



The Impact of an Academic High School Tuition Relief Program on Students' Matriculation into High Schools in Rural China



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ABSTRACT

By 2010, only one-quarter of workers in China had received a high school (HS) education. One of the root causes of this low rate is that China has the highest HS tuition fees globally. Although the Chinese government has implemented a series of programs to reduce the cost of attending vocational HS, the cost of attending academic HS in China remains high. This study evaluates the extent to which an academic HS tuition relief program initiated by a poor county in western China affects students' schooling decisions after graduation from junior high school. By using a longitudinal dataset of 2348 students in two counties, we use ordinary least squares and propensity score matching to evaluate the impact of this program on four student outcomes: matriculation into academic HS, matriculation into vocational HS, entering the labor market, and retaking high school entrance exams. The results show that the program significantly increased matriculation into academic HS by 21 percentage points, while it reduced matriculation into vocational HS by 7 percentage points, the likelihood of entering the labor market by 11.9 percentage points, and the likelihood of retaking exams by 2.1 percentage points. Further, we find that the effects of the program among middle-income students are stronger compared with those of other groups. And we found that the program had no significantly heterogeneous impact on students with different academic performance.

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1. Introduction

As the Chinese economy transitions from lower value-added to higher value-added industries, the need for quality human capital is increasing (Autor, Murnane, & Levy, 2001; Heckman & Yi, 2012). Higher value-added industries require workers with higher skill levels (Autor, Katz, & Krueger, 1998; Bresnahan, 1999; Bresnahan, Brynjolfsson, & Hitt, 2002; Zhang, Yi, Luo, Liu, & Rozelle, 2013). However, census data show that only 8% of rural Chinese workers (25–64 years) received a high school education (academic high school or vocational high school) in 2010, while 37% of urban workers did so (Khor et al., 2015). This figure is far behind that in OECD countries (74%) and G20 countries (56%) (Khor et al., 2015). Even in the most recent decade, the high school completion rate in rural China was less than 40% (Shi et al., 2015; Yang, Sicular, & Lai, 2013).

To build a future labor force equipped with higher levels of skills, China's policymakers, as in other developing countries, have thus taken measures to expand access to high school (Carnoy et al., 2013; Loyalka et al., 2015; National Congress of Brazil, 2011;

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Newhouse & Suryadarma, 2009). In the past decade, the high school enrollment rate has increased steeply (MOE, 2004, 2014). The government has strived to increase high school enrollment by expanding vocational high schools. With the removal of score-based criteria and rising financial support (including a tuition relief program (TRP) since 2009) for entering vocational high school, vocational high school enrollment increased from 12 million in 2002 to 22 million in 2011 (MOE, 2012, 2003). Recently, the Chinese government stated its aim to universalize high school education by 2020 (China Government, 2016; Ifeng News, 2016).

But how can China achieve this goal? What is preventing students from entering high school? Of the factors that prevent rural students from attending high school, the high cost may be one of the greatest barriers. The cost of academic high school tuition in rural China is the highest among public high schools globally and far beyond the affordability of many rural households in poor areas (Liu et al., 2009). High tuition fees are further accompanied by the high and rising opportunity cost of staying in school (Angrist & Lavy, 2009; Lincove, 2012). In particular, opportunity costs are a problem for students entering high school, since labor laws in China permit high school-age students to find employment. Indeed, many rural students in China choose to drop out of education before entering high school because of these high costs (Shi et al., 2015; Yi et al., 2012).

The literature has also shown that the competitiveness of China's education system prevents many rural students from attending high school. China's education system has been designed to fast track individuals by focusing resources on higher performing students that are believed to have more chance of succeeding in high school and ultimately performing well in national college entrance examinations (Li, Liu, & Zhang, 2012). However, rural students (especially poorer students) always perform worse than their urban counterparts (Liu et al., 2009). Further, low-performing students—especially those from rural areas—are found to drop out at higher rates than students from urban areas (Chang, Min, Shi, Kenny, & Loyalka, 2016; Yi et al., 2012; Yi et al., 2015).

To meet the goal of universalizing high school education, the debate on whether the government should make academic high school free is ongoing (China Education Daily, 2016; Wang, 2008; Yan, 2010; Yang, Du, & Zhao, 2015). Will making academic high school free increase high school enrollment? In this study, we use a natural experiment to evaluate the extent to which the academic high school TRP in one rural county in China—Ningshan county in Shaanxi province—affects the schooling decisions of students after they have completed junior high school. Ningshan county, a nationally designated poor county, took the lead by implementing the TRP in 2009 (Chen et al., 2013; People Daily, 2011). This program not only waived the tuition fee for students who attend academic high school, but also relaxed the requirement on entry scores to recruit as many students as possible (People Daily, 2011). This natural experiment thus provides us with a unique opportunity to examine the impact of making academic high school free on the decision to continue in school.

In essence, the TRP is a type of financial aid program designed and implemented by the local (county) government to provide students with full tuition relief. Previous studies have focused on the effect of financial aid on increasing the enrollment of students (Chen & Desjardins, 2010; Jackson, 1978; John & Noell, 1989; Yi et al., 2015). Some researchers have gone further, exploring the impact of financial aid on student efforts (Chen et al., 2013). For example, in a study also conducted in Ningshan, Chen et al. (2013) found that the TRP significantly improved the math scores of the seventh grade students in the first year of the program announcement (presumably because more students were able to continue their schooling into high school). However, given the nature of China's education system, it is unclear whether the gains in the first year of junior high school continue into the subsequent two years, allowing more students to enter into high school. Although previous studies have examined the impact of the financial aid program on students' college choices (Liu et al., 2011; Schwartz, 2008), it is unclear whether a financial aid package would affect the high school choices of students in poor rural counties.

In this study, we have three research objectives. First, we describe three outcomes: a) the plans of students for their future schooling at the beginning of junior high school, b) the nature of the costs that they perceive for high school, and c) the decision to continue schooling after graduation from junior high school. Second, we identify whether the TRP significantly affects the choice of students to continue on to high school. In particular, we assess whether the TRP affects a) matriculation into any high school, b) matriculation into an academic high school, c) matriculation into a vocational high school, d) the decision to enter the labor market (and not continue schooling), and e) the decision to retake high school entrance exams¹. Finally, we examine how the TRP affects the decisions of different types of students (e.g., poor compared with nonpoor, high performing compared with low performing).

The remainder of the paper is organized as follows. Section 2 describes the high school system in China and the TRP in Ningshan. Section 3 introduces the study's approach, including the sampling, data collection, and statistical approach. The analytical results are presented in Section 4, followed by a discussion in Section 5. We conclude in Section 6.

2. High school education system in China and TRP in Ningshan county

2.1. High school education system

China's high school system consists of academic high school and vocational high school. The ultimate goal of attending academic high school is to go to college, with the teaching activities focusing on general skills. By contrast, vocational high school students typically enter the labor market directly and thus the teaching activities focus on specific skills (MOE, 2008a). After

¹ If a third year junior high school student chooses to repeat a year, it often means that he/she failed to pass the high school entrance examination, although he/she firmly aims to attend academic high school. He/she thus hopes to score better in the following year's examination.

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