Regional Disparities

As mentioned earlier, according to the sixth population census (2010), China had achieved a literacy rate of 95.92 per cent. However, there is a huge gap between regions/provinces. Statistics show that three quarters of the illiterates are from the rural areas, which are economically underdeveloped. The seven provinces with the highest illiteracy rates are: Yunnan, Ningxia, Anhui, Gansu, Guizhou, Qinghai and Tibet (Table 2).[7] Tibet's illiteracy rate, at 37.77 per cent, is the highest among these seven, while Qinghai's illiteracy rate, at just over 10 per cent, is right behind Tibet. Anhui, Gansu and Guizhou vary between 8 and 9 per cent, and the illiteracy rate of Yunnan and Ningxia are above 6 per cent. Table 2 shows that the people in the western part of China suffer from high illiteracy rates.[8] China's open-door policy and economic reforms since 1978 have indirectly increased the country's GDP per capita. However, income and wealth disparities among different regions and provinces are increasing. Growing regional imbalances between the eastern, central and western regions are also noted by many scholars (e.g. Cai, Wang and Du 2002; Chang 2002; Fleisher and Chen 1997; Yang 2002).

Besides a lack of financial resources, people in the western region also have difficulties accessing services such as education. There is also a possibility that 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 remain poor and uneducated and this will affect the next generation as well. Poverty limits people's ability to improve themselves even though the facilities are well prepared.

TABLE 2: Population and the Illiteracy Rate in the Provinces or Provincial-level Administrative Units (2010)

Illiteracy Rate Ranking	Administrative Division	Population	Illiteracy Rate(%)
1	Beijing (*zhixiashi*)	19,612,368	1.70
2	Jilin	27,462,297	1.92
3	Liaoning	43,746,323	1.93
4	Guangdong	104,303,132	1.96
5	Heilongjiang	38,312,224	2.06
6	Tianjin (*zhixiashi*)	2,938,224	2.10
7	Shanxi	35,712,111	2.13
8	Xinjiang (Uygur *zizhiqu*)	21,813,334	2.36
9	Fujian	6,894,216	2.44
10	Hebei	57,237,740	2.61
11	Hunan	65,683,722	2.67
12	Guangxi (Zhuang *zizhiqu*)	46,026,629	2.71
13	Shanghai (*zhixiashi*)	23,019,148	2.74
14	Jiangxi	44,567,475	3.13
15	Shaanxi	37,327,378	3.74
16	Jiangsu	78,659,903	3.81
17	Inner Mongolia / Nei Monggol (Mongol *zizhiqu*)	24,706,321	4.07
18	Hainan	8,671,518	4.08
19	Henan	94,023,567	4.25
20	Chongqing (*zhixiashi*)	28,846,170	4.30
21	Hubei	57,237,740	4.58
22	Shandong	95,793,065	4.97
23	Sichuan	80,418,200	5.44
24	Zhejiang	54,426,891	5.62
25	Yunnan	45,966,239	6.03
26	Ningxia (Hui *zizhiqu*)	6,176,900	6.22
27	Anhui	59,500,510	8.34
28	Gansu	25,575,254	8.69
29	Guizhou	34,746,468	8.74
30	Qinghai	5,626,722	10.23
31	Tibet / Xizang (Tibetan *zizhiqu*)	3,002,166	37.77

Note: 'Provinces' in this article refers to provincial-level administrative units including 22 *sheng*, i.e. 'provinces', 5 *zizhiqu*, i.e. 'autonomous regions', and 4 *zhixiashi*, i.e. municipalities directly under the central government.

Education is essential for 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. High illiteracy rates in rural areas will lead to further regional inequality.

Despite the overall improvement in the education system, many poor people are still not able to enjoy the benefits. Official provincial-level data reveals an astonishing difference in illiteracy rates of rural provinces. Illiteracy is highest in the west of China and it has the lowest rate of decline. The poorer townships, made up of about 35 counties that include those in Yunnan, Guizhou and Guangxi, are still being supported by the World Bank (Hannum and Wang 2004). The average enrolment is 10 per cent lower than the national average for the same age group (Piazza and Liang 1998).

Opinions differ on the impact of literacy on economic development. The majority of scholars are of the opinion that literacy brings changes to economic development. Hence, the Chinese government from time to time needs to upgrade the country's education system to better meet market demand. Policies and plans need to be developed so that China's educational institutions can compete with those in the developed countries. Before we proceed further, it is appropriate to take a good look at the impact of literacy on economic development in general.

Impact of Literacy on Economic Development

To determine whether literacy plays a significant role in the economic development of China, we tested a model on the relationship between literacy and economic development. Based on earlier studies, it could be hypothesized that GDP per capita would increase as the literacy rate increases and decrease as the literacy rate decreases. More specifically, the model assumes that economic growth is affected by literacy rate, primary, secondary and tertiary education enrolment rate and education length. The formula for the link between economic growth and the factors listed above is:

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

where ΔGDP_t represents economic growth as measured by the changes in GDP from 1980 to 2010, ILL_t proportion of the illiterate and self-educated, PSE_t primary school enrolment, SSE_t secondary school enrolment, UCE_t university and college enrolment, and EL_t length of education. The general form of the prediction equation is as follows:

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

The above equation means the source of changes of *GDP* is the variation in *ILL*, *PSE*, *SSE*, *UCE*, and *EL*. The dependent variable GDP_t, is the GDP per capita in country *t*, and ILL_t, PSE_t, SSE_t, UCE_t, EL_t are the independent variables.

