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Can family determine competition within the college campus? the effect of family background on college students' human capital accumulation

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Abstract

Using the Panel Survey of Chinese University Students, this paper systematically analyzes the effect of family background on the human capital accumulation of college students. This study finds that family background has little influence in elite universities, where the selective elimination effect is a determinant. In nonelite universities, however, family background and cultural reproduction mechanisms have significant influence, although individual efforts also factor in the process. In vocational colleges, neither cultural reproduction nor meritocracy is significantly effective. The universalization of higher education has caused divergence in different types of institutions, sorting college students into different competitive fields with different rules. Both the cultural reproduction mechanism and the selective elimination hypothesis can be identified in all kinds of colleges, but their effect varies in relation to institutional types.

Keywords: Educational inequality, Cultural reproduction, Family background, Human capital, Higher education

Introduction: is family background important to academic performance in college?

A central issue in educational research is the effect of family background on individual educational achievement. Research around the world consistently finds that variation in family background contributes to unequal educational opportunities. This line of research has two major foci. The first centers around the effect of family background on access to education, and the second focuses on the effect of family background on school performance (mostly grades). School performance, in turn, affects access to education as well. In the first area, the vast majority of studies have attested to the effect of family background on access to every level of education. This effect, however, varies in different socioeconomic and policy contexts (Raftery and Hout 1993; Lucas 2001; Li 2006, 2010, 2014a, 2014b; Liu 2008; Wu 2009, 2013; Haim and Shavit 2013). In the second area, most studies concentrate on the effect of family background on school performance at

the elementary or middle-school level. They have concluded that the effect is broad and long-lasting (Coleman et al. 1996; Andersen and Hansen 2012; Hanushek et al. 2019). However, less discussion has focused on the effect of family background on performance in college, and the conclusions are less consistent (Hansen and Mastekaasa 2006; Martin 2009). Theoretical debates abound as well. Some scholars, following Bourdieu's cultural reproduction theory, insist that human capital accumulation in college is affected by class differences. These scholars hold that family background is responsible for school performance, giving elite and middle-class students a competitive edge in college (Connor et al. 2004; Hansen and Mastekaasa 2006). Others disagree and instead follow the selective elimination hypothesis. The hypothesis holds that lower-class students who enter college have already passed a harsh selection process, meaning they are outstanding in intelligence and ability. In contrast, students from advantaged families may not be as excellent. Therefore, once these students enter the college campus, the effect of family background is rather weak, and elite or middle-class students no longer enjoy important advantages (Mare 1980; Stolzenberg 1994; Wu 2016; Xu 2017; Li 2018).

Chinese sociology has only recently started discussing this issue. In the last two decades, the rapid expansion of higher education has both reached a larger coverage and intensified competition. Inequality is still an outstanding issue in higher education in China. Both society and academia have been paying consistent attention to this issue and are interested in the entrance opportunity and employment outcomes of college education. Numerous studies have found that family background has a decisive effect on both life stages. As the phrase "dad battle" implies, children of elite families have considerable advantages in access to higher education, the quality of college they attend, employment opportunities, and quality of employment (Wen 2005; Li 2006; Liu 2006; Wu 2013).

Nonetheless, the link between entering college and landing a job—academic experience in college—remains largely overlooked. In this stage, students try to obtain knowledge, ability, and qualification, which would turn into competitiveness in the job market. A series of studies have demonstrated that these factors comprise another type of human capital that is as important as the degree certificate and affects students' employment opportunities, entry-wage level, and which company they can enter (Lai et al. 2012; Yue and Zhang 2014). For example, good grades, leadership experience, and scholarships or other award records can all highlight a student's resume and add to their competitiveness. Needless to say, the college serves as a key institution where students prepare for employment and accumulate human capital. While in college, they are trained in expertise knowledge, practical ability, people skills, and creativity, all of which contribute to their future potential. Therefore, the effect of family background in this life stage is a key measure of educational equality.

Existing research: fragmented findings

In recent years, studies have laid some foundations using the Beijing College Students Panel Survey (BCSPS). Li (2008), for example, finds that family economic capital helps students increase their English grades in non-211 universities but not in 211 universities. He also finds that family cultural capital encourages students' mental health and participation in cultural and artistic activities. Zhu (2018) also concludes that elite students are more likely to take leadership roles and have better English ability. However, elite students often have

lower grades because they are less hardworking than lower-class students. Li (2016) finds a positive effect of family economic and cultural capital on students' access to graduate school. These studies all demonstrate the still prominent role of family background on college campuses. In contrast, Xu (2017) demonstrates that college students from poverty families experience a faster increase in noncognitive abilities (self-effectiveness and self-respect) than students from nonpoverty families, providing evidence that college education weakens the effect of family background. Other studies have been conducted using different data. Gao and colleagues (2011) analyze survey data from 20 colleges in Jiangsu and find that family background significantly affects students' leadership experience. Students from urban, higher-class, high-income families and with highly educated parents are much more likely to become student leaders than those from rural, lower-class, low-income families and those whose parents have less educational attainment. An earlier study based on a 1999 cohort of college students also finds a positive effect of parental educational attainment on students' English performance and leadership experience (Li et al. 2006).

Existing research has painted a complex picture of the relationship between family background, college academic performance, and human capital accumulation. On the one hand, the assessment of academic success in college is more complicated and multidimensional than that in middle school and elementary school. For the latter, the competition aims only at entering the next level of education, making grades the simplified proxy to measure human capital. In college, however, most students aim to enter the labor market, although some plan to go on to graduate school. In this case, the measurement of human capital accumulation cannot be limited to grades but must also include qualities that will affect their future employment potentials, such as leadership experience, Party membership, award records, and English ability. On the other hand, in middle school and elementary school, different types of family capital (cultural, social, and economic) have a combined effect on students' grades, whereas in college, each type of capital may work on human capital accumulation individually and uniquely. The relationship between family background and human capital for college students is, therefore, complicated. Although previous works have discovered such complexity from different perspectives, they have yet to lay out the mechanism by which it operates. Therefore, they have only reached fragmented conclusions and still lack a systematically comprehensive and logically cohesive explanation for the effect of family background on college students' human capital accumulation.

The present paper seeks to integrate the effects that different types of family capital assert on the accumulation of different types of human capital into one analytical framework for systematic examination, thereby developing a clear explanation that extends from theoretical hypotheses to empirical results. Furthermore, most existing studies are based on regional data and cannot reflect the holistic effect of family background and human capital accumulation in college. This paper uses a national-level college sample survey to conduct a more comprehensive and systematic analysis.

