Working Paper No. 577

Access to Elite Education, Wage Premium, and Social Mobility: The Truth and Illusion of China's College Entrance Exam

Ruixue Jia | Hongbin Li

August 2016

Stanford
Center for International Development

John A. and Cynthia Fry Gunn Building | 366 Galvez Street, Stanford, CA 94305-6015

Access to Elite Education, Wage Premium, and Social Mobility: The Truth and Illusion of China's College Entrance Exam*

Ruixue Jia† and Hongbin Li‡

August 24, 2016

Abstract

This paper studies the returns to elite education and their implications on elite formation and social mobility, exploiting an open elite education recruitment system – China's College Entrance Exam. We conduct annual national surveys of around 40,000 college graduates during 2010-2015 to collect their performance at the entrance exam, job outcomes, and other individual characteristics. Exploiting a discontinuity in the probability of attending elite universities around the cutoff scores, we find a sizable wage premium of elite education. However, access to elite education does not promise one's entry into the elite class (measured by occupation, industry and other non-wage benefits) but parents' elite status does. Access to elite education also does not alter the intergenerational link between parents' status and children's status. The wage premium appears more consistent with the signaling mechanism of elite education than the role of human capital or social networks.

*We thank the China Data Center of Tsinghua University and the 90 universities in the survey for their collaboration.

†School of Global Policy and Strategy, University of California, San Diego, rxjia@ucsd.edu.

‡School of Economics and Management, Tsinghua University, and SIEPR, Stanford University, lihongbinsem@gmail.com.

1 Introduction

Access to education, especially elite education, is believed to be one of the most important channels for elite formation and social mobility in modern societies.[1] While there is a burgeoning literature estimating the returns to elite education,[2] little empirical investigation exists on how the access to elite education affects elite formation and social mobility. In this paper, we not only estimate the returns to elite education but also attempt to understand their implications on elite formation and social mobility using a large-scale dataset we collected ourselves in China.

Every year, around 10 million students in China take the National College Entrance Exam – the largest standardized test in the world – in order to get admitted by around 2,000 colleges of different tiers. The exam not only determines whether a young person will attend a Chinese university, but also which one – attending an elite university is perceived to have a crucial bearing on career prospects or to provide a ticket to the elite class (Wong 2012). This perception is not without controversy: due to the importance of family background for the labor market, some argue that it is illusion rather than reality that the exam system can provide upward mobility and change one's fate (Bregnbaek 2016).

The exam-based admission of Chinese colleges provides us a Regression Discontinuity (RD) type laboratory to understand the role of elite education. We define elite universities as those designated by the Chinese government as the first-tier universities in admission. Elite universities have a cutoff score, and students just above and below the cutoff score are similar in most characteristics, but those above are admitted into elite universities. Thus, we could simply compare outcomes (income and other variables) of students who are just below and above the cutoff score, which solves the typical empirical issue that students entering better universities may be different in ability, family background and other characteristics. We should note that even though the score is the main criterion, it is possible that some students with scores below the cutoff get accepted with extra points from minor criteria such as talents in art and sports. It is also possible that some with scores above the cutoff do not

[1] For instance, Bourdieu (1988) explains how elite education contributes to the maintenance and reproduction of class inequalities, which inspires a large sociological literature on the social consequences of elite education institutions. Fitzpatrick (2002) argues that the educational policies of Soviet Union during 1921-34 produced the "Brezhnev generation" and massive upward mobility of the industrializing 1930s.

[2] Most of the existing studies have focused on the U.S. and have attempted to deal with the selection concern in several ways. For instance, Dale and Krueger (2002, 2011) control for the selectivity of colleges that students apply to and are accepted or rejected by. Black and Smith (2004) use propensity score matching. Hoekstra (2009) uses a discontinuity design based on admissions records from one large state university. Their findings range from no significant premium to being significant for one group. Hoxby (2009) summarizes the advantage and limitation of different strategies.

go to elite universities due to location preference and other factors. Hence, we have a fuzzy RD design.

Because there are no existing data we could draw on, for the purpose of our study, we self-collected systematic data on exam performance and individual outcomes. During 2010-2015, we designed and conducted annual surveys of college graduates, and collected a total sample of 40,916 students.[3] In our survey, we collected the students' scores of the college entrance exam, their first-job outcomes as well as detailed individual and parental characteristics. With these data, we are able to examine outcomes of students with scores close to the cutoffs for elite universities.

We find that elite education in China has a sizable return. Our baseline analysis focuses on around 10,335 individuals within a bandwidth of 20 points (out of a maximum of 750 points from four subjects) around the elite university cutoff scores, which is the optimal bandwidth using the method by Imbens-Kalyanaraman (2011). There is indeed a clear discontinuity around the cutoff: scores above the elite university cutoffs raise the admission probability by 17-19 percentage points, about 60%-70% of the mean probability. In contrast, there is no such pattern with respect to (fake) placebo cutoffs; neither is there any discontinuity for our balance tests with all individual and family characteristics. Exam scores above the cutoffs are associated with a wage premium of 120-160 RMB (18-23 USD) per month for a fresh college graduate, which is around 5%-7% of the median monthly wage (2,500 RMB). These estimates together imply an IV estimate of the monthly wage premium of elite education of 700-900 RMB (105-135 USD), or about 30%-35% of the median monthly wage. Our results are robust to alternative bandwidths and specifications of the running function.[4] Moreover, our results on the wage premium of elite education cannot be explained by the choices of major around the cutoff score.

A limitation of our study is that our survey design only allows us to investigate the wage of the first job for fresh college graduates and it is unclear how important these initial wages are later in life. To partially address this concern, we supplement our survey data with job histories of around 300,000 individuals from a major recruitment platform and document the importance of the first-job for future jobs.

While access to elite education is associated with a wage premium, we find no evidence that it promises one's entry into the elite club. Market income is only one measure of entering China's elite class, and there are other dimensions of being in the elite class that may not be easily monetized. Many of them are associated with the provision of pub-

[3] We use "college" and "university" interchangeably throughout the paper.

[4] For instance, Gelman and Imbens (2014) discuss why including higher-order polynomials might bias the estimates.

lic goods or perks from government monopolies, such as getting into the banking industry, finding a job in a state-owned enterprise, and obtaining *hukou* (the right to live in a city and enjoy local public goods) of a well-funded municipal. By exploring which job characteristics drive the wage premium, we find that the wage premium cannot be explained by occupation, industry or job location. Instead, it mainly stems from variations in specific jobs within occupation-industry. Moreover, we find that elite education does not increase the probability of entering an elite occupation, elite industry, or a state-owned enterprise, living in an elite city, obtaining *hukou* or any other non-marketized benefit; in contrast, parental characteristics do.

Does elite education affect social mobility? The question has two dimensions. The first is whether elite education can lift one from a low-income status to a higher-income status; the second regards whether elite education can change the role family background (such as parental income) plays in determining the job market success of a person.[5] While we find that the access to elite education increases mobility in the first dimension, no evidence shows that it alters the intergenerational link between parental income and child first-job wage. In other words, having a score above the cutoff helps an individual to move up in the income ladder but this level-up effect is the same across parental income rank groups. Moreover, the comparison between the impact of being above the elite college cutoff score and that of having a rich parent helps us to better understand the degree of mobility created by the exam system in the first dimension. For instance, for those students from families of the top 20% income level, even if they score below the cutoff, their probability of being in the top 20% income group is still higher than those who score above the cutoff but come from less wealthy families.

We further examine why elite education has a wage premium. There are typically three explanations: human capital, signaling and social networks. Despite the richness of our data, we cannot pin down definitely any of the three mechanisms since it is challenging to have a perfect measure for any of them. However, we proxy them using as many variables as possible and find suggestive evidence for the signaling mechanism but not the other two.

Our study not only contributes to the literature on estimating the returns to elite education (e.g., Dale and Krueger (2002, 2011), Smith (2004), Hoekstra (2009), Hoxby (2009), Li et al. (2012)),[6] but also contributes to understanding the role of elite education

[5]These two dimensions are similar to the definition of absolute mobility and relative mobility in Chetty et al. (2014).

[6]The 2010 wave of the present data has been used in Li et al. (2012), where they control for observables and also find a sizable wage premium of elite education. Our study exploits a different empirical strategy that allows us to compare students with similar ability. In additional to wage premium, we also examine the implications in elite formation and social mobility. Moreover, we attempt to shed light on the mechanism.

on elite formation and social mobility. We add to the growing literature on intergenerational mobility in economics (e.g., Solon (1992), Chetty et al. (2014)) by showing whether access to elite education can help one enter the elite class in terms of income and job characteristics.[7] Since we are studying a selected group of people, in which everyone has college education, our finding on intergenerational mobility may not be generalized to the whole Chinese population. Instead, our focus is on whether the access to elite education alters intergenerational mobility, where our group of focus provides a reasonable sample.

To the best of our knowledge, our study is the first paper to systematically study the economic consequences of China's National College Entrance Exam by collecting data on exam scores and exploiting the cutoffs in recruitment. Our findings uncover the impact as well as the limitation of the exam system in promoting open access to elite education and social mobility. As one of the most important institutions in China, the exam system also has other social and political implications like other elite education institutions (Bourdieu 1988),[8] which can potentially be studied by using our data and design.

Section 2 discusses the background and the data. Section 3 reports the results on elite university enrollment, after which Section 4 focuses on wage premium and entry into the elite class. Section 5 centers on social mobility. Section 6 presents suggestive evidence on the mechanism for the wage premium. Section 7 concludes the paper.

2 Background and Data

2.1 The College Entrance Exam and Admission

The Admission Process A total of 2,300 colleges were registered in 2010 in China and the quality of these colleges varies substantially. All of them recruit students based on the score of the National College Entrance Exam, known as *Gaokao* in Chinese. They are categorized into four tiers based on quality and those belonging to a higher tier are afforded priority in admitting students. In our analysis, we refer to those universities falling under the first tier as elite universities, which include around 300 colleges.

After the score distribution of the exam scores is known, every province announces its own cutoff point for each tier of universities and for each track (natural or social science), according to the provincial quotas assigned by the Ministry of Education. On average, elite

[7] We will not give a through literature review here. There also exists an extensive literature in sociology (e.g., Erikson and Goldthorpe (1992)).

[8] For instance, Bai and Jia (2016) study the historical exam system in China and argue that it affected the perceived mobility and political stability.

universities recruited around 15% of the exam-takers in this period of our study but the probability also varies greatly across provinces.[9]

The cutoff scores vary by province-year-track and are thus not directly comparable across provinces for several reasons. First, during 2010-2015, 27 out of 31 provinces (except for Jiangsu, Zhejiang, Shanghai and Hainan) use a scale of 0-750 points based on four subjects,[10] while the other four provinces use different scales.[11] Second, the exam papers are graded by each province and a point in the score in different provinces means differently, especially for non-standardized essay questions. Finally, and importantly, the cutoff points vary greatly across provinces, reflecting spatial inequality in access to elite education. Since we are interested in comparing individuals similar in all other dimensions except for exam scores, we will compare students within the same province. We collect the cutoff scores for each province-year-track from a website specialized for the exam: Gaokao.com. The cutoff score for the 27 provinces using a scale of 0-750 points has a median of 540.

The total exam score is the primary determinant in college enrollment and there exist cutoff scores for different tiers of schools.[12] In addition, it is possible that some students with scores below the cutoff get accepted while some with scores above the cutoff do not get into an elite university. The former can be due to extra scores from other characteristics such as being an ethnic minority, being a child of a military martyr, or having talents in sports, music and math etc. The latter can be due to personal preferences such as location and major (see below for discussion on the tradeoff between school and major for those close to the cutoffs).

Majors Within a university, different majors also have different admission scores depending on their popularity. For example, in recent years, economics (including finance and business), management and law are popular and hence more competitive in recruitment. As

[9]The spatial inequality in access to elite education is an important issue but not the focus of this study, since we would like to compare individuals similar to each other in most dimensions including province of origin.

[10]For students in the natural science track, the four subjects are Chinese (with a maximum of 150 points), Mathematics (with a maximum of 150 points), a foreign language (mostly English, with a maximum of 150 points) and a combined subject of Physics, Chemistry and Biology (with a maximum of 110, 100, 90 respectively). For students in the social science track, the four subjects are Chinese (with a maximum of 150 points), Mathematics (with a maximum of 150 points), a foreign language (mostly English, with a maximum of 150 points) and a combined subject of Political Sciences, History and Geography (with a maximum of 100, 100, 100 respectively).

