The Impact of Higher Education Expansion on Income Inequality in China

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Abstract

This paper assesses the various elements that enter into the relation between the expansion of higher education and income inequality amongst urban and rural areas in China since 1999. Education plays a significant role in earnings and economic growth. A large amount of research exists that analyzes the impact of education expansion on economic growth and issues of income inequality in China. However, very little of it links education expansion with income inequality. As background, this paper first describes the extent of the higher educational transformation in addition to income inequality as a trend in China since the early 1990s. This is followed by a discussion of the impact of education expansion on education inequality between urban and rural areas. Education inequality, including quality and quantity aspects, caused mainly by unequal education investment, has been a factor in increased income inequality. It has had a big impact on the employment rate and rate of education return in China. Moreover, rapid education expansion significantly increases the amount of labour supply, which in turn causes the rate of unemployment to increase. Lastly, different rates of return to different education levels will be argued to be a factor causing greater income inequality.

1. Introduction

In the past decade, China has witnessed expansion in its tertiary education. Reflecting China's commitment to continued growth as set out in recent five-year plans, the incentive behind this policy is to accumulate human capital for future development. Besides maintaining China's continuing growth process, the 11th five-year plan also aims to create a "harmonious society" which would be a result of decreasing income inequality. The theoretical underpinning of education expansion includes human capital theory, which argues that through education, individuals acquire competencies and skills that increase their productivity and lead to a higher wage. It is logical that with economic growth the standard of living will increase and income inequality will decrease. China's income inequality, however, has continued to increase throughout the past few decades, and in 2000 China had one of the most unequal income distributions in the world.

Education inequality will be assessed first in this paper. The distribution of education is a factor that affects income inequality. Education expansion increases the average years of schooling per individual; however, the relationship between average education level and educational inequality is not clear. Ram's (1990) research from 94 countries finds a curvilinear relationship between average education level and educational inequality. The relationship shows a reverse U-shape (parabolic curve) with average education level shown on the horizontal axis and educational inequality on the vertical axis. The turning

point is around 6.8 years of average education level, when educational inequality reaches its highest point. In China's case, where the increase in average education level is caused mainly by an expansion in higher education, the education inequality is likely to increase. While increasing the average years of schooling per person tends to reduce income inequality, distributing the increase unequally will exacerbate income inequality.

Education inequality caused by expanding higher education will eventually affect wages and employment. Education is becoming more important in determining an individual's choice of occupation and their decision whether to join the public or private sector within developing countries. Occupation choice and total working time are also important for income gain. Less educated workers generally have to work longer hours in order to make a living, which decreases the income gap. More educated workers, on the other hand, have a higher participation rate and are more likely to enter the state-owned or monopoly sector, which provides a higher wage, thus enlarging income inequality.

Rate of education return is a measurement of income based on education attainment. The average rate of education return in China continues to rise, with higher education levels having a higher return rate (Lai 1997). The return gap between primary school and a university degree also has been growing in recent years, which will lead to greater income inequality. On the other hand, if the low-income group's rate of return to education were higher, education expansion could contribute to narrowing the income gap.

Rapid education expansion generates a significant increase in labour supply, causing an unemployment rate increase. Even though higher productivity from higher competency and skills leads to higher wages, it is not driven solely by the supply side of the labour market. The unemployment rate of college graduates has been rising during recent years in China, with only two thirds of college graduates able to find a job upon completion. If the increased economic growth is not able to absorb the sharp increase in the number of highly educated individuals, the trend of rising income inequality could be reversed. If skill-biased technological change in China shifts labour demand from non-skilled to skilled workers, the result will likely be rising income inequality.

In order to measure the impact of educational level on income, this paper considers annual earnings as the measurement of income. Annual earnings are monthly wages and subsidies multiplied by working months, plus yearly bonus. Lifetime earnings have not been considered here because they may include components which are not affected by education, such as housing-related income. There are two measures of the urban-rural income gap, the ratio of urban to rural mean incomes (relative gap) and the difference between urban and rural mean incomes (absolute gap). Another well-known measurement of income inequality is the Gini coefficient. A large ratio, difference, or Gini coefficient implies larger urban-rural income inequality.

