Can educational expansion improve income inequality? Evidences from the CHNS 1997 and 2006 data

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ABSTRACT

Rapid education expansion and rising income inequality are two striking phenomena occurring in China during the transitional period. Using the China Health and Nutrition Survey (CHNS) data collected in 1997 and 2006, this paper studies how education affects individual earnings during the transitional process. We find that education accounts for only a small fraction of the personal earnings and income gap between different groups. We analyze the underlying mechanism of the impact of education on earning. More educated people tend to enter state-owned sectors, have a low probability of changing jobs in the labor market and work less time; all of these will have a pronounced impact on earning and income inequality. Quantile regression analysis shows that the low-income group's education return rate is lower, which helps little in narrowing the income gap. We decompose the earning gap into four factors: population effect, price effect, labor choice effect and unobservable effect. In explaining the earning gap in China, the price effect is more important than the population effect. The labor choice effect is also significant. We conclude that increasing educational expenditure with no complementary measures such as reforming the education system and establishing a competitive labor market helps less in reducing income inequality.

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1. Introduction

Education is often considered to exert significant impact on personal income. Education can improve an individual's skills and signal his or her innate productivity, so that workers with a high

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education attainment often receive high earnings. Expanding education investment is therefore believed to be one of the key measures to reduce poverty and income inequality, particularly in developing countries. As Ashenfelter and Rouse (2000, p. 111) point out, "The school is a promising place to increase the skills and incomes of individuals. As a result, educational policies have the potential to decrease existing, and growing, inequalities in income". Heckman (2005) also declares that "human capital is the asset that ultimately determines the wealth of China. Fostering access to education will reduce inequality in the long run".

However, during the transitional process, China has witnessed contradictory phenomena. On the one hand, we observe rapid education expansion and even partial over-education. Thanks to the 9-year compulsory education policy initiated in 1986, the enrollment rates of primary and secondary schools rose[1] and the average education attainment is quickly increasing too. Furthermore, the education expansion starting since the late 1990s takes place more in high education and high schools. According to the Educational Statistics Yearbook of China 2007 (Ministry of Education of China, 2008), in 1997, the number of students in colleges and universities, high schools, secondary schools and primary schools in every 100 thousands population were 519, 1978, 4408, and 11,287, respectively; the numbers in 2007 were 1924, 3409, 4364, and 8037, respectively. From the aspect of absolute quantity, the college enrollment and total number of students at high education schools in 1998 were 1.08 million and 3.41 million, respectively, while in 2005 the numbers reached 5.05 million and 15.62 million, with a growth rate of 368% and 358%, respectively.

On the other hand, the unemployment rate of college graduates has been rising during recent years: only two thirds of college graduates can find a job by graduation. Particularly, students from poor families have more difficulties in job hunting. At the same time, even though China economy has kept a high growth rate (9.8% per year on average) for 30 years, income distribution has been deteriorating and the Gini coefficient for individual income has risen constantly to a relatively high level: from 0.382 in 1988 to 0.452 in 1995 (Zhao et al., 1999), from 0.29 in 1981 to 0.39 in 1995 (World Bank, 1997), from 0.309 in 1981 to 0.447 in 2001 (Ravallion and Chen, 2004), from 0.37 in 1991 to 0.44 in 2000 (Benjamin et al., 2008).[2]

These seemingly contradictory facts lead us to ask two questions: Does education expansion contribute to income inequality? What are the underlying mechanisms of education's impact on individual income?[3]

Lai (1997) and Bai (2004) demonstrate that there exists an inverted U-curve relationship between education expansion and income inequality in China; however, their conclusions were based on macro data and the micro influencing mechanisms are not fully explored. Based on the CHNS micro data collected in 1997 and 2006, this paper aims to explore how education affects personal earnings during the transitional process in China. We are interested in the following questions: To what extent does the educational structure and distribution change lead to income inequality? To what extent does the rate of return to education (the higher return to higher education level) play a role? Does education attainment change the behavior of labor supply choice? Do different groups' rates of return to education vary?

The new insights of this paper lie in: (1) we try to explore the underlying mechanisms of the impact of education on income. For instance, how education attainment leads to change in labor supply behavior. Applying the quantile regression method, we try to test whether the low-income group's education return rate is higher; consequently, whether schooling contributes to narrowing the income gap. Using the decomposition method based on the regression, we decompose changes in earning inequality into four factors: population effect (the distribution of education among population), price

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[1] Particularly, the gross enrollment rate of secondary school rose considerably from 66.7% in 1990 to 98% in 2007 (Ministry of Education of China, 2008).

[2] Given the different data sources and different measures, researchers can get different Gini coefficient results. However, they share the consensus that income inequality shows a tendency of rising since the inception of reforms in 1978. Apart from the Gini coefficient, there are three other measures: the Theil index, the mean log deviation, the transformed coefficient of variation. The Gini coefficient measure is widely used and more appropriate.

[3] As wage income stands for a high proportion of residents' total income in China, in this paper we focus on wage income inequality closely connecting with education. Khan et al. (1999) mentioned other components of income and improper dis-equalizing policies such as housing and social safety net.