[11]In our analysis, we will control for province-year-track fixed effects. This takes care of the four provinces using other exam scales. Our results are also robust to excluding them in the analysis.

[12]The admission mechanism was under reform during our sample period, when China is transferring it from the Boston Mechanism to one that is similar to the serial dictatorship mechanism. Since the exam score is the primary criteria under both mechanisms, our empirical strategy is valid regardless of the mechanism.

a result, students often face a tradeoff between schools and majors, especially for those close to the cutoff. If they choose an elite school, they are less likely to major in popular fields because, when it is their time to select, those majors may have already been all taken by higher score students. In our analysis, we will also examine how majors affect our findings.

2.2 Chinese College Student Surveys (2010-2015)

The main challenge is to collect individual exam performance and link it to labor market outcomes. We designed and conducted an annual survey of college graduates for this purpose.

Survey Design and Implementation The data that we use are derived from six waves (2010-2015) of the Chinese College Student Survey (CCSS), conducted by the China Data Center of Tsinghua University directed by one of the authors. We randomly selected 100 colleges out of 2,300 colleges in China by stratifying it according to locations (Beijing, Shanghai, Tianjin, Northeastern China, Eastern China, Central China, and Western China) and tiers of colleges.[13] We used the number of students as weight for each college, meaning that colleges with more students are more likely to be selected. For the purpose our study, we oversampled elite colleges in order to get enough students near the elite school cutoff points.

Due to budget and management capacity, the survey was rolled out gradually with the number of selected colleges listed in Appendix Table A1. The target was to have all 100 colleges participate in 2013. In practice, 65 colleges participated that year. Due to an unexpected budgetary cut since 2014, the survey became voluntary, and only those who are willing and can afford the survey (less than 20 colleges) did it in 2014 and 2015. Across the six years of survey, 90 colleges out of the 100 participated in at least one of the years.

For each college, we trained a clerk in the student registration office, who helped us to randomly select a sample of students from the full roaster (population) of the graduating class. For the first year (2010), we targeted on selecting 400 students per college and a college on average collected a sample of 319 students. Our target was cut down to 200 in subsequent years due to the rising cost of the survey. These six rounds of survey give us a sample of 40,916 students in their graduating year. Among them, 34,733 reported complete information on their College Entrance Exam scores and the provinces where they took the exam.

Appendix Figure A1(a) plots the spatial distribution of the 90 colleges by province. As expected, we surveyed more colleges from more developed regions such as Beijing and

[13] In the sampling process, we separate these three metropolises (Beijing, Shanghai, and Tianjin) from the rest of China because these cities have an extremely large concentration of colleges, especially top universities.

Shanghai where there are more colleges. Their students come from all provinces across China. Appendix Figure A1(b) plots the number of students with exam scores by the provinces where they took the exam. Note that our strategy is not affected by the selection of colleges (see discussion below on selection and measurement concerns).

The survey was carried out in May and June each year during 2010-2015. In each of the participating colleges, we appointed two to three survey administrators, who normally are in charge of registration and teaching. Every year, we trained these survey administrators from all over the country in Beijing with several days of intensive meetings. The survey in each college was administered as such. The administrators gathered all sampled students in a big classroom and let them fill in our paper survey form individually and anonymously. Students were told at the beginning that these surveys are for research purpose, and none of their individual information is disclosed to any party. These filled forms were then coded and mailed to our Beijing office for data entry and cleaning.

We designed the questionnaire collaboratively with experts in other disciplines (sociology and education). One of our aims in the surveys is to gather systematic data on individual performance at the College Entrance Exam and link it with labor market outcomes. Thus, we have detailed information on both. We also collected information on family background and college activities.

Selection and Measurement Concerns We would like to be clear about sample selection and measurement issues in the survey. Our data on students are not a random sample of all Chinese college students for two reasons. First, we intentionally over-sampled elite colleges to capture enough students with elite education. In our sample, about one third of the 90 universities belong to the elite tier, which is in contrast to 12% for the population. Second, due to the nature of voluntary participation for the survey, we do not have 100% compliance from colleges and students. Note that we do not need a random sample of all college students in our study. For our analysis, the identification assumption is that those around the cutoff scores are comparable in all dimensions before entering colleges except for their exam scores. We will check whether this is the case in the data.

Misreporting and in particular over-reporting exam scores is possible. However, this concern is unlikely to be critical for our study. Conceptually, we are focusing on exam scores close to cutoff scores for the elite universities. It is unclear why one would like to misreport performance just around the cutoff. We expect the concern of misreporting to matter more for the very low and very high scores, which are not our focus. Empirically, we also examine the density of reported exam scores and conduct placebo tests using other scores around the

actual cutoffs. Misreporting of wages is also possible. We exclude 5% of the data (2.5% in both tails of the wage distribution) in our baseline. The results are robust to keeping all the data or excluding slightly different part of the tails.

The College Entrance Exam We collected information on the total exam score and the score for each subject. Figure 1(a) plots the distribution of the difference between the reported total scores and the actual cutoffs for elite universities, where the cutoffs are defined for each province-year-track. The density is weighted by the sampling weight of universities. Among the 40 thousand graduating students in our surveys, 10,335 of them falls into the 20-point bandwidth centered at the cutoff score. We will use this 20-point bandwidth (roughly 5 points per subject), the optimal bandwidth from the Imbens-Kalyanaraman method, as our baseline bandwidth.

Figure 1(b) takes a closer look at the sample within the 20-point bandwidth. As shown, there is no significant discontinuity in the reported scores around the cutoff values, suggesting systematic misreporting around the cutoff is not an important concern.

Table 1 presents the summary statistics for the sample with the 20-point bandwidth. 28% of them have elite college education. For consistency, the summary statistics reported on job outcomes also refer to this sample.

University and Major Elite universities are designated nationally by the government and known by students. The survey also covers information on 13 majors broadly defined. We categorize them into three groups: STEM (science, engineering, agriculture, medicine and college), Economics (including finance and business)-Law-Management, and Humanity (philosophy, literature, history, art). As shown in Table 1, they account for 65%, 24%, and 10% of the students respectively.

Job Outcomes Our surveys are conducted in May and June, the last two months in college for the graduating class. Thus, most of them already have a plan after graduation. Around 50% of the sample report the best monthly wage offer they get (around 72% of the sample searched for jobs). The mean and median monthly wage are 2,733 and 2,500 RMB.

We also ask detailed information on job location, industry, occupation, employer ownership and specific tasks of the job, which will be used to understand what drive the wage premium. Table A2 presents the distributions of occupation and industry. As shown, the top two occupations are professionals (51%) and clerks (28%); the top two industries are manufacturing (including construction and mining, 30%) and information, computer and software industry (17%).

A limitation of our survey is that we cannot track an individual once he or she is on the labor market. However, the importance of the first job in lifetime earnings has been documented by recent studies using administrative data. For instance, Carr and Wiemers (2016) show a large rank-rank correlation between the first-job wage and that in the future career. No similar administrative data with job histories are available in China. We collect job histories of around 300,000 individuals with wages from a major job search platform (zhaopin.com) and examine the importance of the first-job in terms of wages and elite status of the industry, occupation and ownership.

Parental Characteristics Our survey covers detailed personal and family characteristics including age, gender, residency, parents' economic and political status etc. We will check whether students are similar in these characteristics around the cutoffs.

With information on parents, we are also able to link parents' income and occupation with children's income and occupation (based on the best first-job offer). We expect to see intergenerational links in income and occupation status. Our interest is to examine whether this intergenerational link gets altered by the exam performance (and elite education). Related to the literature on intergenerational mobility, we employ both a rank-rank strategy (examining how the parent income rank affect child wage rank) and a log-log strategy (estimating the correlation between log parental income and log child income).

College Activities and Performance The survey also includes questions on the activities and performance of students in college. We will use these data to shed some light on what elite education brings to students. For example, performance at national-levels standardized tests in college provides us some information on human capital acquired in college.

3 Exam Scores and Access to Elite Education

3.1 The Impact on Access to Elite University

To examine how an individual's exam score affects elite university enrollment, we use the following specification:

$$EliteUniv_{i,p,y,tr} = \alpha_1 I(Score_{i,p,y,tr} - Cut_{p,y,tr} \geq 0) + f(Score_{i,p,y,tr} - Cut_{p,y,tr}) + \epsilon_{i.p,y,tr}, \quad (1)$$

where $Score_{i,p,y,tr}$ indicates individual i's exam score in province p, year y and (natural or social science) track tr. The cutoff score for elite universities varies by province-year-track.

$EliteUniv_{i,p,y,tr}$ is a dummy indicating whether university i attended is ranked as the first-tier university in the college recruitment system.

The running variable in our analysis is $(Score_{i,p,y,tr} - Cut_{p,y,tr})$, namely the distance between a student's score and the cutoff score. $f(Score_{i,p,y,tr} - Cut_{p,y,tr})$ is a function to take the effect of the running variable into consideration. To make sure our results are not driven by certain functional form of f, we employ both the local linear non-parametric method and the parametric method by including the linear-interaction or quadratic-interaction terms between $(Score_{i,p,y,tr} - Cut_{p,y,tr})$ and $I(Score_{i,p,y,tr} - Cut_{p,y,tr} \geq 0)$. With the parametric method, we can control for province-year-track fixed effects.

Figure 2(a) plots the probability of attending an elite university against the running variable by each point of the score in the raw data, focusing on the range of 20 points below and above the cutoff. The figure shows a notable discontinuity around the cutoff point: below the cutoff point, the average probability of attending an elite university is around 0.08 and is fairly stable across scores; above the cutoff point, the average probability of attending an elite university ranges between 0.28 (for 1 point above the cutoff) and 0.6 (for 20 points above the cutoff).

Since the cutoff score varies by province-year-track, the effect of one point above the cutoff in Beijing is not necessarily the same as one point above the cutoff in Shandong. To allow for such differences, Figure 2(b) controls for province-year-track fixed effects. As shown, the pattern remains similar.

In Table 2, we present the empirical estimates of the impact of being above the cutoff score on entering an elite college using different methods. Column (1) reports the results from the local linear non-parametric method. Columns (2)-(6) report the results from the parametric method: columns (3) adds province-year-track fixed effects; column (4) also controls for a first-order polynomial and interaction terms; and column (5) further adds a second-order polynomial and interaction terms. As shown, the non-parametric estimate is around 0.19 while the parametric estimate is around 0.17 after controlling for polynomial and interaction terms.

An important social problem in China is that rural students have significant disadvantages in access to college education. Column (6) presents the interaction effect of being rural (before entering college) and being above the cutoff score. Indeed, rural students are less likely to attend elite university. However, the effect of being above the cutoff sore on being admitted by elite universities is the same for rural and urban students. The finding that exceeding the cutoff is the primary channel in elite education recruitment and its role is independent of being rural or not serves as a validity test for our RD approach that is based

on the cutoff score.

3.2 Balance Tests in Individual and Family Characteristics

The underlying assumption of our strategy is that individuals around the cutoffs are comparable in individual and family characteristics. To check whether this is the case, we examine whether being above the cutoff score is correlated with a set of individual/family characteristics.

As visualized in Figure 3, which uses the same specification as in Figure 2(b), there is no discontinuity for gender, age, being in the rural area before college or family income. We also conduct the same balance test for other attributes including father's and mother's income, father's and mother's education, and whether father/mother is a Communist Party member. Results presented in appendix Table A.3 show no discontinuity around the cutoff for these characteristics.

3.3 Results Using Placebo Cutoffs

The sharp discontinuity at the cutoff and the smoothness at other points in Figure 2 already suggest that misreporting around the cutoff is unlikely to be critical for our findings. Instead of the actual cutoff values, we conduct placebo tests using values 5-points above and below the cutoffs. This test not only speaks to the validity of the cutoffs, but also examines the importance of measurement error: if there is a systematic bias of the reported scores, we would expect to see a similar effect with respect to these placebo levels close to the actual cutoff values.

Results presented in Table 3 suggest that these placebo cutoff points do not generate any discontinuity. Columns (1)-(3) present the results using the values 5-points above the actual cutoffs whereas columns (4)-(6) present the results using the values 5-points below the actual cutoffs. As shown, there is no similar discontinuity as in the baseline estimates.

4 Elite University Wage Premium and Elite Formation

4.1 Estimating the Wage Premium

In this section, we first estimate the reduced-form impact of being above the cutoff score of elite universities on the best wage offer for the first job. Then, with the first-stage result on elite education and the reduced-form estimate on wage premium, we conduct an IV analysis

to evaluate the wage premium of elite education. We also examine the role of majors and the importance of the first-job.

