The Impact of Higher Education Expansion on Educational Opportunity Equality in China

Chi Zhang

The implementation of the university enrollment expansion policy initiated in 1999 has given participants more access to higher education. Meanwhile, the debate over whether the expansion of tertiary education promoted education equality is still heating. This literature applies the regression discontinuity design to analyze the relationship between education expansion and educational access and attainment with a focus on student's family and demographic backgrounds. Using the data of CGS2011, CGS2013, and CGS2015, the study shows that the expansion policy has reduced the social class difference and urban-rural inequality in the whole tertiary education. However, further analysis reveals that the expansion policy does not reduce inequality in undergraduate education. Moreover, it has intensified the inequality between different classes, which indicates that inequality in high-quality tertiary education has been increased rather than decreased.

Introduction

In the past decade, China has experienced an unprecedented expansion in its higher education, with the proportion of high school graduates admitted to universities jumping from only 34% in 1998 to 85% in 2019, and that makes it the world's largest education system. This wave of radical growth began in dramatic fashion in June 1999, when the China's government decided to expand the higher education system. The Ministry of Education was required to amend its annual recruitment plan for the fall of 1999 to accept more students. The rationales for this sudden move by the Chinese government include: (1) easing the immediate pressure of secondary school graduates on the labor market, (2) meeting the consistently high public demand for higher education in Chinese society (*Wan* 2006), (3) the political will of the government to develop higher education under the pressure of global trends, especially the move of nearby developing countries in this direction (*Xie* 2007), and most importantly, (4) accumulating human capital for future development. The former vice Premier *Lanqing Li* (2003), who was in charge of education when the policy was made, further acknowledged these rationales in his book.

However, after a decade of expansion, the phenomenon we noticed is contrary to the original intention of expansion policy. For instance, the proportion of rural students in higher education institutions was getting lower and lower, especially in key universities. In recent years, only 15% of peasant children have been admitted to first-tier universities such as Tsinghua University, Peking University, etc., which shows the problem of unequal opportunities for higher education in China is still prominent. Therefore, many scholars put forward a set of theories, trying to explain this phenomenon. One promising theory of inequality is Maximally Maintained Inequality (MMI), this hypothesis suggests that higher class would take advantage of their relatively abundant social and economic resource to obtain newly generated educational opportunities if their demand for higher education resource was still not satisfied. Hence education expansion wouldn't actually alleviate the higher education inequality unless higher class's needs had been saturated. Moreover, *Lucas* (2001) further presented the hypothesis of Effectively Maintained Inequality (EMI), arguing that even if the demand of higher class for higher education resources had been met, inequality in elite higher education (e.g. undergraduate and graduate education) would not fade away.

Viewed from the sketchy review of relevant literatures on the education inequality, it is obvious that the issue "*what is the impact of expansion policy on higher education opportunities*" is worthy of consideration. Therefore, this literature attempts to apply a regression discontinuity design to analyze it. The intuition behind this method is that the enrollment rate for higher education should change smoothly with the year in the absence of expansion policy. If there exists a conspicuous jump in admission opportunities around

the year of expansion (1999), it is very likely to deduce that the gap is induced by the exogenous expansion policy. Moreover, viewed from three perspectives: urban and rural areas, gender and class, we could analyze more comprehensively the impact of expansion policy on mass higher education equality, further on elite higher education (undergraduate education) equality among different groups. By doing so, the hypotheses of MMI and EMI could be tested.