Theoretical debate: cultural reproduction or selective elimination?

International research has reached various conclusions regarding the relationship between family background and human capital acquisition during college. These conclusions have given rise to the following theoretical debate: is Bourdieusian cultural reproduction theory applicable to the acquisition of human capital during college?

Bourdieu's theory of cultural reproduction labels educational activity as a form of symbolic violence, emphasizing its role in reproducing inequality. Bourdieu argues that schools construct a culture that benefits only the elite and contributes to social reproduction. Bourdieu points out the resemblance between the culture advocated by higher education and the elite culture, making it much easier for elite children to adapt to the college environment and acquire higher educational attainment than it is for lower-class children. Therefore, students from elite families can outperform in both grades and campus activities and translate their school achievement into social status. Cultural reproduction thus leads to social reproduction (Bourdieu and Passeron 1977, 2002a; Bourdieu 2004). The findings of Bourdieu, Passeron, and other scholars demonstrate how family background affects children's change of obtaining higher education and their college performance. Students from higher-class families perform better in classrooms and are more likely to participate in other cultural activities (Bourdieu and Passeron 2002b; Dumais 2002; Bourdieu 2004; Hansen and Mastekaasa 2006; Roksa and Potter 2011).

The cultural reproduction theory has been challenged. Some scholars chastise it for being ineffective or outdated in studying college competitions. Before college, students are passed through multiple stages of selection, i.e., kindergarten, elementary school, middle school, and high school. Those who have made it into college, even if they come from lower-class families or disadvantaged groups, are outstandingly intelligent and accustomed to the rules of education and campus culture. Family background, therefore, should no longer have an effect (De Graaf et al. 2000). Robert Mare's selective elimination hypothesis is built on this premise. It holds that the higher the level of education is, the weaker the effect of family background is because each round of selection eliminates students from lower-class families. Therefore, in higher education, students tend to have similar family backgrounds (Mare 1980; Stolzenberg 1994). At the same time, lower-class children also get to increase their abilities through the selection process so that those who make it into college are comparable to higher-class children in terms of various abilities. Some studies have even found that at each level of education, lower-class students who pass the selection process are more capable than their higher-class counterparts and that the higher the level of education is, the stronger this selective effect becomes (Mare 1980; Treiman and Yamaguchi 1993). Among college students, some come from lower-class families but have a higher level of ability, as well as those who come from higher-class families but have a lower level of ability. This internal heterogeneity is said to weaken the effect of family background (Xu 2017). Other scholars have noted that as higher education is popularized and democratized, the ecology of college campuses has changed. Elite culture has given way to meritocracy, effectively weakening the influence of family background (Halsey et al. 1980; Goldthorpe 2000).

Does cultural reproduction theory still have explanatory power for human capital acquisition during college? Has selective elimination canceled out the effect of cultural reproduction? Answers to these questions are yet to be found. Empirical research in other countries has noted the weakening or even the disappearance of family background's effect (Mare 1980; Treiman and Yamaguchi 1993; Stolzenberg 1994; De Graaf et al. 2000). Others, however, have shown that family background still matters (Smith and Naylor 2001; Dumais 2002; Hansen and Mastekaasa 2006; Roksa and Potter 2011) not only in terms of cultural capital but also in terms of social and

economic capital. For example, students from low-income families tend to spend more time working part-time, negatively affecting their educational outcomes. Moreover, in societies where class hierarchy is more prominent (e.g., the United Kingdom), family background has a stronger effect than it does in societies with a flatter class hierarchy (e.g., the Nordic countries) (Hansen and Mastekaasa 2006). In Chinese academia, the existing research has not been able to answer the abovementioned questions.

As demonstrated earlier in this paper, conclusions are fragmented, calling for deeper, more systematic analyses. Specifically, while today's higher education has been popularized, the existing research in China and abroad has largely overlooked the variation in competitive ecology in different types of college campuses. In discussing the effect of family background on the college experience, the existing studies often have one of two tendencies. The first is to overemphasize the role of cultural reproduction and overgeneralize its effect at different stages of education to college competition. The second is to highlight only the selective elimination effect and deny the effect of family background altogether. Neither tendency is capable of obtaining a comprehensive explanation for the question at hand. In China, the differentiation of colleges is especially important. The popularization of higher education is rapidly implemented in a short period. However, the level of competition present in regard to college entrance has not been alleviated; rather, it has been even further intensified. The combined effect of these two developmental trends has created significant variation among colleges in terms of student composition, human capital accumulation, and the effectiveness of such accumulation. Therefore, the effect of family background also varies across different types of colleges. The present study attempts to test both the cultural reproduction theory and the selective elimination hypothesis in the context of Chinese universities. It focuses on the comparison between different types of colleges in search of a deeper discussion of educational inequality in China.

Hypotheses The present study engages with the debate between cultural reproduction theory and the selective elimination hypothesis. The first issue to focus on is whether family background still matters in college students' human capital accumulation in today's China. A positive result from the analysis will show that the cultural reproduction mechanism is still at work on college campuses. On the other hand, if family background is less important than personal efforts, this will show that contemporary Chinese universities currently value meritocracy instead of the Bourdieusian "elite culture." This means that the selective elimination hypothesis has more explanatory power for competition within college campuses. In the following two hypotheses, Hypothesis 1.1 tests cultural reproduction theory, while Hypothesis 1.2 tests selective elimination theory.

Hypothesis 1.1 Family background has a significant effect on college students' human capital accumulation.

Hypothesis 1.2 Family background has either no significant effect or only a weak effect on college students' human capital accumulation, while personal effort has a significant effect.

Moreover, according to the research of Bourdieu and others, the mechanism of cultural reproduction, elite culture, and the role of symbolic violence are all specifically illustrated in the competition in elite universities (Bourdieu and Passeron 2002a 2002b). Meanwhile, as formulated by Mare, Treiman, and others, selective elimination is also more likely to occur in elite universities since middle- and lower-class children in elite universities are considered outstanding regarding intellectual ability (Mare 1980; Treiman and Yamaguchi 1993). As such, to determine the major mechanism in contemporary Chinese universities, the key is to test the effect of family background in elite institutions. In China, higher education is divided into two layers: undergraduate institutions and vocational institutions. Within the former, elite universities are commonly considered "the best," while others are considered better than vocational colleges. Students at vocational colleges mostly come from lower-class families in rural areas or small towns, and very few come from elite or urban middle-class families. Therefore, both the cultural reproduction theory and the selective elimination hypothesis are less meaningful in vocational colleges. As such, if the following two hypotheses are supported, cultural reproduction can still be effective in college competition.