The Reduced-form and IV Estimates The reduced-form specification for wages is as follows:

$$\ln Wage_{i,p,y,tr} = \alpha_2 I(Score_{i,p,y,tr} - Cut_{p,y,tr} \geq 0) + f(Score_{i,p,y,tr} - Cut_{p,y,tr}) + \epsilon_{i.p,y,tr}, \quad (2)$$

where the variables are defined in the same way as in Section 3.

There is indeed a discontinuity of log wage at the cutoff score. Figures 4(a) and 4(b) visualize the mean log wages by scores with and without province-year-track fixed effects. The results on wages are noisier than those for elite university recruitment. Still, we see a notable discontinuity around the cutoff values.

The graphical results are confirmed by regressions reported in Table 4. Columns (1) presents the estimate from the local linear non-parametric estimate of the impact of being above the cutoff score on log wage, which shows that having a score above the cutoffs raises the monthly wage by 5.3%. When we add province-year-track fixed effects (column (2)), the first-order polynomial and interaction terms (column (3)) and the second-order polynomial and interaction terms (column (4)), the effect is a bit larger. For our preferred specification in column (4), the parametric estimate is around 6.7%. We add an interaction of the rural dummy and above-cutoff dummy in column (5), and find the interaction term is very small in magnitude and is not statistically significant from zero. This, once again, suggests that the effect of being above the cutoff is similar for rural and urban students, even though rural students have a lower wage than their urban counterparts. We also report regressions with the level of wage as the dependent variable in columns (6)-(10), and find that the level effect is around 120-160 RMB per month.

The IV estimates reported in Table 5 suggest that the return of going to an elite university in China is rather high. The excluded instrument for going to elite university is basically the dummy variable for being above the elite cutoff score. Algebraically, the IV estimate is simply the ratio of the reduced-form estimates (Table 4) and the first-stage estimates (Table 2). The results suggest that elite education is associated with around 30-35% of the median monthly wage (columns (1)-(5)), or about 700-900 RMB monthly wage premium (columns (6)-(10)).

We use a bandwidth of 20 points of the score in our main analysis. A narrower bandwidth implies that individuals are more comparable but there is more noise in estimation due to a smaller sample size. In Appendix Figures A2(a)-(b), we plot the first-stage and

the reduced-form estimates using different bandwidths ranging from 10 (roughly 2.5 points per subject) to 30 points (7.5 points per subject), controlling for province-year-track fixed effects and a second-order polynomial and interaction terms. As shown, the estimates are close to the baseline estimates, suggesting that our findings are not driven by the IK-optimal bandwidth used in the baseline estimations.

Major Choice and the Impact of Major on Wage Premium Majors matter for our findings for two reasons. First, those slightly above the cutoff are in the worst position for the selection of majors in the recruitment process of the elite universities, while those below the cutoff are in the best position for the non-elite universities. This implies that they are sorting into different majors. For instance, Economics-Law-Management majors are known to be popular in the recent decades. Those above the cutoff but are ranked lowest in the elite university recruitment may be less likely to get into these majors. Second, major may also affects wage, we would like to know whether our wage premium is driven by difference in majors.

The two sets of results are presented in Table 6. Columns (1)-(2) present the results on STEM majors; columns (3)-(4) on Economics-Law-Management majors, and columns (5)-(6) on Humanity majors. As shown, the main significant change is in the lower probability of majoring in Economics-Law-Management for those above the cutoff. This is consistent with the fact that these majors are more popular and more competitive in the recruitment stage. Thus, it is more difficult for those just above the cutoff score to major in these fields.

Column (7) of Table 6 includes 13 major fixed effects in the wage premium estimation. Now the above-cutoff dummy has a coefficient of 0.069. Compared with the baseline estimate (0.067), the result implies that majors cannot explain the wage premium results. If anything, the premium increases slightly. Again, this is consistent with the fact that those around the cutoff are less likely to major in more popular areas. In contrast, column (8) shows that the wage premium can be explained away by including university fixed effects. This is not surprising since our estimate captures the role of elite university.

Thus, our finding on wage premium is driven by the university effect rather than the major effect. This is consistent with our discussion on the mechanism of elite university wage premium in Section 6, where we find that the signaling effect of university matters more than the role of human capital (proxied by majors).

The Importance of the First-job Our survey only allows us to link exam performance to first-job outcomes. However, it does not allow us to trace the students once they are on

the labor market. To investigate the importance of the first-job, we collect the job histories of 304,021 individuals from a major online recruitment platform (zhaopin.com). Individuals there report their monthly wage for each job they have ever had by categories (1000-2000 RMB, 2001-4000 RMB, 4001-6000 RMB, 6000 RMB and above). With this information, we can examine the correlation between first-job wage and wages for future jobs. In addition, we also know the characteristics of their employers such as industry, occupation and ownership, which complements our analysis in Section 4.2.

Some simple tabulation indeed shows strong correlations between the first job wage and wages later in life. Out of the 304,021 individuals looking for jobs on the platform, 168,269 of them have had at least two jobs and 81,498 of them have had at least three jobs. Appendix Figure A.3(a) plots the correlation between the first- and second-job wages for both college graduates and non-college graduates. As shown, the first-job wage is a strong predictor of the second-job wage for both groups. Consider two individuals with college degree, one with a first-job wage of category II (2001-4000 RMB) and the other of category III (4001-6000 RMB). As shown in Figure A.3(a), the mean category for the second-job wage is about 2.4 for the former and 3.3 for the latter. Thus, the difference in wages persists. This is also true for other categories.[14] Figure A.3(b) presents a similar and slightly weaker pattern in terms of the third-job wage.

As suggested by these patterns, even though we do not have labor market outcomes after the first-job in our surveys, our findings are likely to persist beyond the first job.

4.2 Elite Formation

In the context of China, market income is only one measure of entering the elite class. There are other important dimensions of being in the elite class that may not be easily monetized, many of which are associated with the provision of public goods or perks from government monopolies, such as getting into the banking industry, finding a job in a state-owned enterprise, and obtaining *hukou* (the right to live in a city and enjoy local public goods) of a well-funded municipal.

In this section, we start by using job characteristics to explain the wage premium, and then, as a mirror exercise, we investigate whether the access to elite education affects the entry into elite occupation, industry and ownership. Finally, we check whether elite education affects non-wage benefits on the job. In addition, we use the online job search platform data to shed light on how important the elite status of the first-job is for that of

[14]Since the wage category is top coded at 6000 RMB and above, the average second-job wage category can only below this category, which explains why the slope decreases at the very top category.

the future jobs.

Which Job Characteristics Explain the Wage Premium? We examine what drive the observed elite premium by exploring detailed information on the job characteristics including job location, industry, occupation, ownership and specific job tasks. To this end, we focus on the reduced-form estimates and gradually add fixed effects to examine how the wage premium and R-squared change.

Results presented in Table 7A seem to show that the wage premium cannot be explained by variations across location, industry, occupation or ownership. In column (1), we replicate the findings in column (5) of Table 4. Column (2) adds job location (31 provinces) fixed effects. Both the estimate and the R-squared are barely changed, suggesting that job location cannot explain the wage premium. In columns (3)-(5) we additively include 18 industry fixed effects, 12 industry fixed effects and 9 ownership fixed effects, which only marginally change the estimate and R-squared. Hence, industry, occupation and ownership cannot explain the wage premium either. In column (6), we add 866 industry-occupation-ownership fixed effects, and the R-squared rose from 0.36 to 0.45 but the main estimate remains similar to the baseline in column (1).

These results imply that the wage premium must stem from variation in jobs within an industry-occupation-ownership cell. To further check whether this is true, we include the task fixed effects and see whether the wage premium can be explained. In the open question on jobs, individuals describe their specific jobs in words such as "Assistant in the sales department" or "Data analysis". A crude way to categorize these descriptions is grouping the job description by the first Chinese character, the first two/three Chinese characters etc. Column (7) includes 424 first-character fixed effects. As shown, the wage premium is absorbed by these fixed effects. If we include first-three-character fixed effects, the R-squared jumps to 0.73 in column (8). These results further confirm that the premium stems from variation in jobs within an industry-occupation-ownership cell.

This finding already suggests that being above the cutoff does not entail one's entry into more prestigious occupation or industry since the premium mainly stems from variation within an industry-occupation-ownership cell. Next, we conduct more direct analysis on whether elite education affects entry into the elite class.

Elite Occupation, Industry and Ownership We define "elite occupation" as the first two groups in the occupation codes, namely different levels of "managerial position in a firm or a public organization (such as governments)". We define "elite industry" as "government"

or "finance". Table A.2 presents how we code elite occupation and elite industry. We also divide ownership into "state-owned" and the others.

Our definitions of the elite jobs *ex ante* are confirmed by some subjective information from the data. In our survey, we asked what are the ideal industry, occupation and ownership these graduates hope to get into. There is a strong correlation between our definition of elite categories and the reported ideal categories. For instance, government-related industry and finance industry are number one and number two on the list of ideal industries. Similarly, "managerial position in a firm or a public organization" is number two on the list of ideal occupation,[15] and state-owned enterprise is number one on the list of ideal ownership.

Since we are considering the first job of college graduates, a small share of them (5%) have the elite occupation directly after graduation (shown in Table A2). There are more variations in terms of elite industry and ownership: 10% of them enter the elite industry and 44% enter state-owned firms or organizations. Replacing log wages with dummy variables indicating elite occupation, elite industry and elite ownership, Table 7B shows that being above the cutoff (and consequently elite education) does not increase the probability of entering any of them.[16] This finding is also consistent with that from Table 6A: the wage premium is mainly driven by variations within industry-occupation cells.

We can use the additional data from the online job recruitment platform to shed light on the importance of the first-job in terms of elite status. We define elite industry, occupation and ownership the same way as above and examine how the status of the first-job correlates with that of the future jobs.

Similar to the results on wages, the elite status of job characteristics shows strong persistence over the lifetime. If we divide one's first job into elite industry (government-related industries and finance) and non-elite industry, the probabilities of the second job and the third job falling into the same category are 0.93 and 0.92. If we divide one's first job into elite ownership (state-owned) and non-elite ownership, the probabilities of the second job and the third job falling into the same category are 0.84 and 0.81. Only around 8,000 individuals (out of 304,021) reported detailed information on occupation in this data. When we divide one's first job into elite and non-elite occupation, the probabilities of the second job and the third job falling into the same category are 0.99 and 0.97. Hence, it is not easy for the elite status of the job to change even one changes the job in the future.

[15] "Professional" is ranked number one on the list of ideal occupation, which suggests that students hope to use their human capital for the job. In Section 6, we discuss the role of human capital for our finding.

[16] We focus on the reduced-form results for simplicity. As expected, the IV estimate of elite education is not significant if the reduced-form estimate is not significant.

Non-Wage Benefits Another measure of elite class is the non-wage benefits on the job. For instance, the *hukou* status is an important social indicator for big cities because *hukou* is associated with access to public goods such as education, health care, pension etc. Another example is that some privileged jobs may get more housing-subsidy, which is important given the rising housing price in China.

Results reported in Appendix Table 7C show that elite education does not bring about job-related benefits. We examine whether the job provides a local *hukou* status, whether the job provides housing-subsidy and insurance, and whether the job is located in major metropolitan cities (Beijing/Tianjin/Shanghai), and we find no impact on any of these benefits.

Together with the results on occupation and industry, these findings suggest that while access to elite education (due to a better exam performance) increases wages, it does not promise more benefits in other dimensions important for the elite class. Section 5 provides more related discussion when we compare the influence of family background with that of exam performance.

5 The Impact on Social Mobility

In this section, we explore whether a better score around the elite college cutoff in China's college entrance exam changes social mobility. We examine whether access to elite education lifts one from a low socioeconomic status to a higher socioeconomic status and whether it breaks the intergenerational link between parental status and child status. We measure socioeconomic status in terms of income and other important job-related status such as occupation, industry, and ownership. Following the literature, we use both the rank-rank (e.g., Chetty et al. (2014)) and log-log specifications (e.g., Solon (1992)) when examining income mobility.

5.1 Income Mobility: the Rank-Rank Specification

Using a rank-rank approach, we divide parental income into five quintiles and rank it from 1 to 5, with 1 meaning the lowest 20% in the parental income distribution in the whole sample while 5 the top 20%. The median annual parental income for the top 20% is around 135,000 RMB, more than 10 folds of that for the bottom 20% group (around 9,000 RMB). Similarly, we divide child wage into five quintiles and rank it from 1 to 5.