I. Data and Methods

A. *Data Sources and Variables Selection*

The data utilized in this study sources from the Chinese General Social Survey (CGSS) in 2011, 2013 and 2015. Because this paper restricts attention to the impact of the expansion policy on the equality of high school graduates in receiving higher education, we selected groups with a high school degree or above and the time to participate in the National College Entrance Examination (NCEE), namely Gaokao, between 1991 and 2006. More than that, I exclude observations whose highest degree was obtained through NCEE for self-taught adults. Since the data does not directly include the year in which the respondent took the NCEE, this paper uses the year in which the highest degree was obtained to infer the target year. There are two dependent variables in this paper, including two dummy variables measuring whether the individual has received higher education and undergraduate education. Noted that undergraduate education is one type of higher education, characterized by higher entry requirements and emphasis more on liberal education rather than application-oriented professional education when compared with general higher education. The independent variables mainly include a treatment variable measuring whether the expansion policy was implemented when the respondent took NCEE and a running variable representing the difference between the year of taking NCEE and that of expansion policy (In other word, re-centering the running variable for better visual inspection). The control variables consist of respondent's demographics, including gender, household registration, nationality, parents' education and family background. It should be noted that the proxy variable of family background is the International Socio-Economic Index of Occupational Status (ISEI) of respondent's parents. The descriptive statistics of the sample that took NCEE between 1991-2006 is laid out in Table 1.

Table 1. Descriptive Statistics of Variables

Variable	Mean	Std. Deviation	Min	Max	Observation
Going to Higher Education Institutions (*Yes = 1, No = 0*)	0.65	0.48	0	1	2,612
Going to Undergraduate Education Institutions (*Yes = 1, No = 0*)	0.35	0.47	0	1	2,612
Gender (*Male = 1, Female = 0*)	0.52	0.50	0	1	2,612
Nationality (*Han Chinese = 1, Others = 0*)	0.94	0.24	0	1	2,612
Household Registration	0.48	0.50	0	1	2,612

(*Rural = 1, Urban = 0*)					
Father Education (*year*)	9.17	3.63	0	18	2,612
Mother Education (*year*)	7.56	4.08	0	18	2,612
Father ISEI	37.77	16.35	16	90	2,612
Mother ISEI	34.59	15.20	16	90	2,612
Family ISEI	38.21	19.07	16	90	2,612

Notes: The table contains sample that took NCEE between 1991-2006, which is sourced from CGSS2011, CGSS2013 and CGSS2015. And this paper selects higher ISEI of the parents as family ISEI.

Furthermore, the measurement of stratum in this paper is mainly based on *Li Qiang*'s analysis of social stratification, and the parent occupation is roughly divided into five strata according to the criteria of ISEI: those with 23 points and below are farmers, with 24-38 points are industrial workers, with 39-53 points are office clerks, with 54-69 points are technicians, and with 70 points and above are managers. In this paper, higher ISEI of the parents would be selected. Since the CGSS questionnaires only provide coded data in International Standard Classification of Occupations (ISCO) format, it must first be converted into ISEI format with a value between 0 and 100 in data processing.

B. *Empirical Method*

In this study, the specific cutoff for the year in which China's government implemented expansion policy allow the usage of a regression discontinuity design first proposed by Thistlethwaite and Campbell in 1960 and widely apply to test the causal effects of policies after the 1990s. In order to deliver consistent estimates when applying the regression discontinuity design, several assumptions must be satisfied. As we know, key identifying assumptions for RDD are continuity of conditional regression and distribution functions (Imbens and Lemieux 2008) which imply that observables and unobservables are expected to stay constant at the threshold. To establish identification in this case, we first need to testify that the assumption that observations are locally random to have their year when taking the NCEE either just below or just above the cutoff. Allowing for taking *year* as assignment variable, general McCrary density test for the detection of manipulation issue might not work at all. This paper instead intends to illustrate why this assumption is likely reasonable with a number of reasons. First, annual CGSS is conducted anonymously and hence respondents would not falsify relevant information for fear of privacy disclosure. Second, respondents' year when taking NCEE are directly inferred from the year when receiving their highest academic qualification and there is no reason for respondents to lie about it since heaping on either side of cutoff won't bring any actual benefits. In other words, there is no existence of "good side" in the assignment variable. Last, even though the information collection is of a high degree of precision, randomness does occur in the measurement of assignment variable. CGSS allows for it and hence arranges two measures of all information and that be taken independently of one another. This actually assures the reliability of relevant data.

In addition to interpretation for no existence of manipulation, I am inclined to offer a balanced test on featured predetermined characteristics on respondents to make sure that control variables are continuous around the threshold and should not be affected by the expansion policy. The key driver demographics I examine include gender, nationality, household registration, parents' education and family background.

