



China's higher education expansion and unemployment of college graduates[☆]



Shi LI^a, John WHALLEY^{b,c,d}, Chunbing XING^{a,*}

^a Beijing Normal University, China

^b University of Western Ontario, Canada

^c Center for International Governance Innovation (CIGI), Canada

^d NBER, United States

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ABSTRACT

We document the sharp expansion of higher education in China beginning in 1999 and analyze its impacts on the unemployment of college graduates, using nationally representative population surveys from 2000 and 2005. We show that the expansion policy has increased the probability of college attendance among high school graduates. Using a difference-in-difference strategy, we find that China's expansion policy has sharply increased the unemployment rate among young college graduates, and that the unemployment rate for college graduates increases more in non-coastal (especially central) regions than in large coastal cities. We suggest that encouraging regional mobility of college graduates and increasing matching quality can potentially reduce the unemployment rate at the national level.

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1. Introduction

Since the beginning of economic reform and market opening, China's scale of higher education in terms of numbers of students admitted and college graduates produced has increased continually. However, the increase in the 1980s and through most of 1990s was modest, especially compared to increases from 1999 onwards. In 1999, the Chinese government made a strategic decision to expand higher education. As a result, the number of new students admitted to college increased by more than 40% between 1998 and 1999 and expansion continued in subsequent years. From 1998 to 2005, the number of new college students had more than quadrupled (4.7). We consider two questions in this paper: How has this radical change affected the educational opportunities for individuals? How has this expansion policy affected the unemployment rate of college graduates?

These questions seem to have simple answers but are often, nonetheless, raised in public debate. In particular, many blame the expansion policy for the high unemployment rate of college graduates, while others argue that unemployment rates for graduates would still be high. Others argue that unemployment is not caused by the expansion policy but reflects low ability or a high reservation wage among college graduates. Unfortunately, there is little empirical research addressing these issues.

In this paper, we show that the expansion policy has increased the probability of going to college among high school graduates, but that the same expansion has also sharply increased the unemployment rate for college graduates. Our strategy is to

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* Corresponding author. Tel.: +86 13693061761.

E-mail addresses: lishi@bnu.edu.cn (S. Li), jwhalley@uwo.ca (J. Whalley), xingchunbing@gmail.com (C. Xing).

compare the unemployment rate of younger college graduates affected by the expansion policy to that of those not affected by the policy using a population survey for 2005. To control for age differences in unemployment rates, we use data from the 2000 census to calculate the age differential at which no college graduates were affected by the expansion policy.

To provide a more detailed picture, we perform the same exercises to investigate how the expansion effect differs across regions and between males and females. We find that the unemployment rate for young college graduates increases more in non-coastal (especially central) regions than in large coastal cities. This is true for both males and females, with males experiencing a larger increase in unemployment across the country. Females experienced smaller increase in unemployment, because a large number of them were not actively seeking jobs, working informally at home. These results suggest that allowing (or encouraging) free mobility by eliminating institutional impediments such as the Hukou system (an institution with the power to restrict population mobility) could reduce the unemployment rate at the national level.

Although the exercises in this paper are simple and rely on strong assumptions, they are, to our knowledge, the first in the literature to use econometric methods to establish relationships between China's higher education expansion and rising youth unemployment. The paper is related to the work of Li et al. (2011), Freeman (2009), and Meng, Shen, and Sen (2010). Li et al. (2011) document the significant transformation of higher education that has been underway in China since 1999, not only in scale but also in many other aspects, including institutional arrangements and incentive structures. They also discuss the expansion's potential global impacts. Freeman (2009) discusses the potential impact of China's expansion policy on the U.S. Although both Li et al. (2011) and Freeman (2009) mention employment pressures for college graduates following the expansion, neither presents empirical evidence on this. Meng et al. (2010) studies the wage structure and earnings inequality between 1988 and 2007. They notice that both observed and unobserved skill prices slowed down at the turn of the century and attribute this to the college expansion program. They do not, however, consider unemployment.

This paper is organized as follows. Section 2 briefly describes the higher education transformation in the late 1990s. Section 3 discusses how expansion policy affects educational opportunities. Section 4 investigates how the expansion policy has affected the employment of college graduates. Section 5 briefly discusses why expansion caused unemployment among college graduates and the implications of this study's results.

2. Background and data

2.1. The transformation in higher education in China

With economic reform and market opening, China's education system also underwent both major expansion and transformation. Closely related to our research are the following three aspects of this transformation: scale expansion, abolishment of large subsidies (increase in tuitions), and changes in the mechanism for matching college graduates with employers.

From 1978 to 1998, the scale of higher education increased continually: the number of colleges increased from 598 to 1022, the number of new college students enrolled increased from 0.4 million to 1.08 million, and the number of college students increased from 0.86 million to 3.41 million. Although the scale of higher education increased continuously, the growth rate before 1998 was much lower than rates from 1999 onwards.

In early 1999, the central government increased the number of students admitted to tertiary education by 0.22 million. In June, the central government and the Ministry of Education announced that a further 0.33 million new students would be admitted. These decisions made 1999 a historic year in the development of China's higher education. The number of new college students experienced its largest increase since 1978 (48%). The expansion was unexpected for many high school graduates and their families. Given that the college entrance exams were held in early July, the announcements made in early 1999, especially the one in June, did not change the behavior of high school graduates considerably. The unexpectedness of the announcement made this policy more like an experiment.¹ In the subsequent years, the number of new college students continued to increase. In 2005, the number of new college students was 5.04 million, 4.7 times that of 1998.

Under the earlier central planning regime, higher education had been heavily subsidized. With economic reform and enlargement of the scale of higher education, the Chinese government gradually lowered subsidies for higher education. In "Guidelines for China's Education Reform and Development" published in 1993, the central government made it clear that *higher education is noncompulsory, and students should pay tuition in principle* (State Council, 1993). From 1995 to 2004, tuition fees increased from 800 RMB per person per year to 5000 RMB per person per year on average (Yang, 2006). Expenditures on education ranked first in total household expenditures in the 10th 5-year plan period (China Youth & Child Research Center (CYCRC), 2007). The high tuition levels resulted in severe financial constraints for some families, and some students from poor families gave up college opportunities. This also meant that poor families would benefit less from the expansion policy.

In addition to abolishing heavy subsidies, another major reform in the 1990s canceled the planning system for allocating college graduates to work positions. The new system is effectively a two-sided market, with graduates finding jobs based on

¹ The initiation of higher education expansion in the late 1990s is also closely related to economic conditions at that time. In 1997, the 15th National Congress of the Communist Party of China quickened the reform of the economic regime. Many formerly state owned enterprises were privatized. This generated large numbers of laid-off or unemployed workers, some seeking college entrance. Meanwhile, the Asian financial crisis of 1997 also had a negative impact on the Chinese economy, raising unemployment rates. Against this background, higher education expansion was initiated to alleviate the unemployment problem and to stimulate consumption.

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