The correlation between parental income rank and child wage rank, corr(Child Rank, Parent Rank), captures the intergenerational mobility. Comparing the correlation for stu-

dents above the elite university cutoff and that below can capture the role of the access to elite education in altering intergenerational mobility.

Nonparametric Description Before presenting the estimation results, we first present in Figure 5(a) a nonparametric description for students above and below the cutoff score separately. For each value (1 to 5) of the parental rank in the x-axis, we plot the mean of child rank using the same subsample as in the wage premium estimation (i.e., a bandwidth of 20 points).

Some interesting patterns appear in Figure 5(a). First of all, as expected, there is a strong and positive correlation between parental rank and child rank for both groups. Moreover, the correlations are similar for the two groups, with a slope around 0.2 for both groups. The difference lies in the intercept: the group above the cutoff has a higher intercept (around 0.25 higher). In other words, having a score above the cutoff helps an individual to move up in the wage ladder by 0.25 quintile and this level-up effect is the same across parental income rank groups. These results suggest that the correlation between parental rank and child rank is not altered by scoring above the cutoff point of elite universities.

The importance of parental income rank relative to scoring high in affecting child wage rank also suggests that the role of the exam in promoting mobility is limited. For instance, for those from the top 20% parental income families, even if they have scores below the cutoff, their average wage rank is still higher than that of all those above the cutoff but from families in the other four income groups. To further shed light on the magnitude, we plot the average probability of getting the top 20% wage for children by parental income ranks in Figure 5(b). It shows that being above the cutoffs increases the probability of becoming the top 20% wage earnings among college graduates across all parental ranks. However, once again, for those from the top 20% families, even if they score below the cutoff, their average probability of earning the top 20% wage is higher than that of those above the cutoff but from less wealthy families.

Regression Results We can use the following specification to quantify the pattern:

$$\begin{aligned} ChildRank_{i,p,y,tr} = \beta_1 I(Score_{i,p,y,tr} - Cut_{p,y,tr} \geq 0) \times ParentRank + \beta_2 ParentRank \\ + \beta_3 I(Score_{i,p,y,tr} - Cut_{p,y,tr} \geq 0) + f(Score_{i,p,y,tr} - Cut_{p,y,tr}) + \epsilon_{i.p,y,tr}, \quad (3) \end{aligned}$$

where β_3 (together with β_1) captures the level effect of being above the cutoff on Child's wage rank, β_2 (together with β_1) measures the intergenerational link of income rank, and β_1

captures the difference in the correlation between parental rank and child rank.

There is indeed a strong intergenerational correlation between parental income rank and child wage rank, as shown by results reported in Table 8. Column (1) shows that the correlation between parental rank and child rank is around 0.18. Even though the magnitude is meaningful, one cannot assume that it captures the broad intergenerational mobility in China: we are studying a selected sample where even those blow the cutoffs attended a university.

Scoring above the elite university cutoff line does not change the intergenerational correlation, as the coefficient for the interaction term of above cutoff and parental rank is not statistically significant in column (2). In addition, being above the cutoff increases the quintile rank by about 0.26. Columns (3) and (4) add further province-year-track fixed effects and quadratic polynomial interactions. As expected, the correlation between parental rank and child rank becomes smaller. The main result on being above the cutoff score remains almost unchanged.

These estimation results confirm the nonparametric pattern in Figure 5: the wage premium of scoring above the cutoff point does not vary much with respect to parental income rank; or put differently, scoring high (and receiving elite education) does not alter the intergenerational mobility measured by the correlation between parental income rank and child income rank. The magnitude of the impact of being above the cutoff is comparable to that of an increase in parental income by one quintile (around 1.5-2 folds increase in parental income). This impact is sizable but it is not large enough to lift a child from an bottom 20% family to a top 20% wage group.

5.2 Income Mobility: Log-Log Specification

In addition to the rank-rank approach, we also employ a log-log approach by replacing $ChildRank$ with $\ln Wage$, and $ParentRank$ with $\ln ParentIncome$. Once again, since we are studying a selected group, we cannot assume that this number captures the broad intergenerational mobility in China. Our interest is whether the correlation is altered by elite education.

The log-log estimation results presented in columns (5)-(8) of Table 8 are consistent with the rank-rank results discussed earlier. The correlation between log parent income and log child wage in a simple regression (column (5)) is around 0.07, and being above the cutoff is associated with a wage premium but does not change the intergenerational wage correlation (column (6)). The impact of being above the cutoff is comparable to that of one-unit increase in log parental income (around 1.7 folds increase in parental income). When we

add province-year-track fixed effects and quadratic polynomial interactions in columns (7)-(8), the results are very similar except that the intergenerational correlation deceases. Thus, the results from log-log specification imply the same pattern as in the rank-rank specification.

5.3 Occupation/Industry/Ownership Mobility

We also examine the intergenerational links in terms of elite occupation, industry, and ownership status (defined in Section 4). Once again, results reported in Table A.4 illustrate the importance of parental background in determining the job outcomes of children. As shown, there are significant correlations between the parental status and child status in all three dimensions. The impact of parental background is large compared with mean probability: having a parent working in an elite occupation, industry, and ownership increases the probability of entering the elite occupation, industry, and ownership by around 50%, 100% and 30% respectively (columns (1),(4),(7) of Table A.4). These are larger than the mobility in terms of income found earlier.

In stark contrast to the role of parental status, scoring higher than the elite university cutoff point does not increase the chance of entering elite occupations, industries or the state-owned sector; neither does it change the intergenerational correlations in these job-related characteristics. As shown, the coefficient on the above cutoff dummy is very small and insignificant throughout Table A.4, confirming that scoring higher (and entering elite colleges) does not increase the chance of getting elite jobs. This finding is also consistent with our previous results in Section 4. Moreover, the interaction term is also insignificant throughout the table, meaning that scoring higher does not change the intergenerational mobility.

Together with the findings in Section 4, these results help us to better understand the degree of mobility created by the exam system. Being above the cutoff does have a sizable impact on wage income, which is roughly comparable to that of an increase in parental income by one quintile (around 1.5-2 folds increase in parental income). However, no evidence suggests that it increases the probability of entering an elite occupation, elite industry, or a state-owned enterprise, living in an elite city, obtaining hukou or any other non-marketized benefit; in contrast, parental characteristics do.

6 Understanding the Mechanism

The main aim of this study is to understand the economic consequences of elite education. Our data are rich enough to estimate the wage premium and the impact on intergenerational

mobility. In addition, we would also like to know the mechanisms through which elite education has a wage premium. Is that elite education increases human capital or that it creates useful social networks on the job market? Or is elite education mainly a signaling mechanism? Limited by data, we do not attempt to pin down any of these channels. Instead, we only provide some suggestive answers to these questions.

Below, we use different sets of information we ask in the surveys to proxy human capital, social networks and signaling and try to understand which ones are more likely to be important for our findings.

6.1 Human Capital

It is likely that students in elite universities accumulate more or better human capital in college. To test whether this is true, we explore two sets of proxies for human capital acquired in college: majors and performance at several national standardized tests.

Majors Major is a reasonable proxy for human capital acquired in college. As already shown in Table 6, majors cannot explain the finding on wage premium. Thus, human capital proxied by majors is unlikely to be important for our findings.

Performance at College We also explore results of several national standardized tests that provide grades or certain certificates for college students. If those above the cutoff accumulate more or less human capital in college, we would expect to see some difference in their performance in college.

We find no evidence that students in elite universities have better human capital. Columns (1)-(3) of Table 9 look at three tests on English ability. Columns (4)-(7) examine certification in computer skills, expertise (e.g., Certified Public Accountant, license to practice law), vocational skills (awarded by the National Occupational Skill Testing Authority) and driving. In none of these credentials do those above the cutoffs perform better. If anything, they perform slightly worse.

Therefore, we find no evidence for the difference in human capital measured by performance at the national standardized tests in college. Of course, one may argue that these tests may not necessarily reflect human capital useful for the job market. But together with the results on majors, little evidence supports the importance of human capital for our finding on wage premium.

6.2 Signaling

Discrimination in Job Searching Our survey questions on various types of perceived discriminations can shed light on our knowledge of the signaling mechanism. We asked in the survey yes/no questions on whether the students have experienced discrimination in terms of gender, *hukou*, accent and physical appearance in job searching. Meanwhile, we also asked an open question for them to describe any type of discrimination they have encountered. Around 10% of students answered this open question. Among them, the top three types of discriminations are the university rank or type of degree (36%), major (14%), and lack of experience (6%).

We examine whether being above the cutoff score affects different types of discrimination. Columns (1)-(4) of Table 10A show that there is no significant difference in terms of gender, *hukou*, accent or physical appearance. Column (5) shows that students scoring above the cutoff are significantly less likely to feel discriminated regarding university rank or degree. This finding is reassuring since those above the cutoff are more likely to attend better universities. Columns (6)-(7) show no difference in terms of major or lack of experience.

Job Searching Channels We examine how students find their jobs to gauge some information on the importance of signaling. If signaling is important, then students from elite universities are more likely to get the attention of employers such as having on-campus interviews. We could explore the issue of signaling by making use of the information in our survey on the channels of job search. As shown in the top row of Table 10B, students use multiple channels. The top three channels are on-campus job fairs (77%), job search websites (57%) and information provided by the university or their teachers (57%), and others include off-campus job fairs (41%), and connections (e.g., friends, classmates and relatives, 26%).

Estimation results of the impact of scoring above the cutoff on using different channels of job search seem to be consistent with a signaling story. As shown by Table 9, the coefficient for the above cutoff dummy is significant in only one case, when the dependent variable is having on-campus job fairs (column (3)). This finding is consistent with the role of signaling: employers are more likely to hold on-campus job fairs in elite universities, which gives their students a better chance of getting a higher-wage job.

Together with the results on discrimination, these results show that signaling is likely to be an important channel behind the wage premium.

6.3 Social Networks

It is also likely that students in elite universities get to know other elite students and build up important connections, which in turn help them in job searching. Indeed 26% of the students reported that they rely on connections such as friends, classmates and relatives in finding a job. Estimation results do not support the connection argument. As shown by column (5) of Table 10B, the coefficient for the above cutoff dummy is insignificant. We also asked in the survey whether they eventually get any help from their connections in getting the job and do not find any significant effect in this dimension either (column (6)).

We should note that this finding is limited by the fact that we are examining the first job and most of these students have few connections themselves. It is possible that connections become important in their future career.

In sum, the data appear more consistent with the signaling mechanism of elite education than the role of human capital or social networks. This finding is not to deny the role of other factors. In particular, social networks may play a more important role in the long run.

7 Conclusion

The College Entrance Exam in China is often considered as a test that determines the course of life. It also provides an ideal laboratory to examine the role of elite education. However, little empirical investigation exists on its social and economic consequences. In this study, we endeavor to collect data on exam performance and link it to the access to elite education as well as labor market outcomes.

We document that the exam system does play an important role in elite university recruitment: there exists a clear discontinuity in the probability of entering elite university around the cutoff scores. The discontinuity also matters for the job market outcomes in terms of wages. However, the impact of the exam system on elite formation and intergenerational mobility seems limited. We find no evidence that it entails one's entry into the elite occupation or industry. It does not alter the influence of family background either.

Our study uncovers the impact as well as the limitation of this important mobility channel that affects most Chinese families. The findings also make a useful contribution to the growing literature on elite education. Besides estimating the returns, our study contributes to understanding how the access to elite education affects elite formation and social mobility, which also opens new avenues of research on other elite education institutions.

References

[1] Bai, Ying, and Ruixue Jia (2016), "Elite Recruitment and Political Stability: The Impact of the Abolition of China's Civil Service Exam," *Econometrica* 84(2): 677-733.

[2] Black, Dan A., and Jeffrey A. Smith (2004), "How Robust is the Evidence on the Effects of College Quality? Evidence from Matching," *Journal of Econometrics* 121(1): 99-124.

[3] Bourdieu, Pierre (1988), *The State Nobility: Elite Schools in the Field of Power*, Stanford University Press.

[4] Bregnbaek, Susanne (2016), *Fragile Elite: The Dilemmas of China's Top University Students*, Stanford University Press.

[5] Carr, Michael and Emily E. Wiemers (2016), "The Decline in Lifetime Earnings Mobility in the U.S.: Evidence from Survey-Linked Administrative Data", Mimeo.

[6] Chetty, Raj, Nathaniel Hendren, Patrick Kline and Emmanuel Saez (2014), "Where is the land of Opportunity? The Geography of Intergenerational Mobility in the United States," *Quarterly Journal of Economics* 129(4): 1553-1623.