Hypothesis 2.1 Family background has a significant effect on students' human capital accumulation in elite universities.

Hypothesis 2.2 Compared to nonelite universities, in elite universities, family background has a more significant effect on students' human capital accumulation. Compared to vocational colleges, in nonelite universities, family background has a more significant effect on students' human capital accumulation.

In contrast to the abovementioned hypotheses, support for the following hypothesis means that selective elimination or meritocracy is the principal driver behind college competition.

Hypothesis 3 Family background has either no significant effect or only a weak effect on students' human capital accumulation in elite universities, while personal effort has a significant effect.

Data, variables, and models

Data

The data used in this paper come from the Panel Survey of Chinese University Students (PSCUS) conducted by the Institute of Sociology, Chinese Academy of Social Sciences in 2017. The survey started in 2013 and is followed annually; thus, students are followed from the first year to graduation and followed after graduation. The survey's sample frame includes all higher-education institutions qualified to issue degrees certified by the Ministry of Education. Sampling is done randomly in multiple stages and layers, using three levels of units, namely, college/university, major, and class. College/

university is the principal sampling unit and is divided into three sampling subframes based on layers (elite universities, nonelite universities, and vocational colleges), major types (comprehensive, science and engineering, and humanities), and regions (Northeast, Midnorth, Northwest, Southwest, Middle, Mideast, and Midsouth). Within each subframe, an effort is made to include universities at each layer to balance the diversity of the principal survey unit and reduce sampling error. Major is the secondary sampling unit. In every college/universityin the sample, eight majors are randomly chosen. Class is the tertiary sampling unit. In every major included in the sample, one class is randomly chosen in each cohort. In the 2017 survey, 17 colleges and universities were included. After deleting the graduates sample and missing values, the final sample in the analysis includes 9208 observations.

Variables

Dependent variables: human capital

The measurement of human capital in this study includes not only grades but also the knowledge, skill, qualification, award, and identity that they obtained during college, which can influence their potential for employment. Four indicators are used to represent human capital in this study: grades, leadership experience, fellowship reception, and political identity. These are the dependent variables used in our models.

Human capital accumulation in college happens in two ways: in class and out of class. In class, students acquire expert knowledge and skills, with grades being the principal indicator. Outside of the classroom, students participate in a variety of campus activities. They are trained in leadership and organizing abilities by assuming leadership roles in student organizations. Fellowships and Party membership are awarded to students with good grades and active participation in activities and therefore comprise a comprehensive reflection of student ability.

Grade is measured by the following question: "How is your current GPA compared to that of peers in the same cohort and major?" Answer options include five layers – "very low," "relatively low," "average," "good (top 25%)," and "outstanding (top 10%)." The options are coded from 1 to 5 in numeric value. Leadership experience is a dummy variable in this analysis, in which "no experience" is coded as 0 and having any experience is coded as 1. Similarly, fellowship reception and Party membership are also dummy variables.

Dependent variables: family background

Family background is measured through cultural capital, economic capital, occupation, and *hukou* type.

Cultural capital is measured by the parental average year of education. Economic capital is measured by monthly household income, separated into nine categories – below 3,000, 3001–5000, 5001–7000, 7001–10,000, 10,001–15,000, 15,001–20,000, 20,001–30,000, 30,001–50,000, and over 50,000, with values coded from 1 to 9. Note that the

categories are not divided into equal parts. This is because the effect of changes in income works differently for low- and high-income families. For lower-income groups, even the slightest change in income would have significant consequences for the family.

Father's occupation is used to reflect the occupational status of the family. Four classes are distinguished: agricultural workers, industrial workers, skill experts, and managerial persons, with values coded from 1 to 4.

The Chinese *hukou* system exacerbates the rural–urban division in socioeconomic development, infrastructure, and educational resources. Therefore, it is an important measure of family background. In this study, *hukou* status is measured as a dummy variable, with rural *hukou* coded as 0 and urban *hukou* coded as 1.

Control variables

This analysis controls for several variables, including student's attitude toward studying, cohort, major, demographics, and college/university type.

Student attitude, or the degree to which a student is hardworking, is a key controlling variable in testing either the cultural reproduction theory or the selective elimination hypothesis. To a certain extent, it is also an auxiliary explanation. When students are similarly hardworking, if family background—especially cultural capital—significantly affects their performance, then cultural reproduction theory is strongly supported. In this study, student attitude is measured by the time they spend studying every day. Moreover, how many years a student has spent in college also significantly determines their human capital accumulation; therefore, cohort is also controlled in the analysis. For student major, the control variable is separated into three categories, namely, natural sciences, social sciences, and humanities. Demographic variables include sex and age. The college/university type variable is categorized into elite universities, nonelite universities, and vocational colleges.[1]

Moreover, grade and leadership experience are both important factors in the evaluation of fellowship and Party membership. As such, when the dependent variables are fellowship and political identity, grade and leadership experience are also controlled for, along with all other control variables (Table 1).

Statistical model

Two types of models are included in the empirical analysis: an ordinal logistic model and a binary logistic model. When the independent variables are ordinal—for example, the grade variable—ordinal logistic regression is used. When the independent variables are binary—for example, leadership experience, fellowship reception, and Party membership—binary logistic regression is used. The analysis includes two parts. In the first part, all college/university types in the sample are included in four logistic models based on the influence of family background on grade, leadership experience, fellowship reception, and Party membership. The second part of the analysis is a comparison between how family background influences grade, leadership experience, fellowship reception, and Party membership differently in different types of college/university.

[1] All 985 universities are considered "elite" institutions. There are two 211 universities in the sample, but they both rank among the lowest in all 211 universities. Therefore, they are grouped into the "nonelite undergraduate universities" category instead of the elite category.