2. Background

Higher education expansion since 1999

In December 1998, Dr. Min Tang from the Asian Development Bank submitted a proposal entitled "Some Thoughts on Revitalizing the Chinese Economy: Double Enrollment in Higher Education" to the Central Government. The Central Government has two strategic development goals for higher education: expand the scale of higher education, and establish world-class universities. There have been several dimensions of higher educational transformation since 1999.

The enrollment rate of tertiary education in China before 1999 was stable. In 1998, the total number of graduates from tertiary education was 830,000; the number jumped to 3,068,000 in 2005. The higher education gross enrollment rate reached 24.2% in 2009 from 9.8% in 1998. (Figure 1). It had been consistently below 7% before 1995 (Levin and Xu 2005). The number of enrollments for new students and total students has risen faster. It essentially quintupled between 1998 and 2005 (Li et al. 2011) (Figure 2).

The Number of Graduates from and Entering Students into Tertiary Education in China (Unit: 1,000 persons)
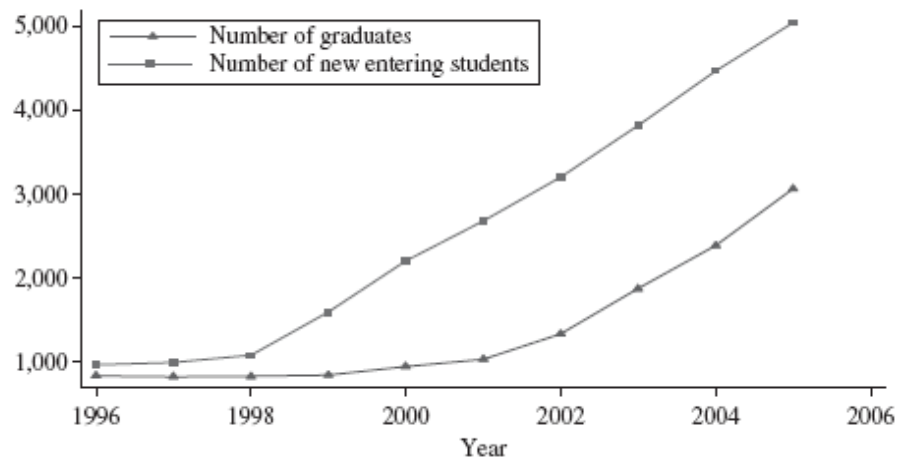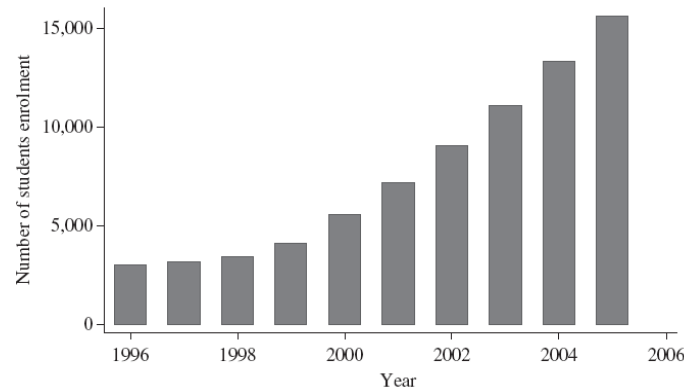
Source: National Bureau of Statistics of China (2006).

Figure 1. Source: Li et al. 2011, 518

HIGHER EDUCATIONAL TRANSFORMATION OF CHINA

FIGURE 2
Enrolment in Tertiary Education in China
(Unit: 1,000 persons)

Source: National Bureau of Statistics of China (2006).

Figure 2. Source: Li et al. 2011, 519

Increasing educational attainment is now focused on rural areas. As shown in Figure 3, the gap in admission rate to population between urban and rural areas has been decreasing gradually from 1996 to 2005. Moreover, "the proportion of urban students in total admissions decreased …, while the proportion of rural students in total admission increased… Admission rates for the population in rural areas have risen much faster than admission rates for the urban population." (Li et al. 2011, 521) The increasing accessibility to higher education for rural students may be a contributing factor in the decreasing income inequality.