[7] Dale, Stacy and Alan Krueger (2002), "Estimating the Payoff to Attending a More Selective College: An Application of Selection on Observables and Unobservables," *Quarterly Journal of Economics* 117(4): 1491-1527.

[8] Dale, Stacy and Alan Krueger (2011), "Estimating the Return to College Selectivity over the Career using Administrative Earnings Data," NBER Working Paper #17159.

[9] Erikson, Robert, and John H. Goldthorpe (1992), *The Constant Flux: A Study of Class Mobility in Industrial Societies*, Oxford University Press.

[10] Fitzpatrick, Sheila (2002), *Education and Social Mobility in the Soviet Union 1921-1934*, Cambridge University Press.

[11] Gelman, Andrew. and Gudio Imbens (2014), "Why High-Order Polynomials Should Not Be Used in Regression Discontinuity Designs," NBER Working Paper #20405.

[12] Hoekstra, Mark (2009), "The Effect of Attending the Flagship State University on Earnings: A Discontinuity-Based Approach," *Review of Economics and Statistics* 91 (4): 717-724.

[13] Hoxby, Caroline (2009), "The Changing Selectivity of American Colleges", *Journal of Economic Perspectives* 23(4): 95-118.

[14] Imbens, Guido, and Karthik Kalyanaraman (2011), "Optimal Bandwidth Choice for the Regression Discontinuity Estimation," *Review of Economic Studies*: rdr043.

[15] Li, Hongbin, Lingsheng Meng, Xinzheng Shi and Binzhen Wu (2012), "Does Attending Elite Colleges Pay in China", *Journal of Comparative Economics*, 40: 78-88.

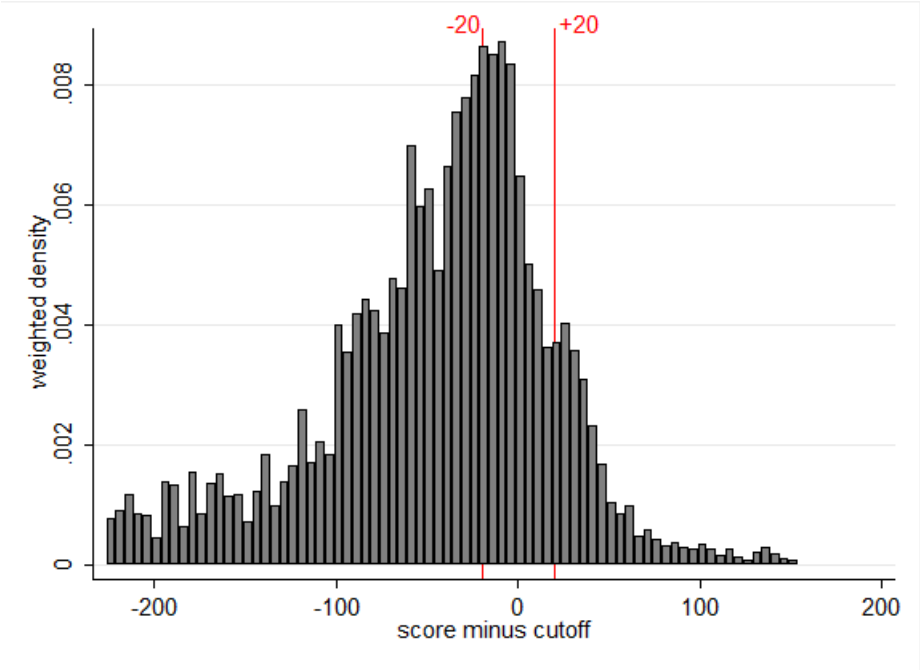
[16] Solon, Gary (1992), "Intergenerational Income Mobility in the United States," *American*

Economic Review 82 (3): 393-408.

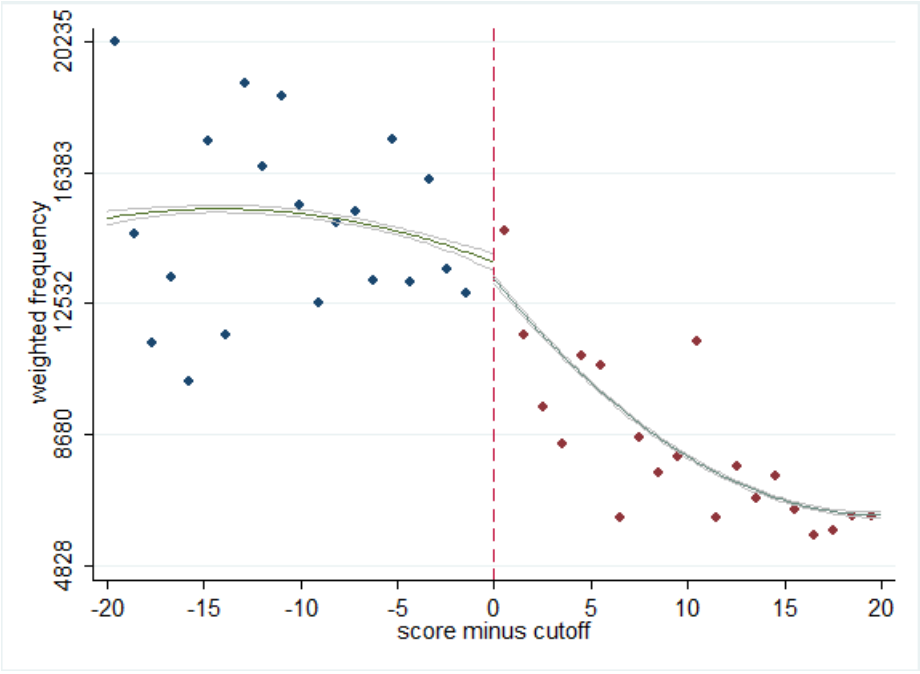
[17] Wong, Edward (2012), "Test that Can Determine the Course of Life Gets a Closer Examination", http://www.nytimes.com/2012/07/01/world/asia/burden-of-chinas-college-entrance-test-sets-off-wide-debate.html?$_r = 0$

Figure 1: The Distribution of Exam Scores in the Survey Data

(a) The Whole Sample



(b) Within the 20-point Bandwidth

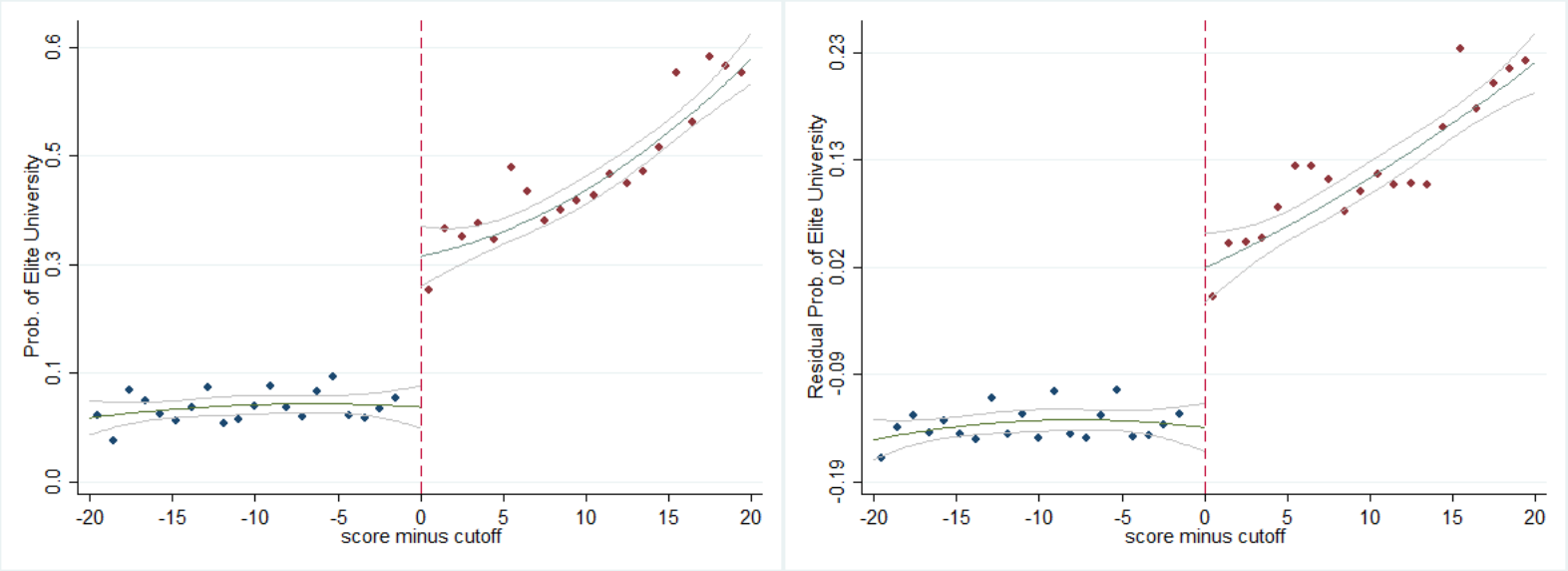


Notes: Figure (a) plots the distribution of exam scores in our survey data. Figure (b) takes a closer look at the 20-point bandwidth and shows that there is no significant discontinuity at the elite university cutoff line. Since we intentionally oversampled elite schools, the density and frequency are weighted by the sampling weight of schools. Note that the scores are not necessarily comparable across province-year-track. We make comparison within province-year-track in our analysis.

Figure 2: Exam Scores and Elite (the First-Tier) University Enrollment

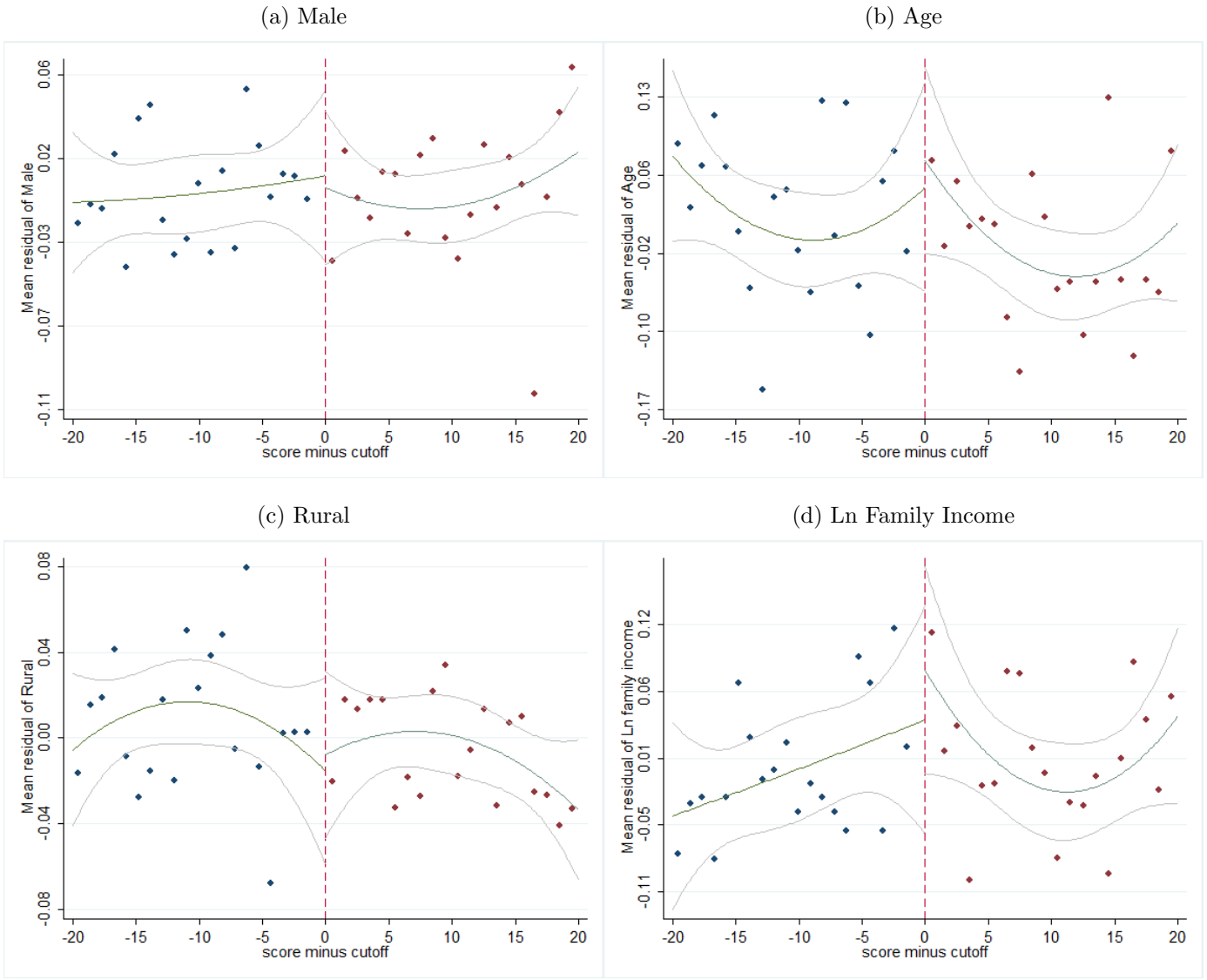
(a) Pattern from the Raw Data

(b) Pattern after Isolating Province-Year-Track FEs



Notes: This figure plots the probability of attending an elite university by distance to the cutoff scores (that vary by province-year-track). Figure (a) is based on raw data and Figure (b) controls for province-year-track FEs. They show a notable discontinuity in the enrollment probability around the cutoff value.

