An analysis of education inequality in China

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ABSTRACT

This article analyzes both the current situation regarding education inequality in China, and its formation mechanisms. Policies promoting education have lead to remarkable progress in educational attainment, and also effectively decreased educational inequality. However, substantial inequalities in educational attainment remain, even though sustainable progress has been realized. Decomposition results using the Gini coefficient and Shapley value approach based on regression analysis indicate that the greatest contributing factors to educational inequality involve the urban–rural and social stratification divisions. Moreover, the household register system which divides city and country, as well as increasing income inequality is deepening institutional barriers and stratum differentiation. Though gender and regional gaps have been reduced significantly, the population residing in economically disadvantaged areas, especially females, still warrants social concern. In addition, age related decomposition results indicate that increasing educational attainment for the young plays a key role in reducing education inequality. At last, we argue that more educational investment should be allocated to disadvantaged groups and lower income groups; especially eliminating some institutional barriers such as the hukou system, unequal distribution of good quality educational resources, and so on.

1. Introduction

After 30 years of societal reform and an opening up policy initiated by Deng Xiaoping, China has made remarkable achievements in economic growth and education. China's gross national product per capital has reached 2980 US dollars (World Bank, 2010). At the same time, the enrollment ratio of junior middle school students has been maintained at a high level (nearly 100%), which means that China has made nine-year compulsory education virtually universal. Further, more people are able to receive a secondary education, and higher education is popular. As a result, in the area of education, China has made huge progress, and the average years of schooling (AYS) has a sharply increased from 6.794 years in 1996 to 8.28 years in 2008.[1]

Even though educational gaps between various groups still exist, in recent years, increasing attention has been paid to equality issues in education. According to a survey by the China Youth Daily in 2009, only 11.2% of respondents argued that educational gaps were narrowing; school selecting policies, educational gaps between rural and urban areas, and other irrational polices were recognized as the source of education inequality.[2] Actually, as a result of divisive economic structure separating urban and rural areas, increasing income inequality, unbalanced development among different regions, and other inadequate distribution of educational investment and resources, not everyone with normal abilities can acquire the same education (Fig. 1).

Moreover, as most educational resources are controlled by the government, so the government's aims are crucial to education policy and distribution. Despite the fact that education development is viewed as a basic state policy in China, the ratio of public expenditure on education does not keep pace with the GDP growth rate. Fig. 2 tells us that the percentage of government expenditures

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[1] Data originates from Table 1.

[2] This survey was carried out by the center of social surveys at the China Youth Daily. It contained 2952 observations across 30 provinces.
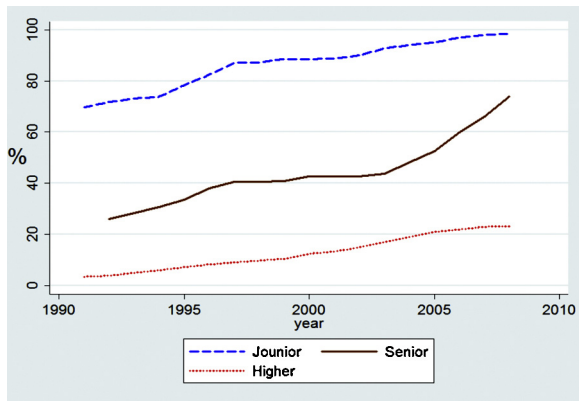
Fig. 1. Chinese education enrollment rate by years. *Note*: Senior School includes regular secondary schools and vocational secondary schools.
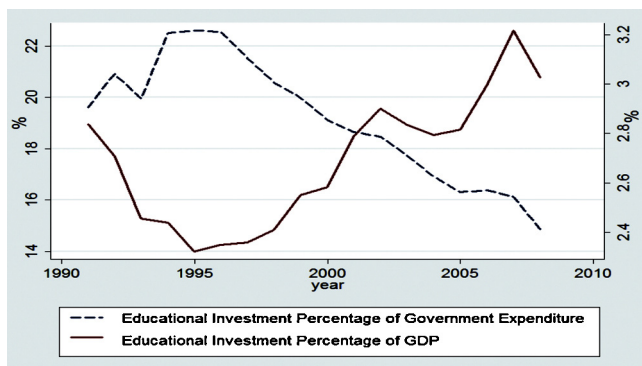*Source*: China educational statistical year book 2008.