Expected signs of the variables are: *ILL* (–,GDP decreases as numbers of illiterates and self-educated increases), *PSE* (+,GDP increases as primary school enrolment increases), *SSE* (+,GDP increases as secondary school enrolment increases), *UCE* (+,GDP increases as university and college enrolment increases), and *EL* (+,GDP increases as educational length increases). While data collected from the *Statistical Yearbook of the People's Republic of China* was analysed and tabulated in figures, as presented in the subsequent sections, the Eviews version 6 was used in the analysis of quantitative descriptive data from year 1980 to 2010 in this section with the use of the Ordinary Least Square (OLS) method (see Appendix for the results). Besides, the Chow Test was also used to examine whether there was any structural change between 1980 and 2010. The OLS results are presented in the equation:

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

The OLS results for the independent variables, with the exception of *PSE*, all show the predicted signs. There are three independent variables (*SSE*, *UCE* and *EL*) that are significant at the 5 per cent level, while *PSE* is significant at the 10 per cent level. The results also show that the relationship between GDP per capita and *ILL* is insignificant. This basically means that, *ceteris paribus*, GDP per capita is expected to decrease by US$27.02892 if the average number of the illiterate and self-educated increased by 1 per cent, to decrease by US$0.002322 if the students enrolled in primary school increases by one person, to increase by US$0.010694 if the secondary school student enrolment increased by one person, to increase by US$0.000215 with an increase of one person in the enrolment of university and colleges, and to rise by US$2977.292 if the average length of education increased by one year. The results show that education plays a significant role in China's economic development. In addition, among primary, secondary and tertiary education, it was found that there is greater demand for secondary and higher education. On the growth of education in China at the primary, secondary

and higher levels, it can be observed that during the periods 1980-1989, 1990-1999 and 2000-2010, primary education increased by 6.76 per cent, secondary by 10.11 per cent and tertiary by 56.21 per cent in the first period; primary education decreased by 18.14 per cent, secondary decreased by 3.42 per cent but tertiary education increased by 72.43 per cent in the second period; primary education decreased by 21.11 per cent, secondary by 1.78 per cent but tertiary education again increased by 23.03 per cent during the third period. Overall, the total number of students enrolled in primary schools throughout these 30 years (1980 to 2010) decreased. There have been fluctuations in the total number of students enrolled at the secondary level. Nevertheless, our results do not show any negative impact from these minor fluctuations on GDP.[9]

Reasons for Unequal Compulsory Education Opportunities in China

Considering the importance of education for a developing country, the Chinese government is facing tremendous challenges in improving the rural areas' standard of living through education. Education is believed to be a main factor in allowing the residents to be free from unbearable financial and other burdens and worsening living conditions. Urban education gets more attention from the central government and the resources allocated to them are double those allocated to the counties and towns. The income gap between cities and and counties or towns is increasing. According to the 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 a net income per capita of 5,919 yuan, which was increasing by 14.9 per cent per annum.[10] The average urban income was three times higher than the average rural 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). Due to the lack of resources and funding in rural areas, children from peasant and poor families have no choice but to drop out from school when they reach junior high, some even at the 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. Figures show that urban youth have more than three times the chance to be admitted to college or university compared to 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 1998 to 17.6 per cent in 2000. Similarly, rural students enrolled at Peking Normal University fell from a high of 30.9 per cent in 1998 to 22.3 per cent in 2000 (Teng 2005).

Implementing compulsory education 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 1986 and 1992 respectively, primary schooling in rural areas is still not universal. In the year 2002, compulsory education in rural areas reached 76 per cent. In some rural areas, a high enrolment rate was reported to conceal an even higher dropout rate. It is difficult to confirm an accurate dropout rate or the genuineness of the statistics provided. The issue of the uneven and unsettled financial relationship between the central government and the localities is the cause of low-quality education in the rural areas; school facilities cannot be maintained and teachers cannot be provided. It is not surprising that teachers in rural areas leave to work in urban areas to get better salaries and additional benefits such as housing, pension and medical allowances. In areas such as Yunnan province and a place called Gong County in Sichuan province, according to Teng (2005), there were more than 60 schools in the villages where there were only one or two teachers who were in charge of teaching all subjects at all grade levels.

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. Liu Bin, a member in the Education, Science, Culture and Public Health Committee of the National People's Congress, claimed that governments at different levels should take the responsibility to provide funds to realize the mission of universal compulsory education. In 2001, the township-level governments became the main suppliers of local primary education; they have no choice but to collect extra charges from the peasants to fund their children's primary education. To be fair, the central government made efforts to lessen the peasants' financial burden, and to further clarify and explain the financial relationship between the centre and the localities. In 2001, county-level governments became the major

funders of rural primary education through the 'Decision on the Reform and Development of Primary Education' issued by the State Council. In 2002, the State Council's 'Directive Concerning the Improvement of the Organizational Structure of Rural Compulsory Education' further explained that county governments were mainly in charge of funding the rural areas to improve their quality of education and to popularize compulsory education. The central government would play a supporting and facilitating role. The central government was also responsible for drafting rules and regulations, policies and guidelines for all levels of government, and distributing funds to the eastern, central and western regions. Village and township governments were solely in control of arranging and monitoring local educational development.[11]

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

Demand for Education and the Problem of Fees

One of the Chinese government's major policy imperatives is to achieve economic development by developing the country's education system. Strategies and plans are formed to deepen the reform of the education system. Subsidies and investments in education are given by the government at all levels and the private sector is also encouraged to supply educational opportunities to fulfill the needs of the country. Figure 2 shows a complete picture of the education system in China.