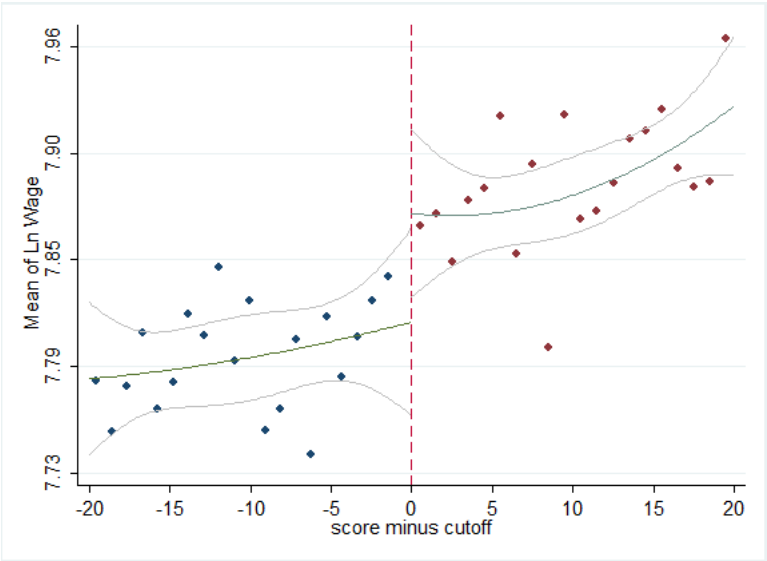
Figure 3: Balance Tests of Individual and Family Characteristics (More in Appendix Table A.3)



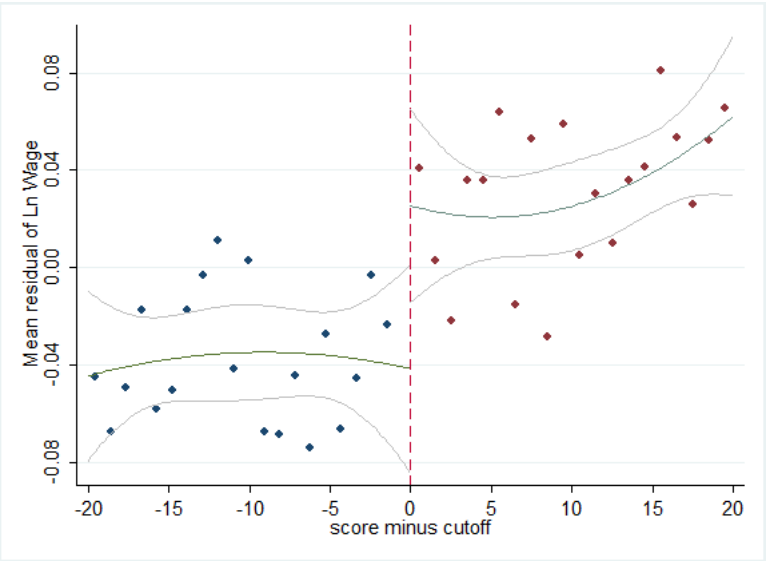
Notes: This figure shows that there is no similar discontinuity in many individual characteristics around the cutoff. Province-year-track FEs are controlled for in these figures. The patterns are similar without these FEs. Appendix A.3 presents more related results.

Figure 4: Elite Education and Wage Premium

(a) Pattern from the Raw Data



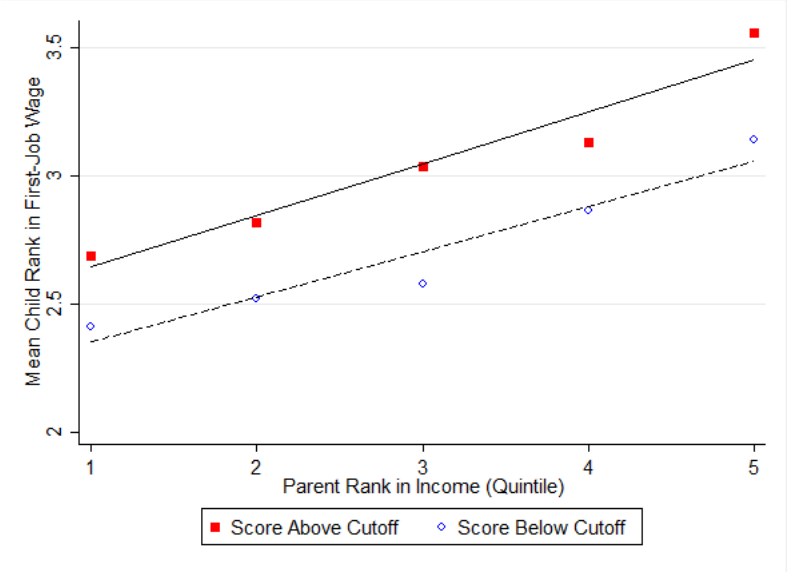
(b) Pattern after Isolating Province-Year-Track FEs



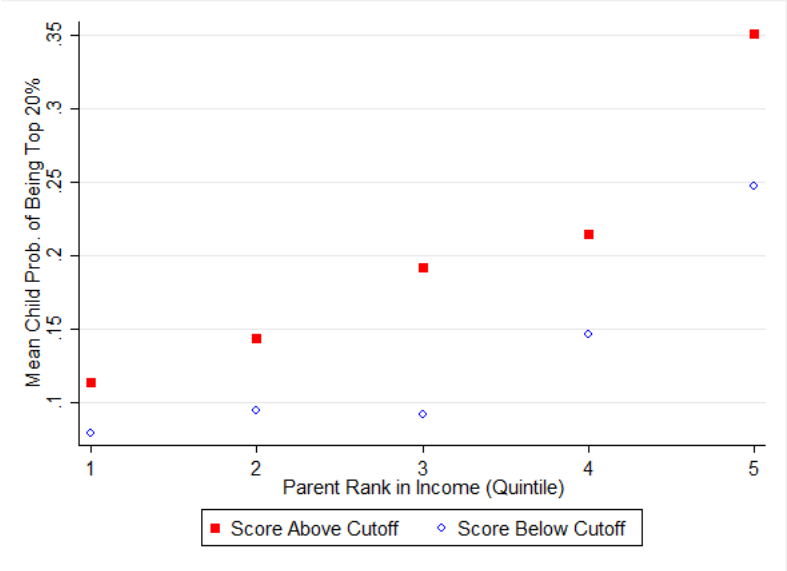
Notes: This figure plots the mean log wages by distance to the cutoff scores (that vary by province-year-track). Panel (a) is based on raw data and panel (b) controls for province-year-track FEs. They show a notable discountability around the cutoff.

Figure 5: Intergenerational Mobility By Exam Performance

(a) Child Wage Rank Against Parental Income Rank



(b) Probability of Being Top 20% by Parental Income Rank



Notes: Figure (a) presents the non-parametric binned scatter plot of the relationship between child and parent income ranks. It shows a strong and positive correlation between child and parent income ranks. An exam score above the cutoff score for elite universities raises the income rank of the child but does not change the correlation between child and parent income ranks. Using the same method, Figure (b) plots the probability of being the top 20% by parental income rank.

Table 1: Summary Statistics
(20-point bandwidth centered at the elite university cutoff)

Variable	Mean	Std. Dev.	Obs
a. Exam Scores and Elite Education			
Elite Universities	0.28	0.45	10335
Above Cutoff for Elite University	0.55	0.50	10335
Scores minus Cutoff	0.76	11.81	10335
Major: STEM	0.65	0.48	10314
Major: Econ (incl. finance and business)-Law-Management	0.24	0.43	10314
Major: Humanity	0.10	0.30	10314
b. Individual and Parental Characteristics			
Male	0.57	0.49	10335
Age	23.97	1.11	10200
Rural (before college)	0.58	0.49	10335
Father with College Edu.	0.09	0.28	9835
Mother with College Edu.	0.06	0.23	9821
ln Father's Income	9.89	1.11	8674
ln Mother's Income	9.38	1.18	7840
ln Family (Parental) Income	10.44	1.11	9383
Father being a Party Member	0.22	0.42	10335
Mother being a Party Member	0.08	0.27	10335
c. Job-related variables			
Ever Searched for Jobs	0.74	0.44	10179
Best Wage Offer (for the first job)	2733	1008	5080
ln Wage	7.85	0.37	5080
Elite Occupation (defined in Table A2)	0.05	0.22	4946
Elite Industry (defined in Table A2)	0.10	0.30	5025
Elite Ownership (Stated Owned)	0.44	0.50	5039
Job: providing hukou	0.39	0.49	5026
Job: not providing hukou	0.31	0.46	5026
Job: no need of hukou	0.30	0.46	5026
Job: providing housing subsidy	0.54	0.50	3940
Job: providing insurance (5 types)	0.51	0.50	5080

Notes: This table presents the summary statistics for the key variables. We focus on this sample within a bandwidth of 20 in our baseline analysis and presents results from additional bandwidths for robustness checks. The data come from six rounds of annual surveys on college graduates conducted by the authors.

Table 2: The Effect of Scoring above the Cutoff on the Prob. of Elite University Admission
Dependent Var.: Elite University=1/0 (mean: 0.28)

	(1)	(2)	(3)	(4)	(5)	(6)
Method	Local linear	Parametric				
Above Cutoff	0.193***	0.327***	0.301***	0.173***	0.169***	0.175***
	(0.016)	(0.021)	(0.021)	(0.016)	(0.020)	(0.023)
Rural*Above Cutoff						-0.009
						(0.014)
Rural						-0.026**
						(0.011)
Prov-Year-Track FEs			Y	Y	Y	Y
Linear-Interaction				Y	Y	Y
Quadratic-Interaction					Y	Y
Observations	10,335	10,335	10,335	10,335	10,335	10,335
R-squared		0.130	0.430	0.443	0.443	0.444

Notes: This table reports the impact of exam scores on the probability of attending an elite university. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 3: The Prob. of Elite University Admission: Results Using Placebo Cutoffs
Dependent Var.: Elite University=1/0

	(1)	(2)	(3)	(4)	(5)	(6)
Placebo Cutoff	Actual Value+5			Actual Value-5		
Method	Local Linear	Parametric	Parametric	Local Linear	Parametric	Parametric
Above Cutoff	0.015	0.060*	-0.041*	-0.000	0.023	-0.027
	(0.020)	(0.032)	(0.024)	(0.014)	(0.024)	(0.031)
Prov-Year-Track FEs		Y	Y		Y	Y
Linear-Interaction		Y	Y		Y	Y
Quadratic-Interaction			Y			Y
Observations	10,798	10,798	10,798	10,052	10,052	10,052
R-squared		0.404	0.404		0.432	0.434

Notes: This table shows that there is no similar discontinuity around the placebo cutoff values. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 4: The Effect of Scoring above the Cutoff on Wages: Reduced-Form Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
D.V.	Ln Wage (mean: 7.85)					Wage (mean: 2733)				
Method	Local linear	Parametric				Local linear	Parametric			
Above Cutoff	0.053**	0.089***	0.059***	0.067**	0.064**	122.186**	247.029***	145.951***	155.755*	158.115*
	(0.023)	(0.010)	(0.018)	(0.027)	(0.028)	(60.965)	(29.082)	(52.984)	(80.352)	(86.479)
Rural*Above Cutoff					0.004					-3.701
					(0.018)					(49.990)
Rural					-0.028*					-77.860**
					(0.014)					(38.219)
Prov-Year-Track FEs		Y	Y	Y	Y		Y	Y	Y	Y
Linear-interaction			Y	Y	Y			Y	Y	Y
Quadratic-interaction				Y	Y				Y	Y
Observations	5,080	5,080	5,080	5,080	5,080	5,080	5,080	5,080	5,080	5,080
R-squared		0.272	0.273	0.273	0.274		0.262	0.262	0.262	0.263