Table 1 Descriptive statistics of variables ($N = 9{,}208$)

Variables	Descriptive statistics	
Grades	Very low	1.94
	Relatively low	8.01
	Average	52.52
	Relatively high	26.60
	Very high	10.93
Leadership experience	Yes	64.87
	No	35.13
Felloship	Received	35.69
	Never received	64.31
Party membership	Yes	6.89
	No	93.11
Family occupational status	Farmers	40.48
	Industrial workers	33.63
	Skilled experts	7.84
	Managerial persons	18.05
Family economic capital	Average	2.71
	Standard deviation	1.88
Family cultural capital	Average	10.16
	Standard deviation	3.70
Hukou status	Rural	59.78
	Urban	40.22
Personal effort on studying	Average	5.61
	Standard deviation	2.88
college type	Vocational college	40.82
	Non-elite universities	31.28
	Elite universities	27.90
Cohort	Freshmen	30.09
	Sophomore	28.73
	Juniuor	28.08
	Senior	13.10
Major	Humanities	15.04
	Social sciences	27.54
	Natual sciences	57.42
Gender	Male	48.22
	Female	51.78
Age	Average	20.79
	Standard deviation	1.38

Analytical results

Effect of family background on the acquisition of human capital in all types of colleges and universities

Grades

Model 1 in Table 2 is the ordinal logistic regression, with "grade" being the dependent variable and college/university type, time devoted to study, cohort, gender, and age being controlled. The results show a significant positive effect of family background on grades. A one-year increase in parental education corresponds to a 4% ($e^{0.040}-1$) increase in the likelihood that the student will obtain higher grades. Family occupational status also has

Table 2 Family background and college students' human capital accumulation

Variables	Grades	Student leadership	Fellowship reception	Party membership
	Model 1	Model 2	Model 3	Model 4
Urban family (Rural family = 0)	− 0.042	− 0.147*	− 0.188**	− 0.058
	(0.055)	(0.060)	(0.065)	(0.119)
Family occupational status (farmers = 0)				
Industrial workers	− 0.053	0.098	− 0.202***	− 0.013
	(0.051)	(0.056)	(0.061)	(0.118)
Skilled experts	0.218*	− 0.053	− 0.020	− 0.313
	(0.091)	(0.099)	(0.105)	(0.201)
Managerial persons	0.209**	0.287**	0.003	− 0.099
	(0.080)	(0.089)	(0.092)	(0.167)
Family economic capital	0.018	0.037*	0. 030	− 0.012
	(0.014)	(0.016)	(0. 016)	(0.030)
Family cultural capital	0.040***	0.026**	0.012	0.047**
	(0. 008)	(0. 009)	(0.010)	(0.018)
Personal efforts	0.099***	0.032***	0.020*	0.031*
	(0.007)	(0.008)	(0.008)	(0.015)
College/university type (vocational school = 0)				
Non-elite universities	− 0.533***	0.277***	0.214***	0.266*
	(0.053)	(0.058)	(0.063)	(0.132)
Elite universities	− 0.732***	0.250***	0.868***	0.579***
	(0.058)	(0.063)	(0.068)	(0.138)
Sample size	9208	9208	9208	9208
pseudo R^2	0.035	0.013	0.114	0.204

(1) Due to limitation of space, control variables, intercept, and constant are not shown. For models 1 and 2, control variables are major, cohort, gender, and age. For models 3 and 4, control variables also include grades and leadership experience. (2) standard deviation in parentheses. (3) $*p < 0.05$, $**p < 0.01$, $***p < 0.001$

a significant effect. Compared to farmer families, children of skilled expert or managerial person families are more likely to have high grades. There is no significant difference between children of industrial worker families and those of farmer families. Family economic capital and *hukou* status have no significant effect, while personal effort does. For every additional hour spent studying, the likelihood of higher grades increases by 10% ($e^{0.099}-1$).

Leadership experience

Model 2 in Table 2 is the binary logistic regression, with "leadership experience" being the dependent variable. As shown, family cultural capital and economic capital both have significant positive correlations with children's leadership experience. Family occupational status also has a significant effect in that children of managerial families are more likely to take leadership roles than children of farmer families. However, there is no significant difference between farmer, worker, and expert families. *Hukou* status also matters for leadership experience; however, in contrast to the existing findings, children from urban families are less likely to become student leaders than children from rural families. Personal effort also has a positive effect.

Fellowship reception

Model 3 in Table 2 shows the model for fellowship reception. Neither the cultural nor economic capital of the student's family has a significant effect on fellowship reception,

while family occupational status does. Children from industrial worker families are disadvantaged compared to children from farmer families. It is because fellowship is not just a form of acknowledgment but also important financial support for rural students, which incentivizes them to strive for it. Personal effort also has a positive effect.

Political identity

Model 4 in Table 2 shows the factors that affect Party membership. The only significant factors are cultural capital and personal efforts; no other factors help obtain Party membership.

Summary of results: cultural reproduction mechanism still at work

To summarize all four models shown in Table 2, when personal effort and other objective factors are considered, family background has a significant effect on the acquisition of human capital. Thus, Hypothesis 1.1 is supported, while Hypothesis 1.2 is rejected. Specifically, family cultural capital has a significant effect on grades, leadership experience, and fellowship reception. Family economic capital has weak effects on some variables. *Hukou* status has negative effects. The urban/rural division is no longer important in competition within college campuses. Existing research has found that the urban/rural division has a long-lasting effect on competition for college entry. However, students from urban families no longer enjoy advantages over students from rural families.

On the other hand, personal efforts also have a significant effect on all four indicators of human capital. As such, cultural reproduction and meritocracy are both at work on contemporary college campuses. It is not enough to have "a good father." Those hard-working *and* from an advantaged family will most likely be winners.

Effect of family background on the acquisition of human capital: variation in different types of college/university

The results reported in Table 2 demonstrate the effect of family background on the human capital accumulation of college students. It should be noted that there is considerable variation across different types of college/university. All four indicators of human capital vary significantly for elite universities, nonelite universities, and vocational colleges. Students are much more likely to obtain Party membership in the former two categories than in vocational colleges. Compared to students in vocational colleges, students in elite universities are 1.78 times ($e^{0.579}$) more likely to become Party members, while students in nonelite universities are 1.31 times ($e^{0.266}$) more likely to do so. Also, compared to students in vocational colleges, nonelite undergraduate students are 1.24 times ($e^{0.214}$) more likely to receive fellowships, while elite-university students are 2.38 times more likely ($e^{0.868}$) to do so. Similarly, elite-university students are 1.28 times ($e^{0.250}$) more likely to take leadership roles, and nonelite undergraduate students are 1.32 times ($e^{0.277}$) more likely to do so than students in vocational colleges. As such, elite universities provide much more resources to students than nonelite universities do, which in turn provide much more resources than vocational colleges do.

