

An Analysis and Comparison Between the Chinese GaoKao System and the A-Level System in the UK: Challenges and Improvements

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Abstract: The majority of students in China, who need to attend Gaokao to be admitted by universities, are not facing the same opportunities. They are strictly required to study specific subjects, no matter students are good and interested at or not. In addition, universities are not admitting students purely according to their talents, instead factors like region, family, which field they want to study in the future do matter. This study will discuss such situation of Chinese Gaokao and make a comparison with the education system in the UK. It also mentions current government policies for extra points that are originally for higher fairness, but they are not fair anymore in current circumstances. This study also gives advices to government and universities on how to make improvement on current education system. The results of this study provides a scientific basis for decision makers to make more rational and effective decisions. It is of great significance to the government, related departments and most importantly, Chinese students.

Keywords: Chinese Gaokao, education system, fairness, improvements.

1. Introduction

Gaokao (national college entrance exam, NCEE) is widely considered the most important examination for Chinese students. In 2023, a total of about 4.68 million individuals enrolled as undergraduates, with 95% of them successfully passing Gaokao and only 5% gaining through independent recruitment, which caters to exceptionally talented students in specific subjects [1]. As the primary gateway for the vast majority of students to be admitted by universities, Gaokao should ensure high levels of equality and equity. While numerous studies have focused on educational inequality caused by unequal education resource allocation, such as differences between rural and urban areas, they have primarily emphasized that students do not face equal opportunities to pursue higher education [2]. However, few studies have explored educational equity comprehensively. Even if all students receive the same high school education and take part in Gaokao, would they all be accepted by universities? Apparently not. Therefore, this study aims not only to summarize existing discussions on educational inequality but also to address the issue of educational inequity within Gaokao itself—whether its structure ensures personalized development support. Additionally, beyond the examination itself, do university admissions exhibit fairness? This aspect has been rarely addressed in previous studies. This article fills a research gap in the area of inequity in Chinese

university admissions and provides a more comprehensive discussion of inequity in Gaokao. The findings will have important implications for decision makers aiming to enhance the structure of Gaokao and the admission system.

2. Overview of Higher Education and Educational Equity

2.1. Higher Education

With substantial growth in population and rising income levels in China, there has been a surge in demand for higher education.[3] Through 1960s, natural population growth rate has reached 22.08%, then it decreased over years. But until 2008, the natural population growth rate exceeds 5% all over the decades. [4]. This considerable population growth has led to an expansion of the labor force, resulting in intensified competition within the job market. Pursuing a higher degree has become one way for individuals to improve their competitiveness.

In the past, only a small proportion of the population had an undergraduate degree. Even with a high school degree, people can still acquire a decent salary. But in 1949, Chinese government wished for a new higher education system with a correct political nature and the capability of rapid economic growth. The number of applied subjects related to planning the economy rocketed by government force. And in 1977, the university examination was reintroduced after a shutdown in the educational industry by “the Cultural revolution” in 1966. Since 1978, economic development has become the primary aim of the Chinese government, and thanks to the open-door policy connecting China with the world, the government has paid much attention to constructing a higher education system. The development of Chinese higher education is getting more and more rapid recently. The number of university students rose from 6430 to 12140 from 1998 to 2001, and the percentage of people who can enter universities increased from 9.8% to 13.2%. There is a 93% and 71% increase in the number of Master and Ph.D. students, respectively [5]. This phenomenon is commonly referred to as “degree deprecation.” Nowadays, a high school diploma only matches occupations such as assembly line workers or bricklayers that involve physical labor. And it gradually becomes a ‘duty’ for university graduates to apply for postgraduate. The main reason for taking a postgraduate degree is not the desire for further study or interest in more knowledge; more students make the choice because an undergraduate degree is not enough to get a well-paid job.

2.2. Equality and Equity

Equality refers to the equal distribution of resources; it only considers whether all students are treated equally. This term is more widely used in data, for example, in terms of income equality. It highlights whether the number is equally assigned to each person. But it is not suitable when it comes to education, it is meaningless to make two students enjoy the same educational resources. Education is not like finance because it is related to people’s personalities, characteristics, and so on. Two people are never going to be the same, so assigning the same amount of resources is not meaningful. Equity means that resources should be allocated according to different needs of different people to achieve fair outcomes. For instance, blind tracks should be built for blind people, and the same for education. The strengths of students should be maximized.

Equity is divided into 3 categories: equity from below, equity from above, and equity from the middle. Equity from the below takes seriously aspects of personal heterogeneity, both in circumstances and conceptions. Equity from the above, is a form of regulating actions based on rules. And equity from the middle highlights social arrangements mediating flows of value in education [6]. This study mainly talked about equity from below in education: whether the heterogeneity of students makes a difference in the allocation of education resources. Students from different regions should be admitted to universities with the same opportunity, and students with talents in different fields

should all be concerned. In general, differences other than learning abilities among students should be totally unrelated to their chances of receiving a higher education.