Notes: This table reports the impact of exam scores on the starting monthly wage. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 5: The Effect of Elite Education on Wages: IV Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
D.V.	Ln wage (mean 7.85)					Wage (mean 2733)				
	Local Linear	Parametric				Local Linear	Parametric			
Elite Education	0.296**	0.301***	0.369***	0.453**	0.458**	681*	835***	910***	1,054*	1,095*
	(0.134)	(0.031)	(0.121)	(0.210)	(0.214)	(352)	(92)	(334)	(556)	(580)
Rural*Elite Education					-0.007					-59
					(0.063)					(169)
Rural					-0.023					-63
					(0.019)					(51)
Prov-Year-Track FEs		Y	Y	Y	Y		Y	Y	Y	Y
Linear-interaction			Y	Y	Y			Y	Y	Y
Quadratic-interaction				Y	Y				Y	Y
Observations	5,080	5,080	5,080	5,080	5,080	5,080	5,080	5,080	5,080	5,080

Notes: This table reports the impact of elite education on the starting monthly wage using an IV strategy. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 6: The Effect of Scoring above Cutoff on Major and the Impact of Major on Wages

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
D.V.	Major in STEM		Econ-Law-Management		Humanity		ln Wage	
Method	Local linear	Parametric	Local linear	Parametric	Local Linear	Parametric	Parametric	
							Major FE	Univ. FE
Above	-0.006	0.025	-0.034*	-0.041**	0.040***	0.018	0.069**	0.029
	(0.020)	(0.021)	(0.018)	(0.015)	(0.013)	(0.014)	(0.026)	(0.028)
Prov-Year-Track FEs		Y		Y		Y	Y	Y
Quadratic-Interaction		Y		Y		Y	Y	Y
Observations	10,314	10,314	10,314	10,314	10,314	10,314	5,075	5,080
R-squared		0.515		0.240		0.322	0.290	0.320

Notes: Columns (1)-(6) show that those above the cutoffs are likely to major in more popular fields (Economics-Law-Management). Column (7) shows that the wage premium cannot be explained by the major fixed effects. Column (8) shows that the wage premium is explained by the university fixed effects. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 7A: The Impact of Job Characteristics on Wage Premium
Dependent Var.: ln Wage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Location FE (31 FEs)		Y	Y	Y	Y	Y	Y	Y
Industry FE(18 FEs)			Y	Y	Y	Y	Y	Y
Occupation FE(12 FEs)				Y	Y	Y	Y	Y
Ownership (9 FEs)					Y	Y	Y	Y
Indu.-Occu.-Owner. (866 FEs)						Y	Y	Y
1-character Job Desc. (424 FEs)							Y	Y
3-chatereter Job Desc. (1686 FEs)								Y
Above Cutoff	0.067**	0.082***	0.080***	0.087***	0.085***	0.067**	0.024	0.018
	(0.027)	(0.028)	(0.028)	(0.028)	(0.029)	(0.032)	(0.045)	(0.087)
Prov-Year-Track FE	Y	Y	Y	Y	Y	Y	Y	Y
Quadratic-interaction	Y	Y	Y	Y	Y	Y	Y	Y
Observations	5,080	4,888	4,853	4,749	4,740	4,740	3,618	3,618
R-squared	0.273	0.325	0.352	0.361	0.369	0.448	0.492	0.731

Notes: This table shows that the wage premium cannot be explained by job location, occupation, industry or ownership of the firm. Instead, it stems from specific jobs within occupation-industry-ownership cells. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 7B: Elite Formation: The Prob. of Entering Elite Occupation, Industry and Ownership

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Elite Occupation			Elite Industry			State Ownership		
Mean	0.05			0.10			0.44		
Above Cutoff	0.011	0.015	0.023	0.009	-0.009	0.017	0.016	0.013	-0.032
	(0.013)	(0.012)	(0.019)	(0.018)	(0.016)	(0.015)	(0.031)	(0.031)	(0.046)
Prov-Year-Track FE		Y	Y		Y	Y		Y	Y
Linear-interaction		Y	Y		Y	Y		Y	Y
Quadratic-interaction			Y			Y			Y
Observations	4,946	4,946	4,946	5,025	5,025	5,025	5,039	5,039	5,039
R-squared		0.101	0.102		0.136	0.136		0.118	0.118

Notes: This table shows that being above the cutoff does not entail one's entry into elite occupation, industry or state ownership. The definition of elite occupation and industry is presented in Table A.2. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 7C: Elite Formation: The Probability of Enjoying Job-related Non-Wage Benefits

	(1) Provide Hukou	(2) No Hukou	(3) Housing Subsidy	(4) 5-Types Insurance	(5) Beijing/Tianjin/Shanghai
Above Cutoff	0.029	-0.002	-0.039	0.048	-0.027
	(0.033)	(0.052)	(0.035)	(0.033)	(0.023)
Prov-Year-Track FEs	Y	Y	Y	Y	Y
Quadratic-Interaction	Y	Y	Y	Y	Y
Observations	5,026	5,026	3,940	5,080	4,888
R-squared	0.182	0.096	0.094	0.295	0.515

Notes: This table reports the results on non-wage benefits around the cutoffs, where we find no discontinuity. This is consistent with the fact that such benefits are often associated with occupation or industry. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 8: The Impact of Scoring above the Cutoff on Intergenerational Mobility

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Child Rank (1-5)				ln Wage			
Above Cutoff * Parent Rank		0.026	0.008	0.008				
		(0.027)	(0.029)	(0.029)				
Rank of Parent Income	0.188***	0.176***	0.087***	0.088***				
	(0.014)	(0.019)	(0.022)	(0.022)				
Above Cutoff * Ln Parental Income						0.001	-0.002	-0.002
						(0.010)	(0.011)	(0.011)
Ln Parental Income					0.072***	0.073***	0.037***	0.038***
					(0.005)	(0.007)	(0.009)	(0.009)
Above Cutoff		0.266***	0.288***	0.283***		0.100***	0.086***	0.085***
		(0.075)	(0.079)	(0.103)		(0.010)	(0.009)	(0.026)
Prov-Year-Track FEs			Y	Y			Y	Y
Quadratic-Interaction				Y				Y
Observations	4,696	4,696	4,696	4,696	4,696	4,696	4,696	4,696
R-squared	0.044	0.062	0.268	0.269	0.043	0.061	0.285	0.285

Notes: This table shows that (i) there is a significant correlation between parents' income and occupation with the children's income; (ii) being above the cutoff does increase the income rank and (iii) the intergenerational link is not changed by exam performance around the cutoff. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 9: The Impact of Scoring above the Cutoff on Human Capital Accumulation in College

	(1) National College English Test 4	(2) National College English Test 6	(3) TOEFLS	(4) Certificate Computer	(5) Certificate Expertise (e.g., CPA, Lawyer)	(6) Certificate Vocational	(7) Driving License
Above Cutoff	1.457	3.165	-23.583***	-0.016	-0.080***	-0.022	-0.037
	(2.076)	(5.298)	(6.895)	(0.031)	(0.018)	(0.017)	(0.024)
Prov-Year-Track FEs	Y	Y	Y	Y	Y	Y	Y
Quadratic-Interaction	Y	Y	Y	Y	Y	Y	Y
Observations	8,728	5,591	77	9,090	9,090	9,090	9,090
R-squared	0.241	0.204	0.957	0.143	0.088	0.065	0.129

Notes: This table shows that there is no systematic difference around the cutoff in human capital proxied by national standardized tests in college. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table 10A: The Impact of Scoring above the Cutoff on Discrimination in Job Search

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Yes/No Question					Open Question		
Discrimination	Gender	Appearance	Accent	Rural	Hukou	University	Major	Experience
Mean D.V.	0.25	0.15	0.08	0.08	0.26	0.36	0.14	0.06
Above Cutoff	0.018	-0.021	-0.005	0.003	-0.029	-0.279**	-0.045	0.054
	(0.029)	(0.022)	(0.018)	(0.020)	(0.030)	(0.132)	(0.106)	(0.051)
Prov-Year-Track FEs	Y	Y	Y	Y	Y	Y	Y	Y
Quadratic-Interaction	Y	Y	Y	Y	Y	Y	Y	Y
Observations	4,593	4,410	4,260	4,250	4,519	388	388	388
R-squared	0.109	0.111	0.096	0.089	0.129	0.481	0.399	0.554

Notes: This table presents the results on reported discrimination in job searching around the cutoff. The only place that exhibits a discontinuity is discrimination of universities, which is consistent with the signaling effect of elite universities. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

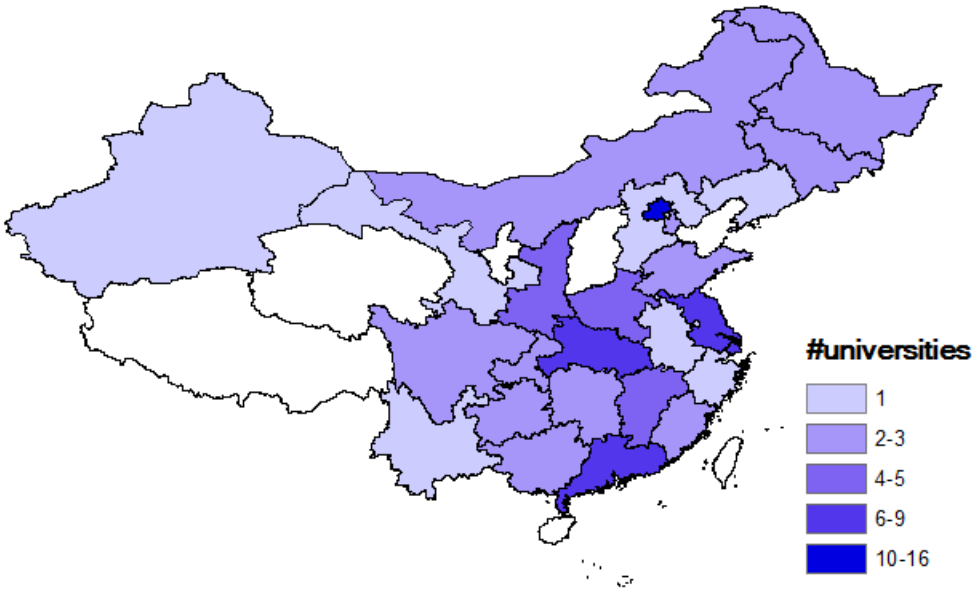
Table 10B: The Impact of Scoring above the Cutoff on Job Search Channels

	(1)	(2)	(3)	(4)	(5)
	Get Job Recruitment Information via:				
	Off Campus Job Affair	Teacher	On Campus Job Affair	Website	Connection
Mean	0.41	0.57	0.77	0.57	0.26
Above Cutoff	0.022	0.041	0.061**	0.032	-0.019
	(0.040)	(0.034)	(0.024)	(0.045)	(0.031)
Prov-Year-Track FEs	Y	Y	Y	Y	Y
Quadratic-Interaction	Y	Y	Y	Y	Y
Observations	5,063	5,063	5,063	5,065	5,063
R-squared	0.096	0.080	0.148	0.117	0.078

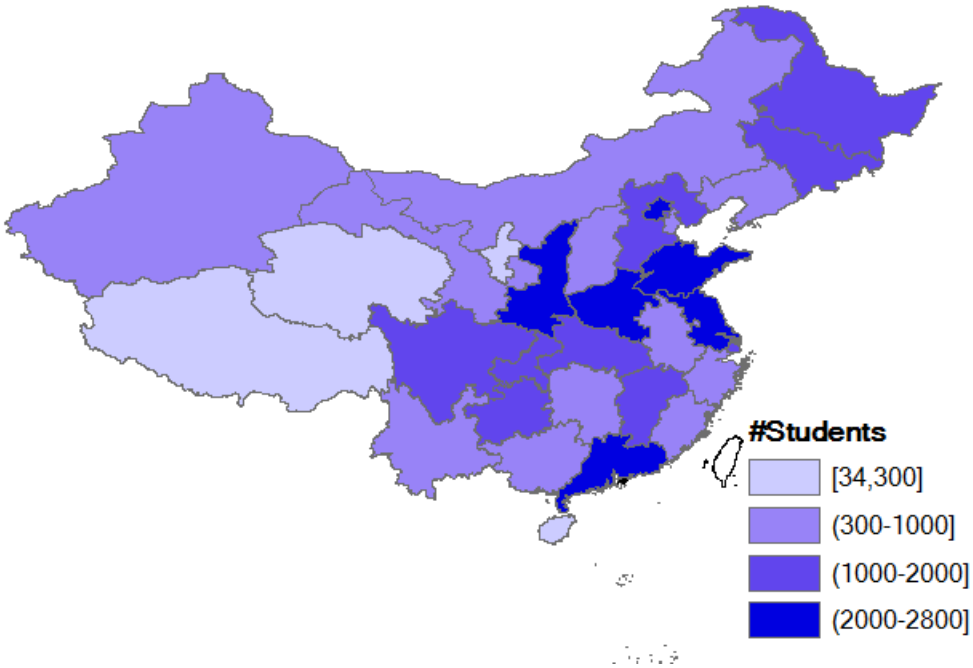
Notes: This table presents the difference in the channels of job search around the cutoffs. Those above the cutoff are more likely to get information from on campus job affairs. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Appendix