Contrary to the primary and secondary education level, the total number of students enrolled in tertiary education increased drastically from 1980 to 2010. This was due to the effort of the Chinese government to build 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 successfully produced a large number

FIGURE 2: Education System of China

<table>
<tr><th>Age</th><th>Years of schooling</th><th colspan="5"></th></tr>
<tr><td>27</td><td>22</td><td rowspan="3">Doctoral degree education</td><td colspan="2" rowspan="6"></td><td rowspan="6">On-the-job postgraduate degree education

Self-education examination

Post training and continuous education

Adult secondary education

Adult elementary education</td></tr>
<tr><td>26</td><td>21</td></tr>
<tr><td>25</td><td>20</td></tr>
<tr><td>24</td><td>19</td><td rowspan="3">Master's degree education</td></tr>
<tr><td>23</td><td>18</td></tr>
<tr><td>22</td><td>17</td></tr>
<tr><td>21</td><td>16</td><td rowspan="4">Undergraduate education</td><td rowspan="4">Associate college degree education</td><td rowspan="4">Higher vocational education</td></tr>
<tr><td>20</td><td>15</td></tr>
<tr><td>19</td><td>14</td></tr>
<tr><td>18</td><td>13</td></tr>
<tr><td>17</td><td>12</td><td rowspan="3">Common senior middle school</td><td colspan="2" rowspan="3">Secondary vocational education (secondary polytechnic school, technical school, and vocational senior middle school)</td></tr>
<tr><td>16</td><td>11</td></tr>
<tr><td>15</td><td>10</td></tr>
<tr><td>14</td><td>9</td><td colspan="3" rowspan="3">Common junior middle school</td><td rowspan="3">Vocational junior middle school</td><td rowspan="9">9-year compulsory education</td></tr>
<tr><td>13</td><td>8</td></tr>
<tr><td>12</td><td>7</td></tr>
<tr><td>11</td><td>6</td><td colspan="4" rowspan="6">Primary school education</td></tr>
<tr><td>10</td><td>5</td></tr>
<tr><td>9</td><td>4</td></tr>
<tr><td>8</td><td>3</td></tr>
<tr><td>7</td><td>2</td></tr>
<tr><td>6</td><td>1</td></tr>
<tr><td>5</td><td></td><td colspan="4" rowspan="3">Pre-school education (kindergarten, prep school)</td></tr>
<tr><td>4</td><td></td></tr>
<tr><td>3</td><td></td></tr>
</table>

Source: Chinese National Commission for UNESCO (2008: 9).

of skilled workers. However, according to Lauder, Brown and Ashton (2008), among these graduates, only one tenth were qualified and 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).

An important trend to be observed in Table 3 during the period under review is that with the rise in GDP per capita, the demand for education has grown at all levels; however, the demand for primary education has dropped from 1990 onwards, the demand for secondary education increased and then decreased over the last 30 years, while higher

education has sprung up like 'bamboo shoots after the spring rain', as the Chinese adage[12] goes. Primary education coverage in China is considered almost universal. The level of enrolment in 1998 reached 98.9 per cent; only provinces such as Qinghai (92.1 per cent), Tibet (*zizhiqu*) (81.3 per cent) and Chongqing (*zhixiashi*) (94.3 per cent) have primary enrolment rates 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 has started to drop.

TABLE 3: Students Enrolled in Primary, Secondary and University and College, 1980-2010

Year	Total enrolment		
	Primary school students	Secondary school students	University and college students
1980	2,233,706	1,605,567	342,528
1985	2,321,700	1,678,767	428,576
1990	2,354,113	1,818,301	576,623
1995	1,971,439	1,935,613	751,347
2000	1,925,981	1,713,489	1,092,102
2005	1,831,873	1,703,414	1,296,558
2010	1,519,456	1,682,958	1,343,603

Source: Data from *China Statistical Yearbook*, various years.

TABLE 4: Annual Rate of Population Increase in China

Year	Annual rate of increase (%)
1980	1.86
1985	1.28
1990	1.21
1995	0.85
2000	0.83
2005	0.36
2010	0.18

Source: Data from *China Statistical Yearbook*, various years.

Table 4 shows that the annual rate of population increase in China started to drop in 1980 (1.86 per cent, reaching 0.18 per cent by 2010), and as a result, China experienced a decreasing number of primary school-age children in the years after 1980. Besides a decreasing population growth rate, China's reform and policy of openness also affects

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 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 engaging in other business to generate funds (Lin 1999). High school fees have hindered poor families' ability to send their children to school.

'Yi Fei Zhi' and *'Liang Mian Yi Bu'*

To end the wanton charging of fees by schools, to further regulate and strengthen the fee management system of schools and to reduce the economic burden for families with school-age children, especially the rural poor, the government began implementing the one-fee system (*yi fei zhi*) in poor areas. One-fee reform was remarkably effective in stopping education costs from rising too fast and in reducing peasant families' liabilities, as well as increasing the rate of enrolment, to a certain extent. However, fee reduction also has the tendency to compromise the quality of education, due to schools' financial difficulties and debts (Yeoh and Ling 2014: 203-204).[13]

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,[14] the 'two exempts and one subsidy' (*liang mian yi bu*) scheme aims to solve 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 local government 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 the 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 their families' economic difficulties (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 noted that the central government had 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.