The fact that grades are self-reported creates curious results. In general, elite-university students self-report lower grades than nonelite undergraduate students, who in turn self-report lower grades than vocational students. This is because the more privileged

the college/universitys is, the more intense the competition is. In vocational colleges, competition is relatively low, and little variation exists among students. The percentage of vocational students who self-report as being "good" or "average" in terms of grades is much higher than that of nonelite undergraduate students. At the same time, the percentage of vocational students who self-report as "low" and "very low" is much smaller than that of nonelite undergraduate students. Similarly, the percentage of nonelite undergraduate students who self-reported as "good" or "average" in terms of grades is much higher than that of elite-university students. At the same time, the percentage of nonelite undergraduate students who self-report as "low" and "very low" is much smaller than that of 985 students. All three types of college/university have similar proportions of students who self-report as having "outstanding" grades. Overall, vocational students have the highest self-reported grades, while elite-university students have the lowest.

What is demonstrated by these data is that although undergraduate institutions, especially elite universities, are able to provide more resources to their students, campus competition is also more intense in these institutions. In contrast, vocational colleges have fewer resources and little competition. Given the considerable variation in campus ecology across these three college/university types, overall analyses are unlikely to uncover the concrete mechanism of cultural reproduction. To further test cultural reproduction theory and the selective elimination hypothesis, the present study conducts analyses separately for different college/university types. Table 3 shows the same models as those shown in Table 2, but they are distinguished by college/university type.

Elite universities

Table 3 shows little effect of family background in elite universities. The urban/rural distinction, family cultural capital, and family economic capital all have neglectable effects, while family occupational status has some negative effects on fellowship reception. Children of industrial workers and skilled experts are 0.63 ($e^{-0.464}$) and 0.60 ($e^{-0.504}$) times less likely than children of farmer parents to receive fellowships, respectively. Children of managerial parents have only a weak advantage in the leadership experience. Meanwhile, personal effort has a significant positive effect on all four indicators. As such, in elite universities, family background matters little in competition, while meritocracy is the overwhelming rule of the day. Cultural reproduction has almost no effect, whereas the selective elimination hypothesis is strongly supported.

Nonelite universities

Like elite universities, personal study effort has a significant positive effect on all four performance indicators, attesting to the importance of meritocracy. Contrary to elite universities, however, family background factors also influence competition in nonelite universities, especially in regard to grades. Family cultural capital has significant positive effects on grades, leadership experience, and Party membership, while family occupational status has significant positive effects on grades and fellowship reception. Children of skilled expert families are 66% ($e^{0.507}$–1) more likely than children from farmer families to have good grades and are 57% ($e^{0.453}$–1) more likely to receive fellowships. Children of managerial parents are 49% ($e^{0.395}$–1) more likely than children of farmer parents to have good grades. However, family occupational status has little effect on

Table 3 School type, Family background, and human capital accumulation

Variables	Elite universities				Non-elite universities				Vocational colleges			
	Grades	Leadership experience	Fellowship reception	Party membership	Grades	Leadership experience	Fellowship reception	Party membership	Grades	Leadership experience	Fellowship reception	Party membership
Urban family (Rural family = 0)	0.004 (0.103)	0.023 (0.116)	− 0.046 (0.120)	− 0.157 (0.194)	0.029 (0.099)	0.052 (0.112)	0.012 (0.114)	0.101 (0.198)	− 0.224* (0.089)	− 0.384*** (0.092)	− 0.465*** (0.114)	0.038 (0.254)
Family occupational status (farmers = 0)												
Industrial workers	− 0.015 (0.108)	0.023 (0.120)	− 0.464*** (0.126)	− 0.124 (0.202)	0.100 (0.099)	0.140 (0.112)	− 0.100 (0.116)	− 0.013 (0.202)	− 0.061 (0.076)	0.140 (0.080)	− 0.078 (0.094)	0.091 (0.223)
Skilled experts	0.140 (0.151)	− 0.060 (0.171)	− 0.504** (0.177)	− 0.183 (0.293)	0.507*** (0.153)	− 0.249 (0.169)	0.453** (0.175)	− 0.679* (0.336)	− 0.119 (0.212)	0.175 (0.222)	− 0.550 (0.293)	− 0.035 (0.668)
Managerial persons	0.197 (0.140)	0.314* (0.159)	− 0.233 (0.161)	− 0.126 (0.260)	0.395** (0.143)	0.142 (0.162)	0.036 (0.164)	− 0.294 (0.279)	− 0.183 (0.154)	0.341* (0.163)	0.091 (0.184)	0.035 (0.401)
Family economic capital	0.033 (0.026)	0.040 (0.030)	0.033 (0.030)	− 0.024 (0.047)	0.012 (0.024)	− 0.001 (0.028)	0.055* (0.028)	− 0.043 (0.047)	− 0.053* (0.026)	0.049 (0.028)	− 0.019 (0.032)	0.032 (0.071)
Family cultural capital	0.020 (0.015)	0.023 (0.017)	0.001 (0.018)	0.035 (0.028)	0.055*** (0.014)	0.034* (0.016)	− 0.002 (0.016)	0.097** (0.030)	0.026 (0.014)	0.022 (0.014)	0.024 (0.017)	− 0.004 (0.040)
Personal efforts	0.115*** (0.013)	0.031* (0.015)	0.032* (0.015)	0.048* (0.024)	0.112*** (0.012)	0.039** (0.014)	0.030* (0.014)	0.058* (0.025)	0.076*** (0.012)	0.035** (0.013)	− 0.006 (0.015)	− 0.043 (0.036)
Sample size	2569	2569	2569	2569	2880	2880	2880	2880	3759	3759	3759	3759
pseudo R^2	0.028	0.024	0.139	0.229	0.040	0.018	0.091	0.159	0.046	0.013	0.122	0.199

(1) Due to limitation of space, control variables, intercept, and constant are not shown. Control variables are the same as in Table 2. (2) standard deviation in parentheses. (3) *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Party membership. Children from managerial families have no significant advantage over those of farmer parents, and children of skilled expert parents are only 51% ($e^{-0.679}$) as likely to obtain Party membership as children of farmers. This may be attributed to the different career plans of students from different classes. Analysis shows that college students from advantageous classes prefer foreign companies for future employment. Party membership is much more important for employment in the public sector; therefore, students from higher-class families are less incentivized to apply for Party membership. In the entire sample, children of skilled experts are the least likely to apply for Party membership.[2] Furthermore, family economic capital has a weak positive effect on fellowship reception. The urban/rural division has no significant effect, showing that students from urban or rural families differ little in campus competition. Generally, in nonelite universities, human capital accumulation is affected by both family background and meritocratic principles. In other words, controlling for personal effort, family background has a significant effect on human capital accumulation. Cultural reproduction, therefore, is influential.