Figure 1 and Figure 2 consist of several plots depicting the estimates of the effect of expansion policy implementation on pretreatment characteristics which should stay smooth around the threshold, using the same procedure as the estimation for the treatment (I will show the equation later), only with covariates utilized as the dependent variables.

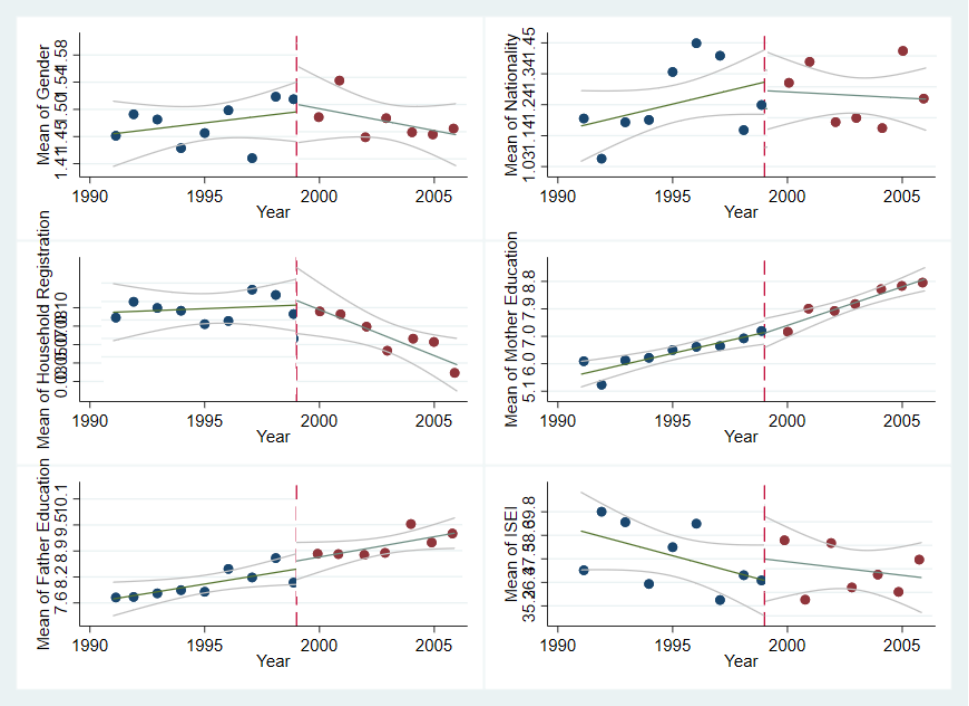

Figure 1 Placebo Test for Predetermined Characteristics with Linear Model

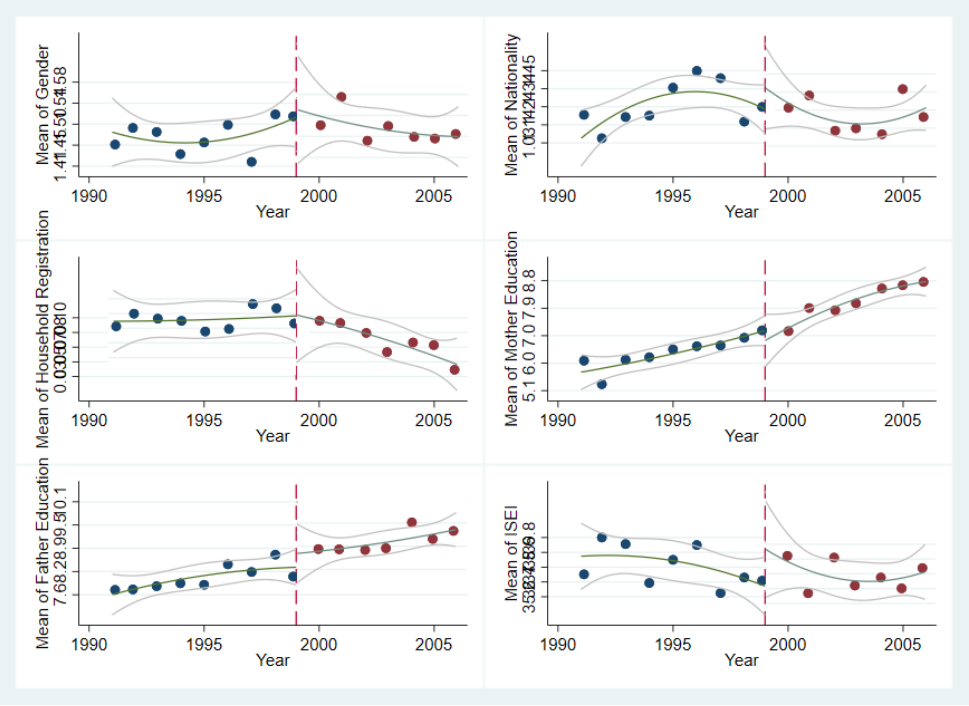

Figure 2 Placebo Test for Predetermined Characteristics with Quadratic Polynomial Model

These two figures report that demographic factors such as gender, nationality, household registration and parental education all seem stable across the cutoff. Although there exists a comparatively conspicuous

jump in the average value of variable ISEI around the cutoff, we still cannot reject the null hypothesis that variable ISEI is continuous around the cutoff since the jump is statistically insignificant due to the confidence interval and there is no valid reasons to interpret what ISEI has to do with the expansion policy. Therefore, the stability of predetermined characteristics is testified and that gives additional credibility that following regression discontinuity design can obtain unbiased estimates.