Length of Education

Secondary education in China includes junior education, senior education or vocational and technical schools. Before the implementation of the nine-year standard compulsory education law, 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 1 July 1986. Children must attend primary school for six years and junior secondary school for another three years. However, when students reach the senior education level, they can choose whether to continue their education. The normal causes of declining enrolment of students at the secondary level are lack of funds 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 5 shows an inverse relationship between the proportion of Chinese who are illiterate and self-educated and GDP per capita. Nowadays, careers which require science, mathematics and technology are well established in developed countries with high literacy rates. As China's tremendous growth is in fact attributed to the sudden increase in capital investment from 1979 to 1994, which had made the country more produc-

TABLE 5: GDP per capita and Proportion of Those Who are Illiterate and Self-educated (1980 to 2010)

Year	GDP per capita (USD)	Proportion of the illiterate and self-educated (%)
1980	2,385	45.78
1985	3,290	28.97
1990	8,124	15.6
1995	12,918	10.86
2000	14,704	8.31
2005	16,051	5.92
2010	18,588	2.85

Source: Data from *China Statistical Yearbook*, various years.

tive and competitive, the increase in literacy 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.

Education Reform

In April 1986, the Chinese government imposed the 'Nine-Year Compulsory Education Law' universally in all urban and rural areas. All citizens aged 15 to 45, including the ethnic minorities, were required to complete 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 in cities and the coastal areas, and it was to become universal in the countryside within ten years. Imbalanced investment between higher education and basic schooling has led to the government's goal being unreachable. Hence, citizens in rural and remote areas still suffer from illiteracy. The wages of primary and secondary school teachers need to be adjusted because many of them are still underpaid.

Realizing that China had lagged behind many other developing countries in Asia, in 1993 the government reissued the Chinese Educational Reform and Development Programme, insisting that the nine-year compulsory education was necessary to eradicate illiteracy among young and middle-aged adults. Policies drafted and planned were as follows (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) Planning was done by the government of the regions and provinces themselves.
iii) Guidance was based on categories of schools, programmes and geographic areas.
iv) Programme was implementated in stages.

TABLE 6: Educational Attainment (6 years and over) by Gender and Education Level (in %)

	Population	Male	Female
Illiterate	10.2	9.3	22.1
Completion of 6 years of schooling	41.3	41.1	41.5
Completion of 9 years of schooling	31.5	36	26.8
Completion of 12 years of schooling	9.4	10.9	7.9
Completion of 3 or more years of college	2.2	2.8	1.6

Source: Data from *China Statistical Yearbook*, various years.

Table 6 shows educational attainment for people aged six and over in 1997. In 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 effort by the government. According to the data in Table 6, 41 per cent of the population had completed six years of education, which includes 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); 9 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 2 per cent of the total population had completed three or more years of college education. Although education reform began before 1997, the figures show that there was a lag after the enforcement of the Chinese Educational Reform and Development Programme.

Economic Growth and Development of Education at the Regional Level

It has been widely noted that the problem of poverty in ethnic minority areas, concentrated in the western region, has special causes, problems and manifestations, requiring constantly increasing inputs and efforts, and in particular, enhancement of the relevance and focus of the poverty-reduction measures (Yeoh and Ling 2014: 202). Table 7 and Figures 3 and 4 take a general look at various facets of the problem. The meas-

ures required involve improving the basic quality of the labour force by way of poverty alleviation through education, developmental poverty alleviation by focusing on support for the development of industries with special ethnic characteristics, channeling enterprises in the eastern region to establish new ventures in the western region's ethnic areas, and the combination of poverty alleviation and ecological construction as well as other similar measures.[15] Regarding poverty alleviation through education, it can be noted that in the past, besides the standard poverty assistance funding, other government departments also implemented some poverty assistance programmes and investments directly aimed at poor areas, including 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, with a total 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 the central government amounting to 5 billion yuan.

After a few attempts in promoting nine-year compulsory education across China, the government claimed by 2000 to have successfully eradicated 85 per cent of illiteracy. In the following year, China then reallocated its efforts and funds for promoting the nine-year compulsory education to the western region, which lagged behind other regions of the country, together with the government's target to bridge the gap between the rural and urban areas.

TABLE 7: Education Level of China's Labour Force by Region

Region	Per 100 people in the labour force:					
	Illiterate or close to illiterate (%)	Primary school level (persons)	Lower secondary level (persons)	Higher secondary level (persons)	Middle tertiary (*zhongzhuan*) level (persons)	Higher tertiary (*dazhuan*) level (persons)
Eastern average	4.52	27.47	55.15	11.54	2.49	0.73
Central average	6.19	27.64	53.48	10.32	1.91	0.46
Western average	11.70	36.53	42.48	7.39	1.57	0.33
National average	7.33	30.42	50.58	9.84	2.02	0.52

Source: Yeoh (2008: 185, Table 8.27). Data from *Zhongguo Xibu Nongcun Quanmian Xiaokang Zhibiao Tixi Yanjiu* (2006: 72, Table 5-1).

FIGURE 3: Illiteracy in China's Ethnic 'Autonomous Regions' and Multiethnic Provinces (illiteracy rate; national ranking by illiteracy rate)

Source: Yeoh (2013: 541, Figure 20.8). Data from *Zhongguo Minzu Fazhan Baogao, 2001-2006*, p. 230, Table 16 (original source: *Zhongguo Renkou Wenhua Suzhi Baogao*, 2004). Data are for 2000.

The net enrolment rate in primary schools accelerated and reached 99.15 per cent by 2008. Furthermore, it can be observed in Figure 5 that the urban–rural as well as regional disparities have been reduced to a less significant level. Figure 5 also shows that 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 the lowest in educational development and in primary school enrolment rates throughout this period. In contrast, enrolment rates of junior secondary schools from 2003 to 2006 across China increased progressively year by year. In 2003, the junior secondary enrolment rate was only at 88.6 per cent and this number had increased to 97 per cent six years later (Figure 6).

