An Analysis of the Equal Opportunity of Graduate Students in China's First-class Universities Based on the Enrollment Policy

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Abstract
Based on the theory of social justice in New Ethics and Rawls's theory of justice, this paper discussed the connotation of equal opportunity for postgraduate entrance in china. Taking China's 42 first-class universities as an example, the practice level of equal opportunity was evaluated in postgraduate entrance, from two dimensions, including academic degree postgraduate and professional degree postgraduate, through constructed the opportunity inequality index. Based on the two kinds of causes and three concrete manifestations of unequal opportunities, the quantitative analysis is carried out through the introduction of the unequal contribution degree. In the end, some suggestions are put forward to promote the equal opportunity of postgraduate entrance, such as "reducing discriminatory conditions of applicants, opening enrollment requirements", "increasing the number of univesities that have the candidates who exempted from unified-examination, and setting up reasonable enrollment plan of this type candidates".
Keywords: postgraduate enrollment policy, equal opportunity, first-class university
DOI: 10.7176/PPAR/9-3-04
Publication date:March 31st 2019

1. Introduction

According to the source, opportunities can be divided into opportunities provided by society and non-social opportunities, social opportunities consist of basic rights opportunities and non-basic rights opportunities, non-social opportunities include opportunities provided by nature and unnatural opportunities (Wang Haiming, 2001). Principle of opportunity holding, (ⅰ) non-basic rights opportunities provided by the society belongs to the public right, which are basic human rights and follow the principle of complete equality (Wang Haiming,2001), and (ⅱ) non-social opportunities are individual rights, which followed the principle of equal liberty and the principle of compensation(Rawls, 1999).

Equality is the sameness between people in terms of gaining benefits (Wang Haiming, 2001). Equality can be divided into natural equality and man-made equality, natural equality has nothing to do with morality; the essence of man-made equality is equality of rights, and it includes the equality of basic rights and the equality of non-basic rights. The principle of equality, (ⅰ) natural equality does not belong to the category of rights, and it follows the principle of complete equality, and (ⅱ) man-made equality includes the principle of complete equality of basic rights, the principle of equal proportion of non-basic rights and the principle of compensation (Wang Haiming, 2001).

Equal opportunity is essentially equality of rights, its principle is a system of principle, which is composed of the principle of opportunity holding and the principle of equality, including the principle of two levels, (ⅰ) basic principle, such as the principle of opportunity holding and the principle of equality, (ⅱ) the principle of implementation of the basic principles, the basic principles have different priorities, the "lexical sequence" is the principle of complete equality, the principle of equal liberty, the principle of proportionality and the principle of compensation, the latter principle can be satisfied only if the former principle is satisfied (Wang Haiming, 2001; Rawls, 2001). The practice of equal opportunity is inconsistent with its principle system, which causes inequality of opportunity.

2. Theoretical basis

2.1 The definition of equal opportunities for postgraduate entrance
Postgraduate education is an important part of the education system, and it is still provided by the society in China. Therefore, postgraduate education opportunities fall into the category of basic rights, and its holding is based on the principle of complete equality. Because of the human diversity, which involves both natural and man-made equality, equal opportunity of postgraduate education is natural equality and man-made equality in opportunity provided by the society (Sen A, 2016), the principle is as follows, the principle of complete equality of value order; the principle of proportionality, and the principle of compensation.

Therefore, this article defines the equal opportunity of postgraduate entrance as follows: all the favorable

conditions provided by society, such as the enrollment plan and resource allocation for postgraduate enrollment, should first of all be completely opened up to all candidates who meet the requirements of the state regulations, then allocate resources proportionately, and finally, the disadvantaged people should be given some compensation because superior people make more use of public resources for education. Just as Rawls' two principles of justice: first, each person is to have an equal right to the most extensive scheme of equal basic liberties compatible with a similar scheme of liberties for others. Second, social and economic inequalities are to be arranged so that they are both (a) reasonably expected to be to everyone's advantage, and (b) attached to positions and offices open to all (Rawls, 1999; Rawls, 2001).