For the regression model, I utilize both the parametric and non-parametric regression discontinuity designs to estimate the effect of expansion policy on equality of higher education opportunities. In context of parametric strategy, we first select the appropriated functional form for the regression, starting from a simple linear regression and gradually adding higher-order polynomials and interaction terms to it, then use *the F-test approach* to eliminate overly restrictive model specifications and eventually determine model (1) and model (2) as two fitted models, as shown below.

(1) $$y_i = \theta * year_i + \beta * treatment_i + \delta * treatment_i * year_i + \varepsilon_i$$

(2) $$y_i = \alpha * year_i^2 + \theta * year_i + \beta * treatment_i + \mu * treatment_i * year_i^2 + \delta * treatment_i * year_i + \varepsilon_i$$

The corresponding estimated plot on the vertical axis is based on *promotion rate of senior secondary graduates* (namely the ratio of total number of new entrants admitted to higher education institutions to the total number of high school students of the current year), with assignment variable *year when taking NCEE* from 1991 – 2006 on the horizontal axis. As shown in Figure 3, the opportunity for individuals to receive higher education jumped in 1999, indicating that under the current enrollment expansion policy, high school graduates' opportunities for higher education are discontinuous, and that conform to the RDD's application principles.

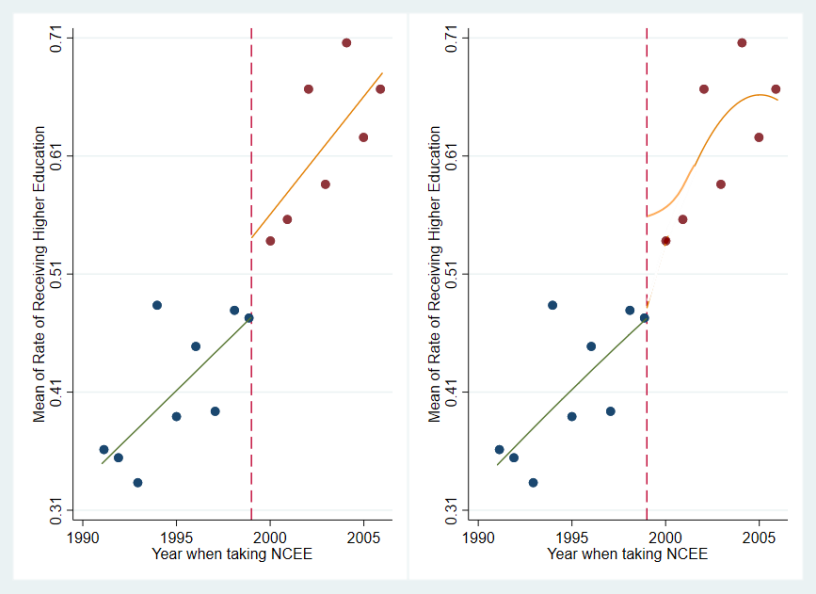

Figure 3 Expansion Policy and Promotion Rate of Senior Secondary School Graduates