Since launching the Western Development Strategy, while the rate of promotion of children who completed primary school to junior secondary school rose from 94.89 per cent in 2003 to 98.42 per cent in 2006 in the eastern region, 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 2009. Promotion rates in county cities and towns went beyond 100 per cent whereas the promotion rates in the rural areas had fallen because a vast number of children in the rural areas who completed

FIGURE 4: Average Education Level in China's Ethnic 'Autonomous Regions' and Multiethnic Provinces (years of schooling; national ranking of education level)

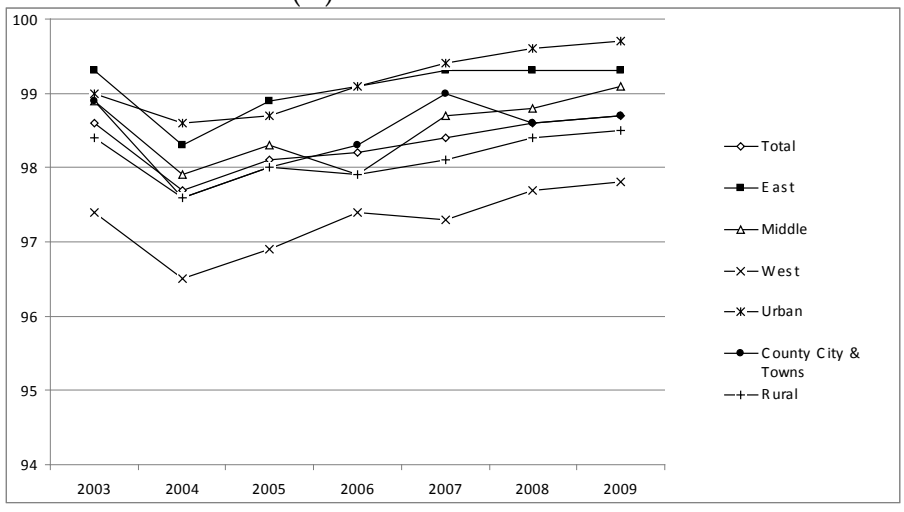
Source: Yeoh (2013: 541, Figure 20.7). Data from *Zhongguo Minzu Fazhan Baogao, 2001-2006*, p. 231, Table 17 (original source: *Zhongguo Renkou Wenhua Suzhi Baogao*, 2004). Data are from 2000.

primary school had migrated to the cities and towns to further their studies (Figure 7).

After looking at the enrolment rates of primary and secondary schools, we now focus on adult literacy. From the year 1990 to 2000, China successfully eliminated an average of 4 million illiterates per year and 46.5 million people were freed from illiteracy. According to the Fifth National Population Census (2000), the illiteracy rate of the population aged 15 or above had declined from 80 per cent of the total population in 1949 to 9.08 per cent of the total population by 2000. Figure 8 shows a drastic decline in the adult illiteracy rate. According to official data, the Chinese government's goal of eliminating illiteracy among the population aged 15 and above was accomplished in 1993.

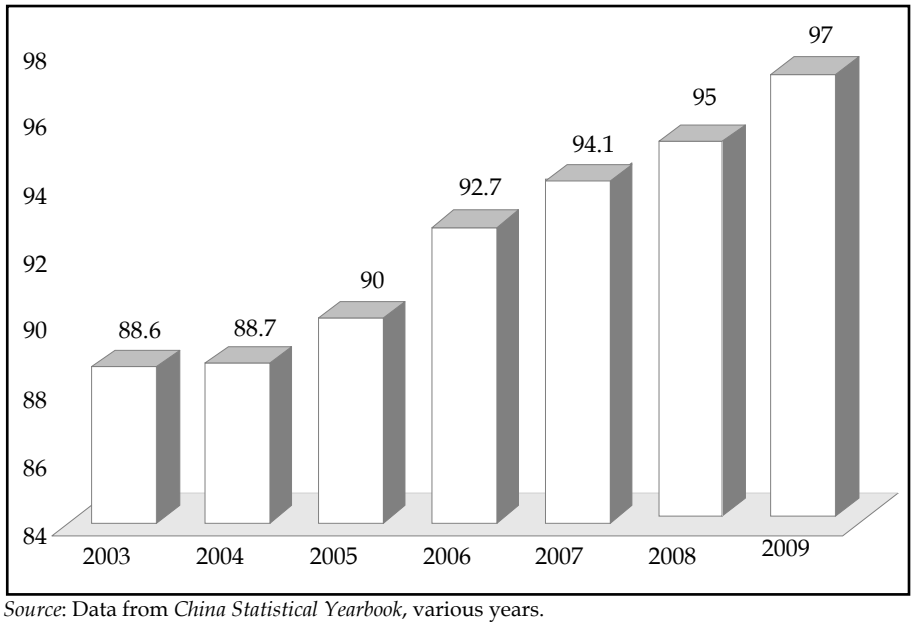
As mentioned earlier, China's regions are basically divided according to the level of economic development and geographic location. China's ethnic minorities mostly reside in the western region, as reflected in the higher ethnic diversity shown in Figure 9.[16] In the early years, areas in the western region 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 citizens their basic rights to education, adult illiteracy rates in areas such as Ningxia, Gansu, Yunnan, Guizhou and Tibet have declined, though they were still higher than the national average set by the government (Figure 10).