Figure A.1: The Distribution of Universities and Students in Our Survey



(a) Distribution of the 90 Universities

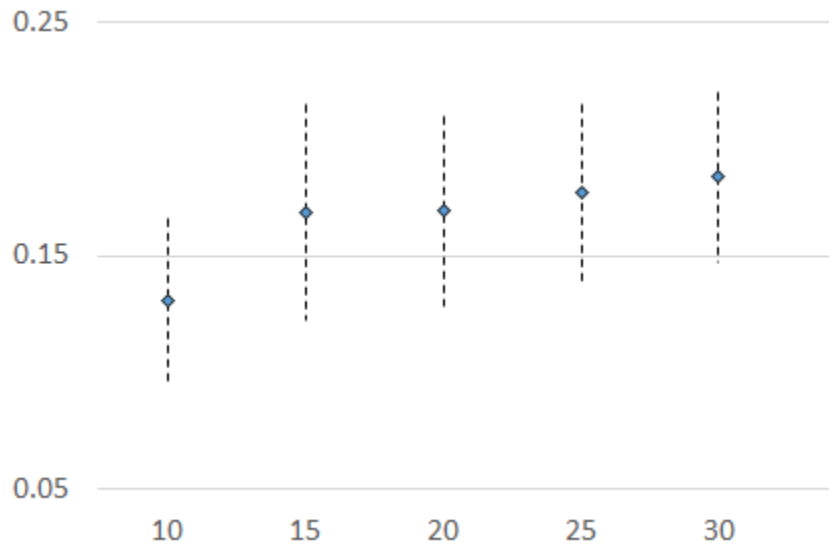


(b) Number of Students by Province of Exam

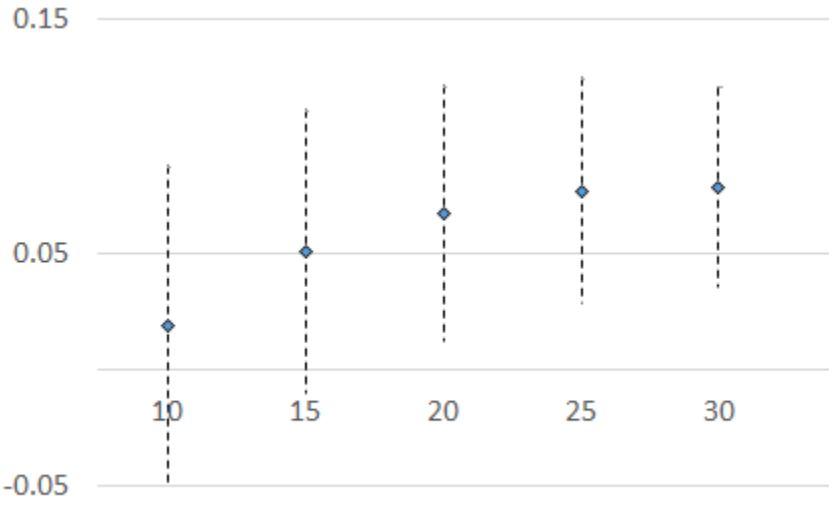
Notes: Figure (a) plots the distribution of the 90 universities in our survey by provinces. Their students come from all provinces across China. Figure (b) plots the number of students by the province of origin (where they took the exam).

Figure A.2: Results with Different Bandwidths

(a) First Stage – Scores and Elite Education



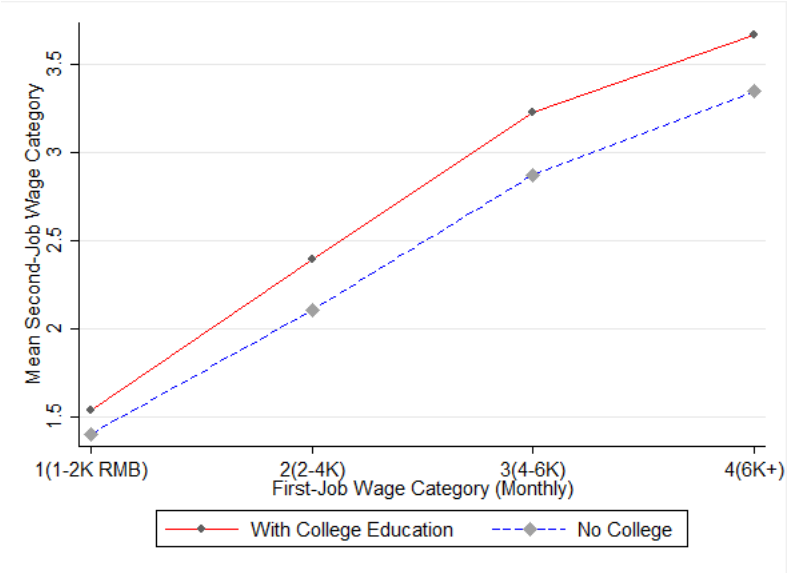
(b) Reduced Form – Scores and Wage Premium



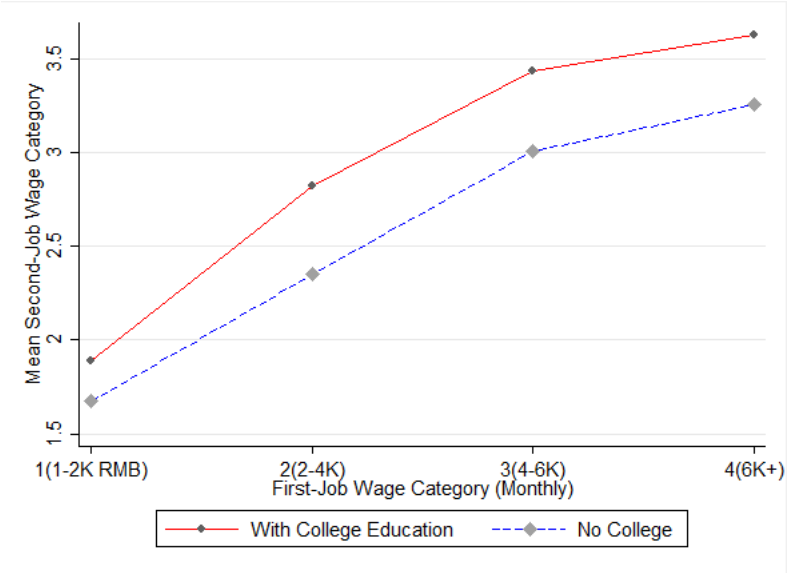
Notes: This figure plots the estimates using different bandwidths of scores while controlling for province-year-track FEs and a second-order polynomial and interaction.

Figure A.3: The Importance of the First Job for Future Jobs

(a) Second-Job Wage vs. First-Job Wage



(b) Third-Job Wage vs. First-Job Wage



Notes: Figure (a) plots the mean wage category for the second job by the first-job wage category by college education; Figure (b) plots the mean wage category for the third job by the first-job wage category by college education. The wage category is top coded, which explains why the mean can only be smaller than 4 at the very top. The data come from a major job recruitment platform (zhaopin.com).

Table A.1: Roll-out of Surveys 2010-15

	#Universities	#Students Per University	Total #Students
2010	19	319	6,060
2011	50	164	8,176
2012	50	173	8,650
2013	65	164	10,679
2014	17	212	3,607
2015	13	288	3,744
Total	90		40,916

Notes: This table reports the number of universities and the number of students in survey year. The selection of schools, however, is unlikely to affect our strategy exploring individual-level information on exam performance.

Table A.2: Occupation and Industry Distribution

Occupation/Industry Distribution		
Occupation	Elite Occupation	Share(%)
1 Mid-senior management personnel	1	3.8
2 Junior management personnel	1	1.13
3 Clerks	0	28.41
4 Professional	0	50.65
5 Technical staff	0	2.47
6 Foreman / group leader in factories	0	1.01
7 Service personnel	0	3.09
8 Self-employed	0	0.75
9 Skilled workers	0	7.1
10 Manual workers	0	0.38
11 Military / Police	0	0.4
12 Others	0	0.81
Industry	Elite Industry	Share(%)
1 Agriculture, forestry, husbandry and fishery	0	2.55
2 Mining / Manufacturing / Construction	0	29.97
3 Electricity, gas and whose production and supply	0	4.64
4. Transport, storage and postal	0	3.74
5 Information, computer and software industry	0	15.66
6 Wholesale and retail trade	0	5.13
7 Accommodation and catering industry	0	2.01
8 Financial industry	1	8
9 Real estate	0	3.92
10 Rental and business services	0	1.35
11 Education	0	4.78
12 Health industry	0	4.8
13 Cultural, sports and entertainment	0	2.51
14 Scientific and technical services	0	4.84
15 Public Facilities Management	0	2.25
16 Residents and other services	0	1.23
17 Governments / public organizations	1	1.83
18 Others	0	0.8

Notes: This table lists the occupations and industries in our survey. The elite occupation or industry is coded by the authors. 10-30 on the x-axis indicate different bandwidths. The dots indicate the estimates and the dashed lines indicate the 95% confidence interval with standard errors clustered at the score level.

Table A.3: More Results from Balance Tests

	(1) Male	(2) Age	(3) Rural (pre)	(4) Ln (Father Income)	(5) Ln (Mother Income)	(6) Ln (Family Income)	(7) Father College Edu	(8) Mother College Edu	(9) Father Party Mem.	(10) Mother Party Mem.
Above Cutoff	-0.020	0.014	0.014	-0.010	0.008	-0.022	0.001	-0.004	0.011	0.002
	(0.014)	(0.042)	(0.029)	(0.043)	(0.049)	(0.043)	(0.011)	(0.007)	(0.018)	(0.011)
Prov-Year-Track FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Linear-Interactions	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	10,335	10,200	10,335	8,674	7,840	9,383	9,835	9,821	10,335	10,335
R-squared	0.150	0.108	0.145	0.204	0.229	0.206	0.068	0.071	0.051	0.056

Notes: This table reports more results from balance tests. There is no notable discontinuity in terms of observed individual characteristics and family background. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.

Table A.4: Intergenerational Mobility of Occupation, Industry, Ownership

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Elite Occupation			Elite Industry			State Ownership		
Mean	0.05			0.10			0.44		
Above Cutoff * Elite Parent (Occ)		0.010	0.024						
		(0.025)	(0.026)						
Elite Parent (Occ)	0.025**	0.020	0.011						
	(0.012)	(0.018)	(0.019)						
Above Cutoff * Elite Parent (Industry)					-0.014	-0.028			
					(0.051)	(0.048)			
Elite Parent (Industry)				0.115***	0.123***	0.110***			
				(0.024)	(0.042)	(0.036)			
Above Cutoff * Elite Parent (Ownership)								-0.009	-0.001
								(0.018)	(0.016)
Elite Parent (Ownership)							0.125***	0.068***	0.051***
							(0.018)	(0.013)	(0.013)
Above Cutoff		0.001	0.021		-0.001	0.018		0.002	0.015
		(0.007)	(0.019)		(0.006)	(0.015)		(0.007)	(0.015)
Prov-Year-Track FEs			Y			Y			Y
Quadratic-Interaction			Y			Y			Y
Observations	4,946	4,946	4,946	5,025	5,025	5,025	5,039	5,025	5,025
R-squared	0.001	0.001	0.103	0.010	0.010	0.142	0.011	0.008	0.141

Notes: This table presents the results on intergenerational mobility in terms of occupation, industry and ownership. It shows that exam performance around the cutoffs does not alter the intergenerational link in occupation, industry and ownership. Standard errors are clustered at the score level. Significance levels: *** 1%, ** 5%, **** 10%.