Notes: Points in left plot represent the average, with fitted values based on linear models in solid lines, while those in right plot represent the average, with fitted values based on quadratic polynomial model in solid line. The vertical dashed line represents the cutoff at 1999.

II. Empirical results and analysis

A. *The impact of the expansion policy on equality of higher education opportunities*

In order to further illustrate the specific situation of receiving higher education after classification, I make the Table 2 for demonstration. There exists obvious jump on the opportunities of receiving higher education at the threshold year, no matter in total sample or sub-sample. For example, the probability of high school graduates receiving higher education from 1996 to 1998 in the total sample remained at 0.53 - 0.58, and it rose to 0.69 in 1999, and it was basically stable at 0.73 - 0.77 in 2000-2002, this provides more basis for the usage of regression discontinuity design. Moreover, Table 2 reports the statistical description for the time period from 1991 to 1998, namely before the expansion of college enrollment. Under this sub-sample, I also do the statistical test for observations from urban and rural areas, male and female and those with different family background respectively. The results indicate that there are significant differences between urban and rural individuals in higher education opportunities. Individuals whose parents are in professions other than farmer have higher opportunities for higher education than those whose parents are, demonstrating that inequality for receiving higher education do exist in accordance to rural-urban divide and social stratification. Noted that there is no discernible difference existing in sexuality.

Table 2. Promotion Rate of Senior Secondary School Graduates under Different Samples

	1991-2006	1991-1998	Left Side of Cutoff			Cutoff	Right Side of Cutoff		
			1996	1997	1998	1999	2000	2001	2002
Total Sample	0.65	0.52	0.58	0.53	0.58	0.69	0.73	0.74	0.77
By Residence									
Urban	0.72	0.60***	0.64	0.62	0.67	0.73	0.73	0.85	0.76
Rural	0.57	0.44***	0.51	0.45	0.45	0.59	0.73	0.63	0.76
By Gender									
Male	0.66	0.53	0.59	0.55	0.59	0.69	0.71	0.67	0.77
Female	0.66	0.52	0.58	0.52	0.56	0.68	0.75	0.80	0.77
By Family Background									
Manager	0.85	0.76***	0.80	0.75	0.80	0.88	0.88	1.00	1.00
Technician	0.79	0.66***	0.74	0.62	0.65	0.81	0.85	0.88	0.92
Clerk	0.75	0.59***	0.50	0.59	0.68	0.83	0.89	0.96	0.93
Worker	0.63	0.48***	0.53	0.58	0.59	0.76	0.76	0.80	0.75
Peasant	0.52	0.41***	0.53	0.37	0.42	0.64	0.50	0.53	0.62

Notes: 1. *** represents significant at 1% level; 2. Only doing in-sample test for sample in 1991-1998; 3. When classified by family backgrounds, the significance of the promotion rate of other classes is compared with that of the peasantry.

Table 3. The Parameter Estimation Results of Enrollment Expansion Policy on Promotion Rate of High School Graduates