FIGURE 5: Net Enrolment Rates of Primary Schools by Region, 2003–2009 (%)



Source: Data from China Statistical Yearbook, various years

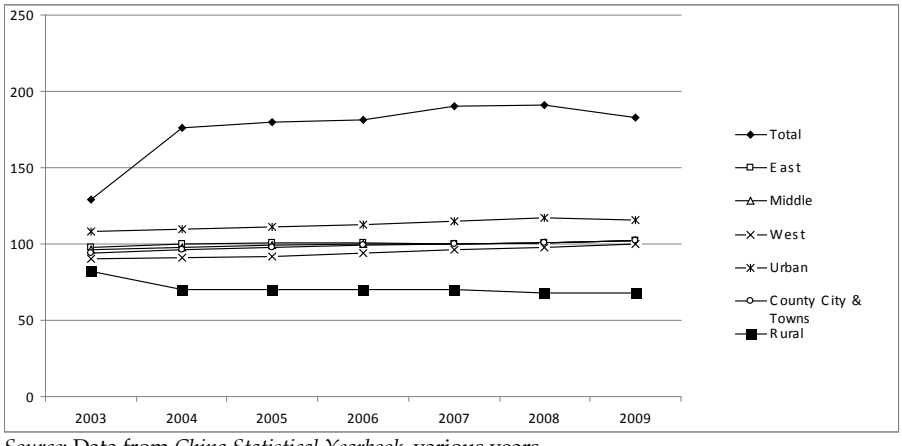
FIGURE 6: Gross Enrolment Rates of Junior Secondary Schools, 2003–2009 (%)



Source: Data from *China Statistical Yearbook*, various years.

Tibet had the highest adult illiteracy rate from 1982 to 2000. However, this particular 'autonomous region'had successfully reduced its adult illiteracy rate to below 50 per cent by the end of the period. Other pro-

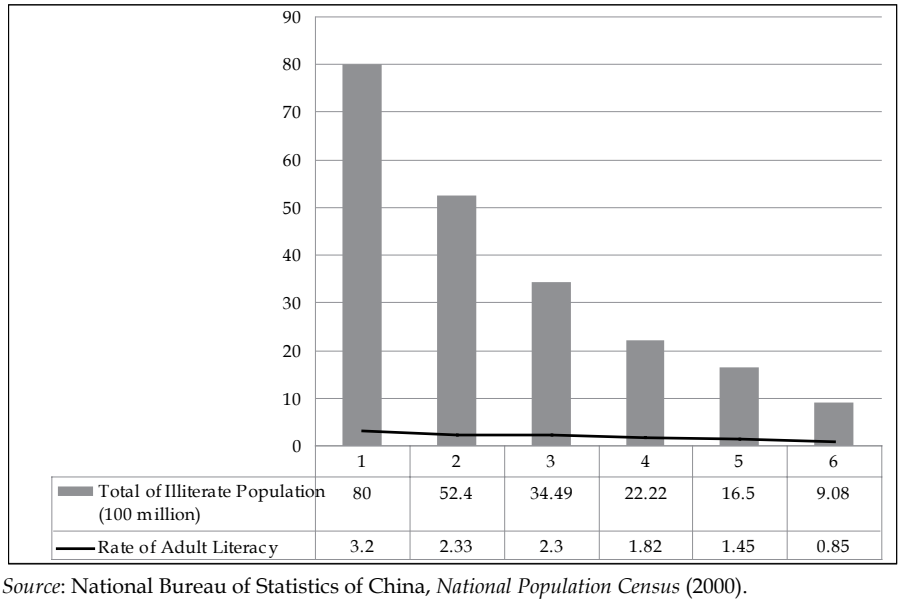
FIGURE 7: Promotion Rates of Primary School Students to Junior Secondary Schools, 2003–2009 (%)



Source: Data from *China Statistical Yearbook*, various years.

vincial units such as Xinjiang, Guangxi and Sichuan managed to reduce their adult illiteracy rates to below 10 per cent. Most of the provincial units such as Inner Mongolia, Ningxia, Gansu, Yunnan, Guizhou and Qinghai had adult illiteracy rates between 20 to 30 per cent. Apparently, the degree of regional inequality had dropped after 20 years of effort in promoting education. It is a fact that the decline in the number of illiterates would indirectly affect a country's competitiveness, and

FIGURE 8: Declining Trend of Illiterate Population Aged 15 or Above and the Illiteracy Rate from 1949 to 2000



	1	2	3	4	5	6
Total of Illiterate Population (100 million)	80	52.4	34.49	22.22	16.5	9.08
Rate of Adult Literacy	3.2	2.33	2.3	1.82	1.45	0.85

Source: National Bureau of Statistics of China, *National Population Census* (2000).

China's achievements in this aspect have definitely played a major role in the country's economic success after more than 30 years of efforts in reform and development, by producing more skilled and knowledgeable workers.

The above analyses have portrayed 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, such as the western region and rural areas, which continue to suffer from having 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

FIGURE 9: China: Ethnic Diversity* by Provinces or Provincial-level Administrative Units**

* 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 Yeoh (2012: 168). EFI for China as a whole is only 0.125, indicating high homogeneity.

** 'Provinces' in this paper refer to provincial-level administrative units including 22 sheng, i.e. 'provinces', 5 zizhiqu, i.e. 'autonomous regions', and 4 zhixiashi, i.e. municipalities directly under the central government.

Source: Yeoh (2011: 418, Figure 1, computed with data from population census).