China's Higher Education Admission Rates for Urban and Rural Population
(Unit: 10,000 persons)

Year	Admissions (Urban)	Admissions (Rural)	Population (Urban)	Population (Rural)	Admissions Rate to Population (Urban) (%)	Admissions Rate to Population (Rural) (%)
1996	52.03	50.75	37,304	85,085	0.14	0.06
1997	53.15	52.66	39,449	84,177	0.13	0.06
1998	59.82	55.77	41,608	83,153	0.14	0.07
1999	84.47	74.40	43,748	82,038	0.19	0.09
2000	116.00	106.00	45,906	80,837	0.25	0.13
2001	150.55	133.76	48,064	79,563	0.31	0.17
2002	181.90	168.14	50,212	78,241	0.36	0.21
2003	214.40	213.99	52,376	76,851	0.41	0.28
2004	246.64	273.04	54,283	75,705	0.45	0.36
2005	269.27	303.81	56,212	74,544	0.48	0.41

Source: Admissions data from Gou (2006); Population data from National Bureau of Statistics of China (2006).

Figure 3. Source: Li et al. 2011, 521

Another feature of higher education in China is that it is shifting from elite education to mass education. During the period of dramatic expansion, 2-year programs, which have lower admission requirements and are considered to have lower teaching quality, have grown much more quickly than 4-year degree programs. In 1998, there were 2.235 million students (65.6%) registered in 4-year programs and 1.174 million in 2-year programs. By 2008 there were 9.168 million students registered in 2-year programs and 11.422 million in 4-year programs, which accounted for 54.6% of the total. (Figure 4). Private higher education also plays a role in the massive expansion of education. After the Law for Promoting Minban (people-run) Education was passed in 2003, the number of private higher education institutions increased from 20 in 1997 to 278 in 2008. These universities have lower admission requirements and receive little public funding; they depend heavily on tuition (Wang and Liu 2011). If total enrollment increases result from the higher participation in 2-year programs or private higher education, the benefits of individual investment in human capital may be offset by high student fees. This will not help to reduce income inequality. In addition, there will be concerns about the quality of higher education.
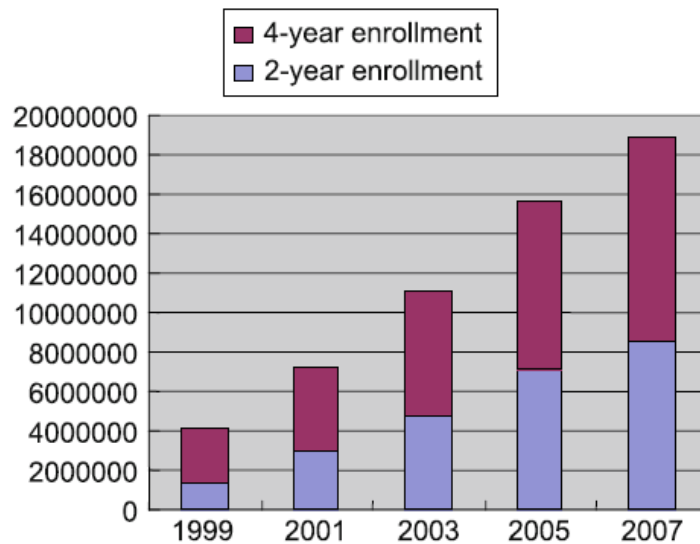

Figure 4. Source: Wang and Liu 2011, 216

As the expansion continues, it aims to promote elite universities and consolidate other universities in order to increase education quality. The second strategic development goal, which focuses on the establishment of world-class universities, requires a change from quantity to quality orientation in education. Elite universities are the top ten ranked universities in China. They receive the most education funding and are given priority in selecting students through national entrance exams. The focus of establishing world-class universities has been to strengthen and elevate these top universities. Moreover, in order to improve their ranking, several universities in major cities have amalgamated. For example, Beijing Medical University was incorporated into Peking University in 2000 and renamed the Faculty of Health Science, Peking University, and in 1999, the Central

Arts and Design College was incorporated into Tsinghua University and renamed the Faculty of Arts of Design, Tsinghua University (Li et al. 2011). In this way, many universities have been able to increase the number of undergraduate students by 30% a year. If the expansion lets rural students who have the ability enter top universities to receive their higher education, income inequality will be likely to fall.