2.2 The evaluation dimension of equal opportunities for postgraduate entrance
The postgraduate are divided into academic degree and professional degree according to degree type in China.Therefore, this paper evaluates the equal opportunity of postgraduate in China from the two dimensions of degree type, postgraduate enrollment for academic degree and professional degree.

3. Methodology
3.1 Research design
Above the equal opportunity of entrance is a broad definition, due to the availability of data in practical research, especially pointed out here below the focus and limitations of the practical research on equal opportunity. It mainly focuses on the unequal opportunity caused by the violation of the principle of complete equality, that is, the lack of opportunities. This article also does not study the inequalities caused by the principle of equal proportionality and the principle of compensation.

The enrollment institutions should publish the general regulation of enrollment, including the enrollment catalogue, the specific plan of enrollment and so on (MOE 2017). In addition, all disciplines must set aside a certain percentage of enrollment plan for recruiting candidates for the national unified examination (MOE 2017; MOE 2013).

According to the above policy requirements and the actual situation of enrollment institutions, enrollment disciplines can be divided into three categories (six sub-categories), (ⅰ)completely open to all candidates, enrollment information completely open, this type of enrollment discipline is represented by "N_1",(ⅱ) completely open to all candidates, but enrollment information is not completely open, including the enrollment plan of specific discipline is not open, the enrollment plan of candidates exempt from unified-examination is not open, these two disciplines are represented respectively by N_2 and N_3, and(ⅲ) not fully open to all candidates, enrollment institutions to add other conditions and requirements for admission, that is, enrollment is only open to the those candidates, including the candidates who exempted from unified-examination(represented in N_4), the candidates are required to have a bachelor's degree(represented in N_5); those candidates who is equivalent students, college to undergraduate, graduates from independent colleges and private colleges, are not allowed to apply for a postgraduate examination, this type of enrollment discipline is represented by "N_6". According to the above definition of equal opportunity, if the general regulation of enrollment is not completely open to all the candidates who meet the national requirements, it will result in unequal opportunities. The latter three types of discipline are the concrete manifestation of the unequal opportunity, the level of inequality is set out as follows.

3.2 Research approach
Measurement of unequal opportunity:
(ⅰ) the statistical standard of the six category of discipline(Babbie E R, 2007),

$$U = \bigcup_{i=1}^{6} N_i \quad \emptyset = N_i \cap N_j \tag{1}$$

(i, j=1, 2, 3, 4, 5, 6; i≠j),statistical priority,$N_1 \cup [(N_4 \cup N_5 \cup N_6) > N_2 > N_3]$.
(ⅱ) Opportunity Inequality Index(Sen A, 2016; Sen A, 1976; Gini C, 1912),

$$O = H \cdot [I + (1 - I) \cdot G]$$

$$H = q/n$$

$$q = \sum_{i=4}^{3} n_i$$

$$n = \sum_{i=1}^{6} n_i$$

$$I = \sum_{i=4}^{3} (Z - Y_i) \cdot n_i / Zq$$

$$G = \sum_{i=1}^{6} X_i \cdot W_i + 2 \sum_{i=1}^{6} X_i \cdot (1 - V_i) - 1$$

$$X_i = n_i / n$$

$$W_i = Y_i \cdot n_i / \sum_{i=1}^{6} Y_i \cdot n_i$$

$$V_i = \sum W_i \tag{2}$$

H represents the ratio of unequal discipline,ni represents the number of disciplines i; I is the equal gap ratio,Y represents the equal value of unequal disciplines, Z is equal line, G is the Gini coefficient for all disciplines,Xi represents the proportion of discipline i,Wi represents the proportion of equal value of the discipline i,Vi is the cumulative proportion of equal value of discipline i.

(ⅲ) the equal value of the enrolment discipline, it is assumed that the scope of the equal value for discipline is [0, 1], 0 represent complete inequality, 1 represent complete equality, 0.5 is the unequal line, therefore, Y1=Y2=Y3=1(Babbie E R, 2007); the causes of inequality can be divided into biases and discrimination, bias refers to the fact that the enrollment plan is only open to advantage candidate and leads to a lack of opportunities for other candidates, discrimination means that some candidates have been deprived of the opportunity for examination, according to social origin(Nagel T, 1995), therefore, the ratio of the degree of inequality among Y4, Y5 and Y6 is 0.5: 0.5: 1, the equal value is 0.25,0.25,0 respectively(Babbie E R, 2007).