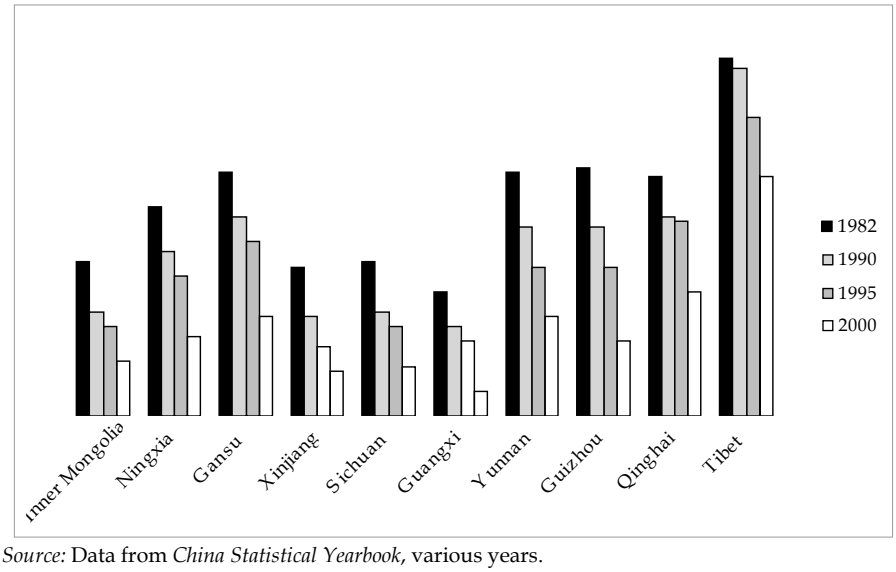
to successfully eradicate a major part of illiteracy and also to a certain extent reduce inequality at the regional level.

Conclusion

China's economic growth over the past three decades, while turning China into the 'factory of the world', has pulled hundreds of millions of its citizens out of poverty.[17] However, China still has the highest degree of regional income inequality in the world (Jian, Sachs and Warner 1996). The low GDP and underdevelopment of the rural areas and the western region of China can be in the main attributed to the inadequacies and shortcomings in the domain of education. People who lack education and knowledge will find it difficult to function in advanced societies (Stevens and Weale 2003) due to their low employability. Education will lead to higher employability and a low unemployment rate will be conducive to rapid development. In this context, it can be seen that China's spectacular growth in the field of education has benefited its provinces and regions rather unevenly.

Regarding unemployment, though the *China Statistical Yearbook* has suggested rates of 4 to 5 per cent, Knight and Xue (2006) argued that the official definition of unemployment is too restrictive, and using International Labour Organisation definitions would result in an estimated ur-

FIGURE 10: Changes in Adult Illiteracy Rates of Ethnic Areas in China 1982 to 2000



Source: Data from *China Statistical Yearbook*, various years.

ban unemployment rate of 11.5 per cent in 2000, while Bai (2006) reported that graduate unemployment has reached 690,000 in 2004, representing a high percentage of university graduates, and is increasing (cited in Soo 2008: 136). Bai and Knight and Xue considered several possible reasons ranging from high expectations of good employment prospects for university graduates to state sector redundancy programmes that resulted in a large increase in urban unemployment.

An essay on the Fujian Province's education department homepage[18] succinctly summarizes the problems facing China's education today into the following ten points: 1) over-focus on material gains; 2) increasing urban-rural disparity in the teaching quality and school conditions of primary and secondary education; 3) increasing inculcation of elitism; 4) relative decrease in government expenditure on public education; 5) imbalance coordination in the development of foundational, vocational and higher education; 6) expanding gap in teachers' personal income between schools and between urban and rural areas; 7) education being too heavily state managed; 8) intensifying fraudulence; 9) over-inculcation of servility; 10) fair remuneration for teachers remaining stated and written but not implemented.[19] Many of these problems have been scrutinized and discussed in this article.

To briefly recapitulate, our preliminary OLS analysis of impact on GDP found that the variable of primary school enrolment was insignificant. Searching for the source of a large part of the present malaise would bring us back to launching of the 'Resolution on Educational System Reform' by the Chinese government in May 1985 with which 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 indirectly impeded the poor families' sending their children to school. This was especially a problem where funding was unequal between rural and urban areas (Hannum 1999). In 1986, the 'Law of Nine-Year Compulsory Education' was officially introduced throughout China level by level according to the different areas' socio-economic 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 reached the target, 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. On the other hand, it can be observed that secondary education enrolment,

which was found in our preliminary OLS analysis to have affected GDP, has in fact 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. Furthermore, students' enrolment rate at different levels of education is related to the length of education.

In 1997, there was a structural change due to the government's reissuing of the Chinese Educational Reform and Development Programme in 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 regions 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 regions. With the launching of the Western Development Strategy (*xibu dakaifa*) in 1999 to narrow the development gap and inequality between the regions, the number of illiterates in the western and central regions 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 in recent years from the National People's Congress (NPC) of the People's Republic of China. For example, Lu Zhongzhu, a representative from eastern China's Anhui province, who is a deputy of the congress, believes that development will be possible for these regions only with more financial aid from the government. 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, is also of the opinion that more support should be given to education in the central and western regions. Yu also urges the government to guarantee the equality of support in promoting compulsory education. 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 markets.[20] Furthermore, there are other issues. After the enforcement of the 'Nine-Year Compulsory Education Law', the government had indeed doubled 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 portion 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 exemption from school fees and book fees, uniforms and stationery. Furthermore, direct subsidies such as those for transportation, school meals and other extra charges should also be given to poor families to lessen their burden (Rong and Shi 2001: 123). Adding to these, 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 a better standard of living and in turn, a person will be able to spend more, leading to higher demand for products and services. The increase of productivity will greatly help overall economic growth, especially in the long run.