Trend of income inequality

Income inequality in China has continued rising to relatively high levels for approximately 30 years. China's Gini coefficient increased from 0.382 in 1988 to 0.452 in 1995 (Zhao, Li, and Riskin 1999), from 0.37 in 1991 to 0.44 in 2000 (Benjamin et al. 2008), and from 0.41 in 1993 to 0.47 in 2004 (Asia Development Bank). The Gini coefficient is also higher in rural than in urban areas, 0.34 for urban and 0.38 for rural. Moreover, according to Li and Luo's calculation, the ratio of urban to rural income in China in the mid 1980s was 1.8, and it has increased to 3.3-3.4 in 2007 (Li and Luo 2007). It is worth mentioning that China's urban-rural gap is not uniform regionally. The relative gap is highest in the West, as compared to the Center and East. However, this paper is focusing on China as a whole.

Existing literature on education expansion and income inequality

There are several research papers regarding the impact of education expansion on income inequality. Most of them find that fairness in education expansion and education distribution helps to reduce income inequality. Lai (1997) and Bai (2004) demonstrate that there is an inverted U-curve relationship between education expansion and income inequality in China. In its early stages, education expansion contributes to greater income inequality; in later stages, income inequality decreases (Lai 1997). China's education expansion is on the left side of the inverse U-curve. As average schooling years increase, so does income inequality (Bai 2004). Moreover, Yu and Lu (2009) test the impact of higher education expansion on income distribution based on the 1996 data from 29 provinces. They use GNP per capital, higher education scale, population above 6-years-old obtaining higher education, and Gini coefficient. The result indicates a positive influence on fairness of income distribution; the more the investment in higher education, the more equitable the income distribution is. However, these studies do not focus on urban-rural income inequality; Bai and Lai's conclusions are drawn from all levels of education, not from just higher education expansion.

3. Impact of higher education expansion on education inequality

Although higher education expansion increases college accessibility for high school graduates, another important question is whether such expansion benefits all high school graduates from urban and rural areas. In China, the gap in education level between urban and rural areas has a negative impact on income inequality. With the increase of market-oriented reform, education plays a more and more important role and becomes a significant factor in income inequality (Zhang 2006). The impact of higher education

expansion on education inequality has been debated for decades. Since the beginning of the 20th century, education has undergone different levels of expansion. The expectation is that the influence of social background, gender, and race on education accessibility may decrease as education expands. However, many experiences show that family social and economic status has a stable impact on education accessibility inequality. Some economists believe that when higher education only focuses on elite universities, relatively small numbers of students have opportunities to pursue higher education. The upper middle class usually monopolizes such opportunities. Therefore, when China's higher education expansion shifts to mass higher education, it increases opportunities for the lower class. Nevertheless, research indicates that at different stages of education expansion, education accessibility inequality will display different characteristics. Initially, the inequality may increase, decreasing only at the end of the expansion. As long as upper middle classes have more opportunity to increase their education, access will not be equal. Last but not least, rational choice theory indicates that there are four factors determining whether or not individuals choose to obtain higher education: education cost, rate of education return, probability of failure, and increasing status. Since 1999, education has expanded with increasing associated costs, including tuition and other fees. Meanwhile, in the short run, the rate of education return, such as a new graduate's starting salary, has decreased. Moreover, higher education expansion causes stricter education screening, such as exams to seniors in high school and national entrance exams. The probability of failure is higher for rural students since they are less likely to get a degree (or a highly valued one) due to incomplete or inadequate fundamental education. Therefore, based on rational choice, rural students are less likely to attend university (Li 2010).

Currently education inequality between urban and rural areas is significant. As shown in Figure 5, the population of illiterate individuals in rural areas is clearly higher. Also, looking at different education levels, it can be seen that the gap between percentages of the urban population receiving education and rural population receiving education increases at the higher tiers.