Vocational colleges

Compared to elite and nonelite universities, personal effort is less important to human capital accumulation in vocational colleges. Although hardworking students are more likely to have high grades and take leadership roles, they are not significantly more likely to receive fellowships or become Party members. Meanwhile, family background has overall weak and mixed effects, some positive and some negative. Cultural capital has no significant effect on students' acquisition of human capital. Economic capital has a weak negative effect on grades, such that the richer the student's family is, the less likely they are to have good grades. Family occupational status positively correlates with leadership experience such that children of managerial families are slightly advantaged, with 1.4 times ($e^{0.341}$) higher likelihood than children of farmer families. *Hukou* has a significant but negative effect. Students from urban families perform poorer in regard to grades, leadership experience, and fellowship reception. In vocational colleges, family background and meritocracy have only a weak influence.

Summary of results: the cultural reproduction mechanism is not at work in elite universities

The comparison across the three college/university types shows how family background works differently in different types of college/university. In elite universities, family background has almost no effect, while meritocratic principles take over. In nonelite universities, family background has significant effects, but personal effort is also important. In vocational colleges, neither family background nor personal effort is important. Some family advantages (such as economic capital and urban *hukou*) even have negative effects. In the end, Hypotheses 2.1 and 2.2 (the cultural reproduction hypotheses) are rejected. Even in elite universities, where cultural reproduction is expected to have the most influence, family background matters little. The idea that the better the university is, the more family background matters is not supported. In contrast, Hypothesis 3 is

[2] Due to the limited available space, the analyses on students' preferred career and on their application for Party membership are not included in this paper.

supported. In elite universities, human capital accumulation is attributed mostly to personal effort. Meritocracy replaces cultural reproduction as the major rule of the game.

Conclusion and discussion

The previously mentioned analyses seem to have yielded contradictory conclusions. The cultural reproduction theory is supported when all types of college/university are analyzed, showing that family background still affects college students' human capital accumulation. Cross-university-type comparison, however, supports the selective elimination hypothesis. Family background has little effect in elite universities, where the cultural reproduction mechanism is expected to be most prominent. Such a contradiction reveals the divergence of universities due to higher education expansion. Because different types of college/university have different student bodies and provide different types of human capital, the competition field and rules vary, and their effect on educational equality also varies. Some equalize the field, while others intensify the inequality.

Elite universities: selective elimination and the "dragon gate" effect

Elite universities in China appear less elitist than their European and American counterparts. During the Cultural Revolution, elitism took a hard blow, and working-class culture invaded college campuses. Many contemporary administrators and faculty members in Chinese universities experienced the Cultural Revolution first-hand, went to college in the early years of the reform and opening-up era, and came from working-class families. Therefore, they are less immersed in or appreciative of the elitist culture. Since the reform and opening-up, college access has been determined by the University Entrance Exam (UEE), which uses only numeric scores as the standard for admission. This means that students who have made it into elite universities are already winners of the system. In the European or American system, students are evaluated not only on standard testing scores but also on recommendation letters, participation in extra-curriculum activities, leadership ability, and artistic or sports activities. In comparison, the Chinese system benefits students with higher intellectual ability who are more hard-working but come from families with less capital. These two elements create two unique characteristics for college universities.

On the one hand, campus culture is more popularist. In the words of Goldthorpe and others, this reflects the democratization of college campuses as a result of higher education expansion (Goldthorpe 2000; Halsey et al. 1980). On the other hand, children of low-income families who enter elite universities are often more intelligent and hardworking than their middle- or high-class classmates. This corresponds to Mare's selective elimination hypothesis (Mare 1980; Treiman and Yamaguchi 1993; De Graaf et al. 2000). These two characteristics, in turn, have two consequences. First, family capital has little effect on acquiring human capital in elite universities. Second, even in universities where family capital is more influential, children of low-income families can also rely on their intelligence and personal effort to break through. Chinese elite universities, therefore, see a "dragon gate" effect. Children of low-income families are small fish trying to swim upstream to reach the ocean. Many are eliminated in the strong tide, but those who make it to the end are the strongest and most resilient. Small fish jump over the dragon gate and are transformed

into dragons; i.e., children of low-income families enter elite universities and secure upward mobility. In subsequent competition, personal ability and effort become much more important, and the disadvantage of family background is overcome.

Nonelite universities: cultural reproduction and "competition of fathers"

Although meritocracy overtakes competition in elite universities, the cultural reproduction mechanism is still effective in human capital accumulation in today's college campuses, as the first part of the analysis shows. The second part of the analysis, however, tells us that cultural reproduction is prominent in nonelite universities but not elite universities. Although the Bourdieusian elitist culture and habitus that dominate European and American college campuses are not so prominent in Chinese universities, there is still some *modus operati* at work with which parents with more cultural and social capital are more familiar. Their children, then, are trained from a young age to adapt to these rules and develop advantages for college life. On the other hand, lower-class students in nonelite universities are less intelligent than those in elite universities but face more difficulty in terms of cultural capital.

The author has also discovered qualitative evidence that the cultural reproduction mechanism is effective in nonelite institutions but is not effective in elite universities. Parents of elite students are often confident in their children's intellectual ability and personal effort and therefore believe their children are able to make decisions and solve problems by and for themselves. Parents of nonelite undergraduate students are less confident in this belief. Therefore, they still try to guide and help their children in study and life in college. Certainly, nonelite universities cannot provide the same "dragon gate" effect that elite universities do, which means that more future uncertainty is expected. If parents—especially those with more cultural capital—can preemptively help with their children's human capital accumulation, their children's future can be brighter. In contrast, students with less family cultural capital do not have parental help and may fall short in the competition. Uncertainty about the future is what gives family background importance.