	1991-2006		1993-2004		1996-2001	
	a	b	a	b	a	b
Total Sample	0.1817***	0.01651***	0.1752***	0.1611***	0.2468***	0.2232***
	(0.0497)	(0.0501)	(0.0578)	(0.0579)	(0.0863)	(0.0762)
By Residence						
Urban	0.0670	0.0722	0.0714	0.0787	0.1866	0.1879
	(0.0677)	(0.0654)	(0.0795)	(0.0770)	(0.1804)	(0.1767)
Rural	0.2260***	0.1996***	0.1935**	0.1771***	0.3269***	0.3168***
	(0.0726)	(0.0719)	(0.0835)	(0.0820)	(0.1236)	(0.1212)
By Gender						
Male	0.1517**	0.1194*	0.1639**	0.1281**	0.2525**	0.2115*
	(0.0683)	(0.0682)	(0.0790)	(0.0617)	(0.1174)	(0.1204)
Female	0.2183***	0.2171***	0.1875**	0.2064**	0.2457*	0.2633**
	(0.0728)	(0.0727)	(0.0851)	(0.0844)	(0.1288)	(0.1266)
By Family Background						
Manager	0.1369	0.0661	0.1485	0.1182	0.2864	0.2975
	(0.2051)	(0.2134)	(0.2345)	(0.2326)	(0.4335)	(0.4411)
Technician	0.2036*	0.1724	0.2892*	0.3224	0.3374*	0.3454
	(0.1083)	(0.1159)	(0.1714)	(0.2814)	(0.2008)	(0.2131)
Clerk	0.2958***	0.2574**	0.2033*	0.2299***	0.1959	0.2008
	(0.0988)	(0.1008)	(0.1063)	(0.1100)	(0.1980)	(0.2109)
Worker	0.1438**	0.1364*	0.1819**	0.1730**	0.2579**	0.2117*
	(0.0715)	(0.0738)	(0.0833)	(0.0859)	(0.1223)	(0.1218)
Peasant	0.2156**	0.1850**	0.2723**	0.2689**	0.3537***	0.3749***
	(0.0902)	(0.0931)	(0.1050)	(0.1097)	(0.1309)	(0.1369)

Notes: Column *a* contains estimates using linear mode, and column *b* includes estimates derived from quadratic polynomial model. Control variables include indicators for nationality, parental education, household registration, gender, and family background. Due to space limitations, only regression coefficients for the variable *expansion policy* are listed. Standard errors are in parentheses.

*** Significant at the 1 percent level, ** Significant at the 5 percent level, * Significant at the 10 percent level

Table 3 reports the estimated effect of implementing the expansion policy for high school graduates deriving from several sub-samples. The analysis mainly includes the following aspects: First, using the total sample to analyze the impact of the expansion policy; Second, classifying the sample and compare the impact of the expansion policy on individuals with urban-rural divide, gender difference, or class distinction; And finally, selecting three windows (1991-2006, 1993-2004, 1996-2001) to verify the robustness of the impact of the expansion policy with controls for gender, nationality, household registration, parents' education and family background. The study indicates that: (1) In each window, the impact of expansion policy on the total sample is positive and significant. The expansion policy increases the individual's access

to higher education by 16 to 25 percentages; (2) There is no discernable effect on the acquisition of higher education by individuals living in urban areas, while it does increase the chance of rural individuals entering the college or university by 17 to 33 percentages, which means that the expansion policy bridge the gap between urban and rural areas; (3) There is no conspicuous difference existing in sexuality after the implementation of expansion policy. The estimates of coefficient for male are between 0.12 and 0.26, while those for female are between 0.18 and 0.27, both of which are statistically significant at the level of 10%; (4) Expansion policy has no significant impact on respondents either of whose parents is the manager, but for respondents from other classes positive influence does exist, of which the greatest impact is on the children of farmers. The regression coefficients of the children of technicians range from 0.20 to 0.34, those of the children of employees range from 0.19 to 0.30, those of the children of industrial workers range from 0.13 to 0.26, and those of the children of farmers range from 0. 18-0.38 and they are all positively significant, which shows that the enrollment expansion policy has weakened the inequality among the strata, especially that between peasantry and management.

In summary, the expansion of education has alleviated the higher education inequality between urban and rural areas and between classes, and it also proves that the MMI hypothesis is established. It is indeed that higher education resource for higher class are almost saturated (for example, the rate of respondents from management class receiving higher education has reached as high as 0.8), the higher education resources will extend to the lower classes, prompting the decline of inequality in education. In the meantime, this paper also uses a non-parametric estimation method for analysis, and the results obtained are close to the results deriving from the parameter method in 1996-2001 sample window, further indicating that the model estimation is reliable. Limited to space, non-parametric estimation results are not listed here.