2008 population of educational level						
	# of population above 6- year old	illiteracy	primary school	middle school	high school	college degree or above
Total	1106434	82987	344870	452929	151474	74175
Urban	511460	24172	116351	200681	103107	67149
Rural	594974	58815	228519	252248	48366	7027
						unit: population

Figure 5 Source: 2008 China Statistics Yearbook

Inequality in accessibility to higher education

Education distribution inequality can be represented in two dimensions: quantity and quality. Quantity indicates that the probability of obtaining higher education is greater for the high income family (urban). With the same educational level, the value of a tertiary education degree varies (Lucas 2001). For example, in China a bachelor's degree or above is valued much more highly than a junior college degree (2 year program). Both private and public expenditure on education is higher in urban areas, therefore tertiary education expansion in China does not increase the probability of obtaining higher education for rural students. Moreover, due to lower investment in fundamental education, rural students are less likely to obtain a bachelor's degree or higher. As the shift from elite to mass education progresses, the high tuition fees are not affordable for rural students; education inequality keeps growing without sufficient financial aid. Because of the inadequacies of the education system, fewer students from low income families complete all levels of education, and the number of students that could increase their living standards through education is even less.

Education cost

Individuals raise money for education costs through savings, gifts from parents and relatives, as well as through government sponsorships. However, these may not be enough for rural families with relatively lower income and savings. Some of these families obtain funding by borrowing for education through capital markets. This raises the education cost, which in turn causes education supply to lag behind social demand for education.[1] With the rapid development of higher education in China, the problem of deficiency in educational funds has become more acute. A large portion of tuition fees is funded by students' families. Institutions began charging tuition fees in 1989. Since then, tuition fee levels have been on the rise. Usually, an ordinary family is willing to spend all of its savings and income on a child's higher education. However, the burden of tertiary education tuition for one child may reduce demand for secondary education for other children in rural families, which lowers the average rural education attainment. The World Bank calculates that education consumes 109% of the annual income of a single wage-earner rural family, whereas it requires only 56% of a similar (one wage-earner) urban family's income (Levin and Xu 2005). While many scholars worry that raising educational tuition fees will aggravate the burden on poor families and undermine education equality, some research shows that this is not the case. Ding and Zha (2007) made a statistical analysis of the theoretical relationship between higher education tuition fees and dropout probability. They conclude that, compared with a low tuition fee policy, a high tuition financing policy improves both educational equality and educational resources. With a rise in tuition fees, the dropout probability will present an S-shaped variation trend. If the actual expenditure on higher education is far below or above the mean value of families' ability to pay, a low tuition fee policy fails to improve education

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[1] From an online article 'Discussion about the relationship between education and income distribution inequality' (in Chinese). Available at http://www.docin.com/p-308292297.html

equality (Ding and Zha 2007). Therefore, even though high tuition fees are a problem for education expansion, free tuition may not be the optimal solution to relieve the burden on the rural family trying to achieve greater education equality.

Even though one of the objectives of higher education expansion is "Fair Play", there have been difficulties in its implementation. This objective emphasizes promoting education in ways that make accessibility to higher education open, fair and equal. In order to achieve this objective, the government improves facilitation mechanisms for poorer students with student loans, ostensibly ensuring that financial difficulties will not prevent them obtaining an education.

> [However,] Chinese banks have been reluctant to lend money to poor students and often ask them to return the loan before they graduate. If poor students cannot return funds before they graduate, they are not authorised to receive certificates of graduation and degrees and their chance of finding good jobs is small. (Li et al. 2011, 530)

Therefore, insufficient government financial aid will cause greater education inequality.

Private and public expenditure on fundamental education

The higher education system in China still uses an elitist screening approach to recruiting prospective entrants. Rural families' incomes limit their investment not only in higher education but also in fundamental education. Due to a lack of fundamental education investment, rural students may not qualify for higher education.

The government needs to increase public education expenditure on rural areas as a remedy for insufficient private expenditure. However, current public education expenditures are not focusing on rural fundamental education; rather, they place an overemphasis on improving higher education. Tertiary education is an extension of senior high school. The quality of rural fundamental education directly impacts the accessibility of higher education to rural students. Increasing enrollment in higher education without helping rural students improve their abilities will not increase their chances of getting into university.