Another interesting qualitative finding is that parents with a resource advantage tend to think it is harder in elite universities to help their children by "manipulation" than it is in nonelite universities. There seems to be a consensus that competition in elite universities centers on ability, while competition in nonelite institutions can be altered by family resources. The kind of "manipulation" that parents have in mind is mostly social networking through *guanxi* (social capital) or money (economic capital). Those with the most cultural capital are most likely to succeed in such manipulation, as they are more familiar with the university's *modus operati*. As such, the fact that cultural reproduction works only in nonelite universities but not in elite universities reflects some unique characteristics in the Chinese educational system and social culture. It is, notably, different from the elitist culture and symbolic violence that Bourdieu theorized about. Moreover, although the cultural reproduction mechanism has a significant effect in these universities, personal effort also matters greatly. In other words, fathers can help, but ability and hard work are also important.

Vocational colleges: homogeneity in background weakens the cultural reproduction mechanism

Human capital accumulation in vocational colleges is very distinct from that in elite universities and nonelite universities. Neither the cultural reproduction mechanism nor the meritocratic principle is significantly effective in vocational colleges. Family economic capital and urban *hukou* even have negative effects. Students in vocational colleges are seen as the "losers" of the UEE. In the selective elimination process, they are not the "selected" but rather the "eliminated." Concentrated on these campuses are adolescents with lower grades and less distinguished family backgrounds. In the 2017 PSCUS data, 76.5% of vocational students come from farmer families. Only 2.3% of their fathers have a higher educational experience, 4.4% have managerial occupations, and 2.3% are skilled experts. Of these students' fathers, 38.2% are farmers, 15.9% are small business owners, 1.3% are grassroots-level staff members, 12.3% are self-employed, and 9.3% are workers. The homogeneous and general low-class background of vocational students means that they all lack family cultural capital. It is hard to speak of its effect in this case.

Meanwhile, higher education expansion has caused a devaluation of college degrees. This phenomenon disproportionately affects the vocational college degree. Elite university degrees, by comparison, are much less affected. Because of such devaluation, neither students nor parents are strongly incentivized to compete for human capital in college. In particular, for students with relatively better family backgrounds, attending a vocational college is the only choice available when their UEE scores are too low. When students are not incentivized to study hard, and parents do not value the human capital provided by vocational colleges, family resources are not devoted to on-campus competition. However, they are instead reserved for competition in the job market after graduation. Therefore, any advantage present in the family background has no chance to operate in vocational colleges. Some factors even have negative effects.

To summarize, the current state of university education in China is significantly affected by the expansion and popularization of higher education. Based on observations of European and American elite universities, Bourdieu's theory of cultural reproduction is hard-pressed to explain the rule of competition, equalizing effect, or social mobility effect of Chinese universities. Similarly, the selective elimination hypothesis also fails to account for the complicated and multidimensional changes that the popularization of higher education has brought to Chinese colleges. We find traces of both theories in contemporary Chinese college campuses, but each mechanism works differently in different types of college/university. The coexistence of rapid higher education expansion and tough competition in the UEE has created varied orientations in the rule of human capital competition within different types of campuses. In elite universities, meritocracy and the worship of grades provide a fairer competitive environment and upward mobility for children of low-income families. Selective elimination counteracts cultural reproduction. In nonelite universities, the student body is more diverse, and future uncertainty prevails. Family background, therefore, significantly affects the acquisition of human capital. Cultural capital has a prominent effect, while personal effort also matters. In vocational colleges, neither the cultural reproduction mechanism nor the meritocratic principle is significantly effective. Although numerous students from low-income families can obtain their college degrees from vocational colleges, these

degrees are devalued and cannot provide much upward mobility. Today, when higher education is popularized, college campuses serve as a "dragon gate," i.e., they admit only a highly selected group of poor children with outstanding intellectual ability. For the rest of the majority, a college degree is no guarantee for a bright future. Their disadvantaged family background still has a long-lasting effect. In this sense, the breakthrough made by lower-class students in elite universities is in itself but a link in the cultural reproduction process of the entire higher education system. The system as a whole is still culturally reproducing the class structure.

These findings contribute to a deeper and more comprehensive understanding of university variation and divergence in the age of universal higher education, as well as the related consequences for educational equality and social mobility. The present study advances educational research by overcoming the limitations of the existing research, which overly focuses on equality in access to higher education but overlooks the actual process of human capital accumulation. This study, however, is not perfect. The empirical analysis is limited by the survey data, which contain no information on students' overall ability. The measure of meritocracy, therefore, falls short. Theoretically speaking, although this study has tested the cultural reproduction theory and the selective elimination hypothesis and discovered the inadequacy of both in accounting for Chinese college education, it has not proposed an alternative. Further research is needed to formulate an alternative theory unique to the Chinese context.

Abbreviations

211 universities	Key universities funded by "211 Project" of the Chinese Ministry of Education
985 universities	Key universities funded by "985 Project" of the Chinese Ministry of Education
GPA	Grade Point Average
Hukou	Chinese spelling (Pinyin) meaning the household registration system

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Declarations

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References

Andersen, Patrick Lie, and Marianne N. Hansen. 2012. Class and Cultural Capital—The Case of Class Inequality in Educational Performance. *European Sociological Review* 28 (5): 607–621.
Bourdieu, P., and J.C. Passeron. 1977. *Reproduction in Education, Society and Culture*. London and Beverly Hills: Sage.
Bourdieu, Pierre, and Jean-Claude. Passeron. 2002a. *La Reproduction: Éléments pour une théorie du système d'enseignement*. Beijing: Commercial Press.
Bourdieu, Pierre and Jean-Claude Passeron. 2002b. *Les héritiers: les étudiants et la culture*. Trans. Kechao Xing. Beijing: Commercial Press:37–68