B. *The impact of expansion policy on equality of undergraduate education opportunities*

Although the above research results indicate that expansion policy reduces inequality in distribution of higher education resource, inequality is very likely to persist in undergraduate education which is of higher value than mass higher education according to the EMI assumption. In order to verify it, this paper applies the same estimated model to analyze the impact of the enrollment expansion policy on rate of high school graduates receiving undergraduate education, namely the ratio of total number of new entrants admitted to education institutions which can offer undergraduate education to the total number of graduates of regular high school. The estimation results in Table 4 reports that: (1) In each sample window, the impact of the expansion policy on the undergraduate education in total sample is positive, but the estimate is not significant. This might be due to the fact that the expansion of undergraduate enrollment is modest and appears growing slowly. The undergraduate admission rate has remained at around 20% from 1996 to 1998, and increased to 27.78% after the expansion of enrollment in 1999; (2) The regression results of the sub-sample from urban areas are all steadily insignificant, and those taken from rural areas are as well insignificant except results deriving from the 1993-2004 sample window, indicating that enrollment expansion makes no difference to both urban and rural graduates; (3) The effect of enrollment expansion on men is not significant, while it has truly promoted female's access to undergraduate education with an increase of 20 percentages when the range of sample window is relatively large. However, when the sample window was narrowed to 1996-2001, the estimate of the female sample also became insignificant, which might indicate that the expansion of enrollment policy does not have an impact on equality of undergraduate education opportunities in sexuality in the short. However, the gap between genders might be gradually narrowing in the long run; (4) The impact of expansion policy on majority of classes is not significant. As the range of sample window shrinks gradually, only the regression coefficients of the children of managers and technicians began to become significant. Taking the results of the 1996-2001 sample window as an example, the estimated results from the children of managers range from 0.58 to 0.66 and those from the

children of technicians range from 0.45 to 0.50, and rest of them are not significant, indicating that the enrollment expansion policy has enlarged the inequality of undergraduate education opportunities between classes. At the same time, the non-parametric estimation method also obtained results consistent with Table 4. In summary, the empirical results confirm the EMI hypothesis that the undergraduate education did first meet the needs of the higher classes (managers and technicians) at the initial stage of enrollment expansion.

Table 4. The Parameter Estimation Results of Enrollment Expansion Policy on Rate of High School Graduates Receiving Undergraduate Education

	1991-2006		**1993-2004**		**1996-2001**	
	a	b	a	b	a	b
Total Sample	0.0491	0.0766	0.0671	0.0744	0.1285	0.1563
	(0.0528)	(0.0522)	(0.0834)	(0.0825)	(0.1113)	(0.1113)
By Residence						
Urban	0.0459	0.0509	0.0515	0.0606	0.0732	0.0719
	(0.0780)	(0.0459)	(0.1237)	(0.1240)	(0.1171)	(0.1182)
Rural	0.0560	0.0734	0.1459*	0.1603**	0.2455	0.2079
	(0.0719)	(0.0720)	(0.0791)	(0.0794)	(0.1899)	(0.1900)
By Gender						
Male	0.0488	0.0385	0.0313	0.0522	0.1971	0.1914
	(0.0938)	(0.1154)	(0.0802)	(0.0823)	(0.1811)	(0.1838)
Female	0.1971**	0.1910***	0.2470***	0.2128**	0.1013	0.1162
	(0.0780)	(0.0728)	(0.0919)	(0.0883)	(0.1304)	(0.1314)
By Family Background						
Manager	0.3340	0.4224	0.6875*	0.6781*	0.6618*	0.5862*
	(0.2134)	(0.3679)	(0.4000)	(0.3794)	(0.3502)	(0.3257)
Technician	0.0543	0.0834	0.0423	0.0582	0.4472*	0.4970*
	(0.2220)	(0.2266)	(0.2579)	(0.2621)	(0.2628)	(0.2719)
Clerk	0.0447	0.0974	0.0842	0.0800	0.2368	0.2647
	(0.1249)	(0.1226)	(0.1429)	(0.1395)	(0.2065)	(0.2075)
Worker	0.0509	0.0601	0.1561	0.1629	0.1128	0.1231
	(0.1026)	(0.1007)	(0.1149)	(0.1132)	(0.1803)	(0.1745)
Peasant	0.0400	0.0666	0.0848	0.1088	0.1890	0.1732
	(0.0819)	(0.0803)	(0.0989)	(0.9063)	(0.1382)	(0.1357)