The policy of fundamental education expenditure favours the urban population. Rural areas with 80% of the total population receive only 55% of the national compulsory education fund. Urban compulsory education is funded mainly by national expenditure, while rural compulsory education is funded mainly by rural families themselves (Zhang 2006). This results in a gap in quality and quantity of teaching between rural and urban areas.
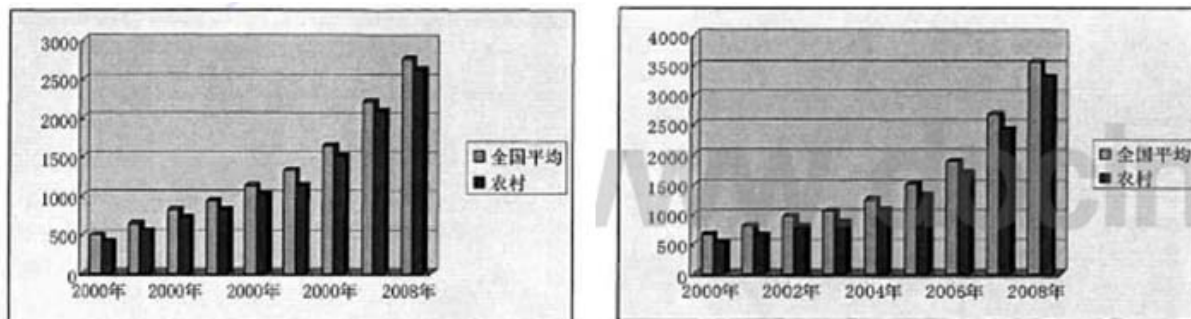
National education expenditure on primary school   National education expenditure on middle school

Note: grey square: national average; Black square: rural average

Vertical axis: expenditure amount; horizontal axis: year

Figure 6 Source: Zhao, 2010

There are also significant differences in the private expenditure by urban and rural families on education. From Figure 6 we can see that urban residents spend more on education than rural residents. The difference is related to the fact that a substantial proportion of urban households devote considerable funds to tutoring expenses and school selection fees in order to improve their children's chances of attending a higher educational institution.

composition of urban residents' per capital comsumption expenditure						
Index	1990	1995	2000	2006	2007	2008
per capital consumption expenditure	100.00	100.00	100.00	100.00	100.00	100.00
food	54.25	50.09	39.44	35.78	36.29	37.89
cloth	13.36	13.55	10.01	10.37	10.42	10.37
habitancy	6.98	8.02	11.31	10.40	9.83	10.19
Home appliance	10.14	7.44	7.49	5.73	6.02	6.15
Medical expense	2.01	3.11	6.36	7.14	6.99	6.99
transportation	1.20	5.18	8.54	13.19	13.58	12.60
education and entertainment	11.12	9.36	13.40	13.83	13.29	12.08
others	0.94	3.25	3.44	3.56	3.58	3.72

composition of rural residents' per capital comsumption expenditure						
Index	1990	1995	2000	2006	2007	2008
per capital consumption expenditure	100.00	100.00	100.00	100.00	100.00	100.00
food	58.80	58.62	49.13	43.02	43.08	43.67
cloth	7.77	6.85	5.75	5.94	6.00	5.79
habitancy	17.34	13.91	15.47	16.58	17.80	18.54
Home appliance	5.29	5.23	4.52	4.47	4.63	4.75
transportation	1.44	2.58	5.58	10.21	10.19	9.84
education and entertainment	5.37	7.81	11.18	10.79	9.48	8.59
Medical expense	3.25	3.24	5.24	6.77	6.52	6.72
others	74.00	1.76	3.14	2.23	2.30	2.09

Figure 7 Source: 2008 China Statistical Yearbook

Data on higher education expansion and education inequality

There are several studies which review the impact of education expansion on education inequality in China. Using the China Health and Nutrition Survey (CHNS) from 1981-2006, Guo and Wu (2008) tracked the trend of education inequality. The results show that after education expansion, urban-rural education inequality increased by 33.6%. Urban students' opportunity for higher education was 3.4 times that of rural students for individuals born between 1975-1979; for people born between 1980-1985, urban students' opportunity was 5.5 times higher. Before education expansion, the opportunity for obtaining at least a bachelor's degree for urban students was 3.6 times more than for rural students; the opportunity of obtaining a junior college degree for urban students was 3 times more than for rural students. After 1999, these numbers increased to 6.3 and 4.9 (Li 2010). These results show that higher education expansion increases, rather than decreases, urban-rural education inequality.