2.3. Gaokao Course Selection Structure

China has been dedicated to enhancing educational equity and equality for years through the reform of the Gaokao system. Initially introduced in 1992, the Gaokao followed a '3+2' structure. Chinese, Mathematics, and English are compulsory courses, then students can choose any two subjects among History, Politics, Physics and Chemistry. In 1994, although the compulsory courses remained unchanged, students were required to choose between two sets of subjects: 'WenKe' (including politics, history, and geography) or 'LiKe' (comprising physics, chemistry, and biology). Generally speaking, during high school years in China it is necessary for students to determine their inclination towards arts or science disciplines. Since 2020 until now, however, the compulsory courses have remained consistent while students can choose any three out of six available subjects encompassing both arts and sciences.

3. Analysis of Current Challenges Faced

3.1. Comparative Study between Chinese Gaokao and A-Level System in the UK

Regardless of how students choose which subjects to study, they are required to study a minimum of six subjects, as has been mentioned before. It is essential for them to dedicate themselves to both arts and science subjects in order to gain admission into their dream universities.

In the UK, students are in the A-Level education system, which is a subject-based qualification and part of the General Certificate of Education. The number of subjects they can choose ranges from three to four, depending on their learning abilities and interests. Normally, universities would require at least three subjects; however, high-achieving students often opt for more in order to be more competitive among other applicants. Moreover, there is a wide range of subject options that can be chosen by A-level students. The number of available courses slightly differs among different examination boards, but the smallest number is over 40. This stands in stark contrast with the Chinese Gaokao system, which offers only six choices and limits student options significantly.

It cannot be denied that the Gaokao system contributes to the more comprehensive development of students; however, its fairness towards all students remains questionable. Kaijia Cheng (1918-2017) one of China's most famous physicists, received national recognition for his contributions to the invention of atomic bombs, hydrogen bombs, and artificial satellites. Surprisingly, he was considered a "bad student" in class during his childhood because of his poor performance in Chinese and history subjects. His exceptional talents in physics and mathematics were not found until he pursued physics at university. This anecdote is commonly used to encourage students to study hard and fight for a brighter future, yet few notice why Kaijia's talents were ignored during his youth. In Chinese high schools, teachers tend to favor students with high overall scores rather than those who are extremely excellent in particular subjects but struggle in others. And this is called 'pianke,' which is a derogatory term. Kaijia represents a typical case where the Gaokao system does not adequately accommodate individual strengths. Fortunately, his gifts were eventually recognized. However, it must be acknowledged that not all students are as fortunate as Kaijia—many may receive lower marks and attend ordinary universities without access to excellent educational resources or opportunities for utilizing their talents.

This scenario is less likely to happen within the A-level system, where a student facing a similar situation as Kaijia, excellent in physics but struggling in literature, can opt for subjects such as mathematics, physics, chemistry, and so on, instead of arts subjects. Consequently, they have the

opportunity to secure admission into top-tier universities and ensure that their exceptional talents are not squandered.

By contrast, students who face a similar situation as Kaijia would not waste their talents in the A-Level system. Stephen Hawking is a world-known physicist and cosmologist. He chose mathematics, physics, and chemistry during his high school years, and he was admitted to the University of Oxford because of his excellent grades on these scientific subjects. It is impossible for him to obtain the offer if he is forced to study literature or other arts subjects. Moreover, Malala Yousafzai, a Nobel Peace Prize winner and education rights activist, studied history, religion, and geography. She was also admitted to the University of Oxford, majoring in PPE. Her choice of A-Level courses made the most of her talents, and definitely, she would not be admitted if she was forced to study physics or chemistry. Hawking and Malala are great people in two totally different fields, and both of them found their talented fields during high school. This showed the importance of a wide range of subject choices in order to make education suitable for all kinds of students.

3.2. Students Majoring in Arts

As has been mentioned, the subjects of Gaokao are strictly regulated by state institutions. For students aspiring to pursue art-related fields such as drawing, singing, dancing, and performing, an additional examination called ‘yikao’ is required. ‘Yikao’ includes two parts: a professional exam and a general knowledge exam. The former one is related to the chosen art discipline, and the latter one is actually Gaokao. Without a doubt, the minimum score requirement in Gaokao for art students is much lower compared to other high school students, as art students make more efforts in their major.

However, it is important to note that ‘yikao’ is not purely intended for students who are passionate about art currently, but has unfortunately become widely considered as an alternative for students who get bad grades. This misconception stems from societal conformity and stereotypes prevalent among parents who equate career success with financial gain; thus, they encourage their children to choose lucrative majors. According to the survey, the top three profitable industries are finance, business, and technology. So parents hope their kids will choose related majors like physics and mathematics instead of arts. When hearing a student decide to study arts, the first idea that comes to mind would be: is he or she bad at grades? or how would he or she choose arts. This contradicts the original intention of setting ‘yikao,’ which should aim at providing opportunities for students who are interested and talented in arts.