(ⅳ) The range of opportunity inequality index, 0 means that the distribution of opportunities is completely equal and 1 means complete inequality.

Measurement of the degree of unequal contribution for enrollment dicipiline,

$$C_i = (Z - Y_i) \cdot n_i / \sum_{i=4}^{3} (Z - Y_i) \cdot n_i \tag{3}$$

the degree of inequality of dicipline i accounts for the proportion of all disciplines.

3.3 Samples

The sample is forty-two building first-class universities in China, the data are from the postgraduate enrolment documents of the universities in 2018. The research objects includes the candidates who exempted from unified-examination, and the national examination, not including military graduate students, special programs(the military plan, minority plan, tibet plan), individual enrollment examination, foreign and Hong Kong and Macao candidates.

According to the research method above, the opportunity inequality index of entance in 42 universities is like table 1, from the two dimensions of degree type, postgraduate enrollment for academic degree and professional degree.

Table 1. Opportunity Inequality Index of 42 Universitis in Two Dimension

University	academic degree	professional degree	University	academic degree	professional degree
1	0.111	0.033	21	0.248	0.272
2	0.011	0.020	22	0.034	0.175
3	0.013	0	23	0.030	0.065
4	0.014	0	24	1.000	0.830
5	0	0	25	0	0
6	0.053	0.017	26	0.391	0.429
7	0.044	0	27	1.000	0.971
8	0.089	0.045	28	1.000	1.000
9	0	0	29	0.005	0.012
10	0	0	30	0.037	0.038
11	0.008	0	31	0	0.036
12	0.847	0.892	32	0	0
13	0.004	0	33	0	0
14	0.076	0.031	34	0	0
15	1.000	0.978	35	0.019	0
16	0.154	0.024	36	0	0
17	0.004	0	37	0	0
18	0.102	0.262	38	0.212	0.331
19	0.351	0.348	39	0	0.012
20	0.020	0.028	40	0.538	0.375
21	0.248	0.272	41	0	0
22	0.034	0.175	42	0	0

Description: (ⅰ)the order of 42 universities is based on the list of first-class universities published by the Ministry of Education, and(ⅱ) "-" indicates that this dimension does not enroll students.

4. Results

The total number of graduate enrollment disciplines in forty-two universities is 8541, with 2116 unequal disciplines, and 0.220 of the opportunity inequality index based on the dimension of degree type. It can be seen that, on the whole, the equal degree of entrance opportunities for postgraduate in 42 universities is relatively high. By analyzing the opportunity inequality index of forty-two universities (Table 1), it was found that eleven universities (accounting for 26.19% of the total number of universities) were completely equal in enrollment, and one (2.38%) was completely unequal. The opportunity inequality index is divided into five intervals, [0,0.2), [0.2,0.3), [0.3,0.4), [0.4,0.5), [0.5,1], they represent very equal, relatively equal, relatively reasonable, relatively unequal, and very unequal(World Bank estimate, 2015), the number and proportion of universities in each intervals shown in Figure 1. This shows that most universities have a very high level of equal opportunity in postgraduate entrance, but there are still a considerable proportion of universities whose is very unequal.
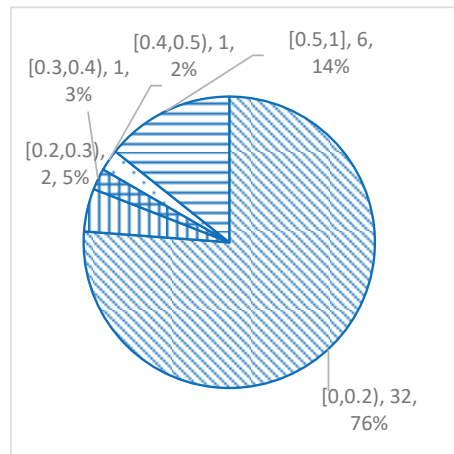
Figure 1. The Number and Proportion of Universities in Intervals