Impact of education inequality on income distribution

According to human capital theory, investment in human capital not only helps macroeconomic growth, but also plays an important role in increasing the competitiveness of labour. With the advance of China's labour market, the difference in individual productivity increasingly will be reflected in wage differences. People with more education have higher productivity and are more likely to occupy higher paid job positions.

The difference in education level is one of the main causes of income inequality. A higher educational level enables an individual to obtain a higher wage. Many researchers have shown that the rate of education return in China has been increasing since 1988. In a study on wages in China's agricultural industry, Meng, (1995) finds that educational level is a key factor in raising labour productivity and subsequently raising wages. Meng and Wu (2005) find that labour quality, especially in average educational level families, has an increasing influence on family income. Education, on the other hand, increases the probability that the rural labour force will enter non-agriculture industries and urban labour markets (Yao and Zhang 2006). Moreover, based on a survey from 16 provinces in China, Hou (2005) shows that the urban rate of education return is 9.289% − much higher than the rural rate of education return, which is 3.655%. Zhao (2010) comes to the conclusion that the increasing average education return will likely lead to greater income inequality. Setting 1997 as a base year, Yao and Zhang (2006) find that education inequality has an increasing influence on income inequality. For every 1 % increase in education inequality, there is a 6.4% increase in income inequality between urban and rural areas (Wen 2007).

Since real productive efficiency and ability are not observable, employers use education as a major criterion in hiring, especially when selecting new graduates (Li et al. 2008). This is also proven by Li, Ding, and Morgan (2009) using data from a nation-wide survey of university graduates undertaken in 2003. The results show that "the labor market for

higher education graduates in China is characterized by signaling effect" (Li, Ding, and Morgan 2009, 380). "In 2000, 82.75% of the national key university graduates found jobs upon graduation, as compared with 68.2% of graduates from non-key universities." (Levin and Xu 2005, 50).

4. The impact of higher education expansion on the labour market

Education expansion and unemployment

Although employment flows from education, rapid enrollment growth may create distortions in the labour market. Education expansion increases the supply of labour and promotes competitiveness in the labour market. Even with higher rates of economic growth, the economy is unlikely to expand according to the patterns of growth in graduates. In recent years, China has found itself facing the problem of college graduate unemployment. Economists are concerned that unemployment rates will increase further, at least in the short and medium term, as there has been a recent acceleration in the production of graduates. "The number of college graduates has increased from 1.15 million in 2001, to 1.45 million in 2002, and finally to 2.12 million in 2003. It is projected that in 2004 there will be 2.5 million graduates" (Levin & Xu 2005, 50). In addition, researchers argue that students from lower income families are not less educated, but are over-educated. The reason is that rural students are disadvantaged in regard to social capital networks, which are important for obtaining good jobs in China. As a result, rural students have to resort to a higher degree of education to signal their ability. This further increases the burden on rural families.

Rate of education return to different educational levels and income inequality

Assuming that the government can maximize its economic and social payoff to education investment, this will contribute to economic growth which may lead to greater income inequality. Carnoy indicates that

> if the social rate of return to investment in higher education is higher than to primary schooling, an optimal (for growth) educational investment strategy could, over the short and medium run, produce greater income inequality, everything else being equal.(2011, R3)

If the rate of return to primary schooling is higher, education may contribute to greater income equality. Ning (2010) tests this by using evidence from the China Health and Nutrition Survey (CHNS) collected in 1997 and 2006, with yearly income as the dependent variable. The result shows that the return to tertiary education is much higher than to primary education, and the return gap between primary school and a college or university degree has widened substantially in recent years, which has led to an obvious income inequality. In 2005, the return to primary school was 16.3%, the return to secondary school was 31.6%, the return to a technical or vocational degree was 48.1%,

and the return to a college or university degree and above was 76.9%. As mentioned earlier, the gap between the number of rural and urban people obtaining a college degree or higher is large, leading to an increasing income inequality. In addition, research also suggests that the return rate has a tendency of decreasing with income. Since we assume that the rural people have lower incomes than people in urban areas, the result indicates greater urban-rural income inequality.