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 has 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 to the educational needs of the society and promoting economic development. A person with a higher level of knowledge and skills is more likely to contribute to economic 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 present high literacy rate has enabled the country to enjoy its current manufacturing boom.[21] Last but not least, a balanced allocation of educational funds is most crucial in ensuring the equality of development at the regional level.

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NOTES

1 Or more officially, the 'Communist Party of China' (CPC).
2 L.Q. Tao, M. Berci and W. He, 2005, 'Historical Background: Expansion of Public Education', *New York Times*. Available from: http://www.nytimes.com/ref/college/coll-china-education-001.html (accessed 28 November 2011).
3 'Chinese Schools: Exams, Curriculum, Costs and Ideology'. Available from: http://factsanddetails.com/china/cat13/sub82/item338.html (accessed September 2014).
4 'Literacy in China' [Msg 25 (Georgia)], message posted to http://blog.socialventuregroup.com/svg/2009/07/literacy-in-china.html (24 July 2009).
5 F. Quosdorf, 2010, 'China Defines Road Map for Becoming a Learning Society by 2020' (posted under: 'Chinese Education Policy, Education Reform'), message posted to http://www.chinaeducationblog.com (14 June 2010).
6 Yuan Cheng and Chen Jingqi, 2010, 'Chen Jingqi: ruhe zouchu fenquan tizhi xia jichu jiaoyu touru kunjing' [Chen Jingqi: how to walk out from the foundational education investment dilemma under decentralization], *Quanjing Wang*. Available from: http://www.p5w.net/news/xwpl/201011/t3295048.htm (accessed October 2011).
7 Data for all tables, graphs and charts in this article, unless otherwise stated, are from the *China Statistical Yearbook*, various years.
8 See Figure 3 for official designations for the eastern, central and western regions. Figure 5 (for the western region), with 2000 data, gives higher illiteracy rates.
9 Space limitation makes a detailed presentation here of the results and their testings impossible. The full details are available on request from the authors.
10 Zhang, X, 2011, 'Chinese Rural Residents Outpace Urban Citizens in Per Capita Income Growth in 2010'. Available from: http://news.xinhuanet.com/English2010/china/2011-01/20/c_13699496.htm (accessed 2 March 2012).
11 'Clarify the Responsibilities Based on Counties', *China Education Daily*, 17 May 2002, available from: http://www.jyb.com.cn/gb/2002/05/17/zy/jryw/2.htm (accessed 7 June 2011).
12 '*Yu hou chunsun*'.
13 Data from *Zhongguo Fazhan Baogao 2007*.

14 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.

15 http://www.cpad.gov.cn/data/2009/1228/article_341828.htm.

16 The official figures, which show that Tibetans constitute 96 per cent of the population, demographically dwarfing the Han, have been disputed by the Tibetan government-in-exile, which 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 are rebutted by the Beijing government, which 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' (Cook and Murray 2001: 141).

17 B. Davis, 2011 'China's Ranking as World's No. 2 Economy Built on Population', *The Wall Street Journal*. Available from: http://www.theaustralian.com.au/archive/business-old/chinas-ranking-as-worlds-no2-economy-built-on-population/story-e6frg90x-1226005717649 (accessed 17 April 2012).

18 Long Limin, 'Muqian Zhongguo Shehui de Shi Da Jiaoyu Wenti' [Top ten educational problems in China today] (29 December 2013, first posted 10 June 2009), Fujian Province's Education Department homepage. Available from: http://www.fjsxjy.cn/newsInfo.aspx?pkId=10955 (accessed 14 January 2014).

19 See note 18.

20 'Suggestions on Educational Reform', *China Daily*, 12 March 2012. Available from: http://www.chinadaily.com.cn/china/2012npc/2012-03/12/content_14817082.htm (accessed 17 April 2012).

21 S. Flanders, 4 February 2011, 'China Overtakes Japan as World's Second-Biggest Economy'. Available from: http://www.bbc.co.uk/news/business-12427321 (accessed 17 April 2012).

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APPENDIX

OLS Results

Dependent Variable: GDP
Method: Least Squares
Date: 03/20/12 Time: 21:00
Sample: 1980 2010
Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-29743.84	13232.54	-2.247780	0.0337
ILL	-27.02892	116.7978	-0.231416	0.8189
PSE	-0.002322	0.001251	-1.855553	0.0753
SSE	0.010694	0.002115	5.055925	0.0000
UCE	0.000215	6.74E-05	3.195363	0.0038
EL	2977.292	740.2755	4.021870	0.0005

R-squared	0.990626	Mean dependent var	10627.29
Adjusted R-squared	0.988751	S.D. dependent var	5223.490
S.E. of regression	554.0191	Akaike info criterion	15.64426
Sum squared resid	7873429.	Schwarz criterion	15.92181
Log likelihood	-236.4850	Hannan-Quinn criter.	15.73473
F-statistic	528.3635	Durbin-Watson stat	1.570882
Prob(F-statistic)	0.000000		

Chow Breakpoint Test: 1998
Null Hypothesis: No breaks at specified breakpoints
Varying regressors: All equation variables
Equation Sample: 1980 2010

F-statistic	2.669158	Prob. F(6,19)	0.0474
Log likelihood ratio	18.95142	Prob. Chi-Square(6)	0.0042
Wald Statistic	16.01495	Prob. Chi-Square(6)	0.0137