Bourdieu, Pierre. 2004. *La noblesse d'etat: Grandes écoles et esprit de corps*. Trans. Yaping Yang. Beijing: Commercial Press :274–291.
Coleman, James S., Ernest Q. Campbell, Carol J. Hobson, James McPartland, Alexander M. Mood, Frederic D. Weinfeld, and Robert L. York. 1966. *Equality of Educational Opportunity*. Washington: US Government Printing Office.
Connor, H., C. Tyers, T. Modood, J. & J. Hillage 2004, "Why the Difference? A Closer Look at Higher Education Minority Ethnic Students and Graduates." DfES Research Report Number RR552:25–36.
De Graaf, N.D., P.M. De Graaf, and G. Kraykamp. 2000. Parental Cultural Capital and Educational Attainment in the Netherlands: A Refinement of the Cultural Capital Perspective. *Sociology of Education* 73 (2): 92–111.
Dumais, Susan A. 2002. Cultural Capital, Gerder, and School Success: The Role of Habitus. *Sociology of Education* 75 (1): 44–68.
Gao, Yao, Zhimin Liu, and Peng Fang. 2011. A Study on the Effect of Family Capital on College Students' School Performance. *Higher Education Exploration* 2011 (1): 137–143.
Goldthorpe, J.H. 1996. Class Analysis and the Reorientation of Class Theory: The Case of Persisting Differentials in Educational Attainment. *The British Journal of Sociology* 47 (3): 481–505.
Haim, E.B., and Y. Shavit. 2013. Expansion and Inequality of Educational Opportunity: A Comparative Study. *Research in Social Stratification & Mobility* 31: 22–31.
Halsey, A.H., A.F. Heath, and J.M. Ridge. 1980. *Origins and Destinations: Family, Class, and Education in Modern Britain*. Oxford: Clarendon.
Hansen, Marianne N., and Arne Mastekaasa. 2006. Social Origins and Academic Performance at University. *European Sociological Review* 22 (3): 277–291.
Hanushek, E. A., P. E. Peterson, L. M. Talpey & L. Woessmann 2019, "The Unwavering SES Achievement Gap: Trends in US Student Performance." National Bureau of Economic Research, Working Paper No. 25648 issued in March 2019:9–20.
Lai, Desheng, Dahu Meng, and Su. Lifeng. 2012. Substitution or Complementation? The Combined Effect Mechanism of Human Capital and Social Capital in College Student Employment. *Peking University Educational Review* 2012 (1): 13–31.
Li, Yu. 2006. Institutional Change and Educational Inequality: Mechanisms in Educational Stratification in Urban China (1966–2003). *Social Sciences in China* 2006 (4): 97–109.
Li, Chunling. 2010. Expansion of Higher Education and Inequality in Opportunity of Education: A Study on Effect of "Kuozhao" Policy on Equalization of Educational Attainment. *Sociological Review* 2010 (3): 82–113.
Li, Chunling. 2014a. The Changing Trend of Educational Inequality in China (1940–2010): Reexamining the urban-rural gap on educational opportunity. *Sociological Review* 2014 (2): 65–89.
Li, Chunling. 2014b. Educational Experience and Inequality of Opportunity among the Post-80sGeneration—With Comments on The Silent Revolution. *Social Sciences in China* 2014 (1): 66–77.
Li, Zhonglu. 2016. Family Background, Academic Performance and Admission to Postgraduate Study in China. *Chinese Journal of Sociology* 36 (3): 86–109.
Li, Ding. 2018. Multi-Process and Outcome Stratification: On the Equality of the Chinese University Schooling Process. *Chinese Journal of Sociology* 38 (3): 79–104.
Li, Fengliang, Longlong Hou, and Dongmao Wen. 2006. Effect of Parental Education on Children's College Study and Social Activity. *Chinese Journal of Sociology* 26 (1): 112–129.
Liu, Jingming. 2006. Expansion of Higher Education in China and Inequality in Entrance Opportunities: 1978–2003. *Chinese Journal of Sociology* 26 (3): 158–179.
Liu, Jingming. 2008. Changing Patterns of Inequality of Educational Opportunity in Basic Education in China. *Social Sciences in China* 2008 (5): 101–116.
Lucas, Samuel R. 2001. Effectively Maintained Inequality: Education Transitions, Track Mobility, and Social Background Effects. *The American Journal of Sociology* 106 (6): 1642–1690.
Mare, Robert D. 1980. Social Backgrounds and School Continuation Decisions. *Journal of American Statistical Association* 75 (370): 295–305.
Martin, Nathan D. 2009. Social Capital, Academic Achievement, and Postgraduation Plans at an Elite, Private University. *Sociological Perspectives* 52 (2): 185–210.
Raftery, Adrian E., and M. Hout. 1993. Maximally Maintained Inequality: Expansion, Reform and Opportunity in Irish Education, 1921–75. *Sociology of Education* 66 (1): 41–62.
Roksa, Josipa, and D. Potter. 2011. Parenting and Academic Achievement: Intergenerational Transmission of Educational Advantage. *Sociology of Education* 84 (4): 299–321.
Smith, J., and R. Naylor. 2001. Determinants of Degree Performance in UK Universities: A Statistical Analysis of the 1993 Student Cohort. *Oxford Bulletin of Economics and Statistics* 63 (1): 29–60.
Stolzenberg, Ross M. 1994. Educational Continuation by College Graduates. *American Journal of Sociology* 99 (4): 1042–1077.
Treiman, Donald J. & K. Yamaguchi 1993, "Trends in Educational Attainment in Japan." In Y. Shavit & H-P. Blossfeld(ed.) *Persistent Inequality: Changing Educational Attainment in Thirteen Coutries.* Boulder, Colorado: Westview Press: 229–250.
Wen, Dongmao. 2005. The Impacts of SES on Higher Education Opportunity and Graduate Employment in China. *Peking University Educational Review* 2005 (4): 58–63.
Wu, Xiaogang. 2009. Economic Transformation, Higher Education Expansion, and Educational Inequality in China, 1990–2000. *Chinese Journal of Sociology* 29 (5): 88–113.
Wu, Yuxiao. 2013. The Keypoint School System, Tracking, and Educational Stratification in China, 1978–2008. *Sociological Review* 2013 (4): 179–202.
Wu, Xiaogang. 2016. Higher Education, Elite Formation and Social Stratification in Contemporary China. *Chinese Journal of Sociology* 36 (3): 1–31.
Xu, Duoduo. 2017. From Poverty to Prosperity: Poverty, Non-Cognitive Abilities, and First-Job Earnings. *Chinese Journal of Sociology* 37 (4): 90–118.

Yue, Changjun, and Kai Zhang. 2014. Factors Influencing the Employment and Starting Salary of College Students: Empirical analysis based on the 2013 National University Sample Survey. *Higher Education Exploration* 2014 (1): 72–82.
Zhu, Bin. 2018. Cultural Reproduction or Cultural Mobility? –-A Study on the Inequality of College Students' Educational Achievements in China. *Sociological Review* 2018 (1): 142–168.
Zhu, Xinzhuo, Junhua Shi, and Zhihui Dong. 2013. Effect of Family Background on Student Leadership Experience. *Journal of Higher Education* 2013 (4): 67–74.

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