There is evidence that expansion of university education taking place mainly through increased enrolment in lower cost institutions will increase income inequality. As mentioned before, a feature of recent Chinese higher educational policy is the shift from elite education to mass education.

> In the mid-1990s, the Chinese government began to expand post-secondary education, to charge students tuition in public universities to help finance this expansion, and to allow the establishment of private universities to absorb, at higher tuition, students who did not qualify for public higher education places. (Carnoy 2011, R45)

With the promotion of elite universities and consolidation of other universities, the government "reduced the number of centrally controlled (elite) universities, … [which] sharply increased spending per student in elites while eventually decreasing per student spending in the greatly increased enrolment of the 'mass' institutions" (Carnoy 2011, R45). As a result, the rates of return to higher education increased relative to lower levels of schooling. This is a contributing factor to greater income inequality. However, Carnoy's discussion focuses on income inequality within the country as a whole; we are looking at the income inequality between rural and urban areas. As shown in Figure 8, the proportion of rural students in new student admissions has been increasing and exceeds urban students in recent years. However, the type of the university (mass or elite) is not specified. With limited data on the proportion of urban and rural students in elite universities, it is difficult to draw conclusions about whether the increase contributes to greater urban-rural income inequality or not. If higher education expansion allows more students from rural areas to enter elite universities, it reduces urban-rural income inequality. Otherwise, urban-rural income inequality will increase.

The proportion of urban and rural students in new student admissions by Chinese universities										
Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
rural	49.40%	49.80%	48.20%	46.80%	47.70%	47.00%	48.00%	50.00%	52.50%	53.00%
urban	50.60%	50.20%	51.80%	53.20%	52.30%	53.00%	52.00%	50.00%	47.50%	47.00%

Figure 8. Source: Li et al. 2008, 10

Wage compression effect

Some economists argue that with education expansion, the average educational level of the work force is increasing and workers are becoming more skilled. Through a competitive market, increasing the supply of skilled workers will decrease the wages of skilled workers. At the same time, the supply of low-skilled workers is decreasing, which leads to a wage increase. This is called 'wage compression effect' since the increased relative supply of higher educated workers causes declining payoff (Carnoy 2011). Two characteristics of the Chinese labour market are, first, the increased demand for technology-biased skill and the relative limited supply of educated labour, and second, a huge supply of low-skilled workers. Therefore, wage compression effect, which indicates a decrease of income inequality as a result of education expansion, is not apparent in China.[2]

5. Conclusion

In general, there is a positive relationship between education and income; the higher the educational level, the greater the income. With higher education expansion, total expenditure on education increases and the national educational level increases as a whole. This helps decrease income inequality. On the other hand, the development of education is not equal between urban and rural areas, and this exacerbates income inequality. The unfairness in public education expenditure, lower education accessibility, and lower rate of education return leads to polarization between urban and rural areas. Insufficient education investment in rural fundamental education leads to greater education inequality in both quantity and quality. Without receiving a quality high school education, rural students have a lower chance to be successful with educational screenings, such as university entrance exams. As a result, fewer rural people obtain higher education. Income, which is composed mainly of wages, is determined by educational level. Rural people with lower educational levels will have lower incomes. As research shows, after the higher education expansion in China beginning around 1999, urban-rural education inequality has been increasing, indicating greater income inequality between urban and rural areas.

Higher education expansion increases the overall rate of education return. There are complex relationships between education and economic growth, and between economic growth and income distribution, which make the effect of education investment on income inequality unclear. However, most evidence shows that higher education expansion in China tends to lead greater income inequality between urban and rural areas, at least in the short and medium run.

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[2] From an online article 'Discussion about the relationship between education and income distribution inequality' (in Chinese). Available at http://www.docin.com/p-308292297.html

Suggestions

In order to continue economic growth and create a harmonious society, China needs to continue increasing education investment and increasing human capital. Also, increasing education investment should focus more on rural fundamental education in order to promote fairness in education since underfunding has been proven to be a factor causing income inequality. Last but not least, an effective national financial support strategy should be adopted for encouraging all qualified students to attend university.

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