The proportion of unequal dicipline in academic degree is 23.49%, and the opportunity inequality index is 0.208, professional degree corresponding to 28.01%, 0.252. There are 13 (accounting for 30.95%) completely equal universities for postgraduate entrance in academic degrees, and four completely unequal universities, accounting for 9.52%. In the professional degree, there are 18 (42.86%) and 1 (2.38%). According to the interval analysis of opportunity inequality index, both academic and professional degree show a generally consistent distribution (about 75% of universities have very high equality and 10% to 15% of universities are highly unequal). Hence, professional degree are more unequal than academic degree, but academic degree are more unequal in terms of the number of universities that are are completely equal and completely unequal, and the inequality in most universities is mainly caused by academic degree.

Attribution of unequal opportunity: The unequal contribution of bias is 16.65% in postgraduate enrollment, at the university level, there are 18 unequal universities what caused completely by the bias; the corresponding data of discrimination is 83.35% and 5(Figure 2). It can be seen that, on the whole, the inequality of 42 universities is mainly caused by discrimination, but at the university level, the influence of bias is more common.
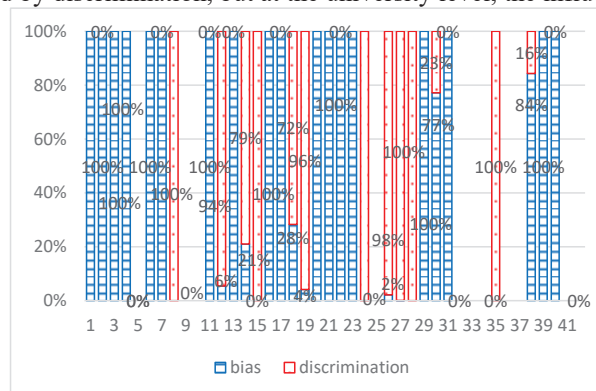

Figure 2. Unequal Contribution Eegree of Bias and Discrimination

The unequal contribution degree of bias is 17.20% in academic degrees, discrimination's is 82.80%, the corresponding data of professional degree is 15.50% and 84.50%; there are 16 equal universities what caused by the bias in academic degrees, discrimination's is 7, professional degree's is 13 and 4. The unequal attribution of academic and professional degrees is consistent with the general observation that discrimination is the main reason for inequality of opportunity and that bias has a more widespread impact on inequality in universities.

The manifestation of unequal opportunities: the contribution of N_4(enrollment plan is only open to candidates who exempted from unified-examination), N_5 (candidates are required to have a bachelor's degree) and N_6 (the failure to accept those candidates, including equivalent students, college to undergraduate, and graduates from independent colleges or private colleges)were 6.15%, 10.50% and 83.35% respectively, academic degree (professional degree) were 6.74% (4.91%), 10.46% (10.58%), and 82.80% (84.50%), respectively. It can be seen that, on the whole, the main manifestations of inequality in 42 universities are N_6, the influence of N_5 is weak, and the influence of N_4 is negligible; however, at the university level, the influence of unequal degree is decreased in turn N_4, N_6 and N_5.

5. Suggestions

On the whole, discrimination is the main reason for the inequality of opportunity in graduate enrollment:

professional degree are more unequal than academic degree, but for the impact of overall inequality, academic degrees are greater than the former. Therefore, it is suggested that the discriminatory registration conditions in professional degree should be reduced, and academic degree enrollment requirements should be more open, so as to promote postgraduate entrance equality.

Nowadays, there are 2,631 colleges and universities in China, with only 369 universities having the qualification what have the candidates who exempted from unified-examination, therefore, it is suggested that the number of the qualified university should be increased. In addition, it is recommended that university should set up a reasonable enrollment plan in each disciplines, and ensure that all disciplines are open to all candidates, so as to reduce inequality in postgraduate enrollment.

Acknowledgments

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