Notes: Column *a* contains estimates using linear mode, and column *b* includes estimates derived from quadratic polynomial model. Control variables include indicators for nationality, parental education, household registration, gender, and family background. Due to space limitations, only regression coefficients for the variable *expansion policy* are listed. Standard errors are in parentheses.

*** Significant at the 1 percent level, ** Significant at the 5 percent level, * Significant at the 10 percent level

III. Conclusion

This paper offers evidence concerning the effectiveness of enrollment expansion policy in colleges and universities in mitigating the inequality of higher education opportunities among high school graduates with urban-rural divide or from different strata. The estimates identified by parametric and non-parametric methods suggest that after the implementation of the enrollment expansion policy, the urban individual's access to higher education did not significantly increase, while the rural individual increased by about 20 percentages; The growth rate of male and female receiving higher education was about the same; The higher education opportunities for children of managers and technicians stayed steady over time, while, importantly, that opportunities for children from other classes increased by more than 20 percentages, especially the opportunities for the children from peasantry increased the most. However, further investigation finds evidence that the expansion of enrollment policies aggravated the inequality of undergraduate education opportunities among high school graduates from different classes, while it had no obvious effect on the equality of undergraduate education when only allowing for urban-rural divide or gender difference. The estimates indicate that implementing of the enrollment expansion policy, the children of managers and technicians have significantly increased access to undergraduate education, while the education opportunities for children of other classes have not changed significantly.

All these results demonstrate that China's higher education has entered a phase of popularization, and hence education opportunities have begun to extend to the lower classes, especially people living in rural areas. However, the undergraduate education which is of higher payback than mass higher education did not meet the needs of the upper class. Instead, the expansion policy led to more uneven distribution of undergraduate education resource among classes (inequality in undergraduate education has increased). Therefore, to completely solve the problem of inequality in education, we cannot simply rely on the policy of expanding enrollment, but also need some other auxiliary measures, such as more investment in basic education, improvement on scholarship system and implementation of employment security measure, etc.

REFERENCE

Brown, R. 2014. "The Real Crisis in Higher Education." Higher Education Review 46 (3): 4-25.

Chapleo, C. 2013. "The Effect of Fees on Higher Education Marketing in the UK: A Research Report." Bournemouth University: Communications Management.

Li Qiang. 2011. "Ten Lectures on Social Stratification (Second Edition)." Social Sciences Academic Press (CHINA) 331-339

Liu Jian. 2011. "China's Higher Educationn Expansion and the Task of Economic Revitalization." High Education (2011) 62: 213-229

Li Z, Zhong H. 2017 "The Impact of Higher Education Expansion on Intergenerational Mobility" Economics of Transition 25(4): 575-591

Marginson, S. 2004. "Competition and Markets in Higher Education: A 'Glonacal' Analysis." Policy Futures in Education 2 (2): 175–244.

Marginson, S. 2016. "The Worldwide Trend to High Participation Higher Education: Dynamics of Social Stratification in Inclusive Systems." Higher Education 72 (4): 413–434.

Michael, H. 2006. “Maximally Maintained Inequality and Essentially Maintained Inequality: Crossnational Comparisons.” Sociological Theory and Methods 02: 237-252

Samuel R. 2017. “Effectively Maintained Inequality in Education: An Introduction.” American Behavioral Scientist 61(1) 3-7

Winston, G. C. 1999. “Subsidies, Hierarchy and Peers: The Awkward Economics of Higher Education.” Journal of Economic Perspectives, 13 (1): 13–36.