Fig. 2. China's educational investment percentage of government expenditure (GE) and GDP.
Source: China Compendium of Statisticals 1949–2008.

on education still remains low (lower than 3% in most years).[3] Comparing to most OECD countries in 2008, they spent 6.1% of their collective GDP on educational institutions, only nine of 36 countries for which data are available spend 5.0% of GDP or less; and between 2000 and 2008, expenditure for all levels of education combined increased at a faster rate than GDP among most members.[3] It also reveals that only a modest part of national finance revenue is paid to education in China. In fact, insufficient educational investment always leads to unbalanced educational development and education inequality.

In recent years, more and more literature has tried to explain the reason behind China's education inequality. Hannum (1999) summarized the political change in China and drew a comparison between urban and rural areas from 1949 to 1990, the main finding was children in rural are lack of education according to the children in urban. Qian and Smyth (2005) adopted Gini coefficient decomposition to study the educational gaps between rural and urban areas, and also the coastal and inland regions of China. The main finding was that disparities in access to education between rural and urban areas rather than between coastal and inland provinces are the major cause of educational inequality in China. Further, Hannum and Wang (2006) analyzed the Chinese population census for the year 2000, and their results argued that geographic disparity has lead to educational stratification in recent decades.

This paper aims to study the presentation of China's education inequality and its decomposition results, further analyze the reasons and determine what measures should be taken from a public governance view. Of course, we must draw a clear definition that the education attainment and its distribution are confined to national education, some special abilities or talents which should be acquired through apprenticeship training belongs to another important issues.[4]

In this paper, firstly, a scientific and proper measurement of education inequality must be adopted. Gini coefficient has been widely used to study income inequality and could be used to measure education inequality as well, because the education Gini coefficient can effectively represent the change in educational distribution. After measuring education inequality using the education Gini coefficient, a decomposition method based on Gini coefficient will be used to study within-group and between-group contributions to education inequality, according to educational gaps among regions, by gender, between urban and rural areas, and also among different social groups. Based on the empirical findings above, we shall draw a detailed analysis from the point of the educational system and other social factors. At last, Shapley decomposition based on regression analysis will be adopted to study which kind of educational gap contributes to total education inequality most, so that adequate measures can be taken to reduce education inequality.

This paper argues that both national and provincial education inequality is lower than before, and that educational expansion has reduced education inequality significantly. The urban–rural division and social stratification division are the greatest contributors to education inequality. Moreover, the household register system dividing city and country, and increasing income inequality are deepening institutional barriers and stratum differentiation. According to our investigation, although gender and regional gaps have been reduced significantly, the population from poorer areas (especially for females) still merits social concern. In addition, through decomposing age, we also find that the overall education inequality drops sharply as age decreases, which is mainly a product of higher educational attainment among the young.

2. The extent of China's education inequality

To what extent can we measure education inequality? The standard deviation of years of schooling is often chosen as a measure of education inequality in a few studies,[5] but such a method only measures the dispersion of schooling distribution in absolute terms. To measure the relative inequality of the schooling distribution, developing an indicator for education Gini coefficient is advisable, so we have adopted an indirect method originated by Tomas et al. (2003) to calculate education Gini coefficient based on educational attainment data. The education Gini formula is shown in Eq. (1).

$$E_L = \left(\frac{1}{\mu}\right)\sum_{i=2}^{n}\sum_{j=1}^{i-1} p_i |y_i - y_j| p_j \tag{1}$$

where E_L is the education Gini based on educational attainment distribution, large population; μ is the average years of schooling for the concerned population; p_i and p_j stand for the proportions of population with certain levels of schooling; y_i and y_j are the years

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[3] *Data resource*: OECD (2011), Education at a Glance 2011: OECD Indicators, OECD Publishing.

[4] For example: If someone is talented in making Sushi, he should have become an apprentice to a famous Sushi chef just after graduation from junior high school. Acquiring higher educational achievement in national education system may not be his best choice. So in this situation, his own decision does no matter to education inequality.

[5] For example: Ram (1990).