3.3. Unfair Admission by Universities among Regions

After Gaokao finishes each year, students need to estimate what scores they would get and apply to universities according to the minimum requirement last year and their estimation of their mark. Then universities determine the minimum score to be accepted, referring to how many students submit applications. For example, there are a huge number of students applying for Peking University in Jiangxi who choose science subjects in 2022, but it only wants 39 students. After ranking applicants by their marks, the minimum mark for students in Hainan to be admitted by Peking University is 670, which is exactly the score of the 39th student [7]. Obviously, the minimum marks required by the same university in different provinces are not equal, so the difficulties of passing the exam are not the same in different regions. For instance, Qinghua and Peking University, the best two universities in China, are dream schools for many students. According to online statistics about the number and admission rate of Qinghua and Peking University in various regions in 2023, in the capital, Beijing, there are 550 students being accepted by Peking University in 2023, and the admittance rate is 1.02%. In a less developed province, Jiangxi, there are 180 students being accepted, and the admittance rate is 0.03%. For the province with the largest population in China, Henan, the admission rate is 0.04%.

The goal for Gaokao is to allocate education resources more reasonably; more excellent students need better resources. The data above means that students in Beijing are much more excellent than students in Jiangxi and Henan. Apparently, this is far from the truth. With considerable development in economics and technology, the gap between high school education quality among areas is narrowing. The knowledge that can be learned in Beijing high schools can also be learned in Jiangxi. The difference is more reflected in class devices, environment, and equipment. But this is definitely not enough to explain the huge difference in admission rates between Beijing and Jiangxi.

This inequality in university admissions does result in many social problems. It is easier to pass Gaokao in Beijing, so all people want their children to take part in Beijing Gaokao. This encourages them to switch their census register to Beijing; the first step would be buying properties. Then demand for houses in Beijing rocketed, followed by a rising house price. Thus, the living burden for Beijing residents increases.

3.4. Discussion of Special Policies

To achieve educational equality in China, the government also introduced some special policies, but these are not fair under some circumstances. There are generally 4 situations when students can get extra marks in Gaokao.

First, 20 extra points for children of martyrs. Second, Children of ex-servicemen who have been awarded a second-class merit or more during their service or who have been awarded an honourable title by a unit above a war zone (formerly a large military region) are given an additional 20 points; children of retired soldiers who are now employed get 10 extra points. Third, overseas Chinese, children of overseas Chinese, children of returned overseas Chinese, overseas Chinese dependents, and candidates of Taiwanese nationality (including Taiwanese household registration) will be given an additional 5 points. Lastly, extra points for ethnic minority candidates. It is valid in some provinces. For example, in 2024, this is not valid in Henan province; ethnic minority candidates get 5 extra marks in Sichuan.

These policies aim to reward ex-soldiers and encourage overseas Chinese to return, but they do harm the fairness of Gaokao. Contributing to countries should be rewarded, but not in this way. The government should not sacrifice other students' rights to reward. As has been mentioned, the minimum requirement for university marks in Gaokao is determined by the ranking. The added ten marks would probably change the university that two students should have gone to. If this policy is reasonable, then students in a normal family are born with discrimination because they would lose ten marks in Gaokao. Moreover, people who should be rewarded are parents instead of their kids; actions like setting 'military priority gates' in airports and free public transport are much more appropriate. These policies reward the exact person who makes a contribution to the country instead of their kids.

4. Possible Solutions

4.1. Government

The government should try to unify the standards of Gaokao all over the country. This is not just forcing each province to use one set of paper. The government should develop nationally applicable textbooks. Currently, different provinces use different textbooks; the Gaokao paper would not be the same without any doubt. In addition, the reform of the Gaokao structure should be extended to the whole country as soon as possible. Now, the reform is only centered in several developed provinces. Moreover, the education resource difference should be reduced. This problem has improved a lot in recent years, but still, the differences are not eliminated.

Focusing on specific courses, the choice of subjects should be wider and more personalized. The fundamental knowledge can be taught in junior high and elementary schools. When it comes to more professional knowledge, students should be able to choose which field they are going to dig deeply into.

And more choices should be offered. For example, Chinese high school students never know about economics. This prevents many students from majoring in economics during university because this subject is completely pervasive when making choices about their university major. With fewer students in economics, industries like finance and business lack a young generation, which is harmful for development. Compared with the A-level system, there are a number of students choosing economics during university as they learn the basics in high school. Moreover, a Chinese university student studies the same content as an A-level high school economics student. The progress is much lower without any introduction in high school. So the government should work on adding more subjects for Gaokao.

4.2. Universities

On May 4, 1998, the President of the State declared at a conference to celebrate the 100th anniversary of the founding of Peking University: In order to achieve modernity, our country needs to have a number of first-class universities of world-class standards. So the government has selected 39 of the best universities in China as '985 universities.' Then officially announced in November 1995 by the State Council, during the 21st century, focus will be on the construction of about 100 institutions of higher education and a number of key disciplines. There are 112 universities selected in '211' projects, including the 39 '985' universities. So '985' and '211' represent the best universities in China.

There are 34 '985' and '211' universities in Beijing, while there is only 1 '211' university in Jiangxi. And universities always prefer local students and allocate more admission limits to local areas. This leads to huge differences between difficulties in Beijing and Jiangxi Gaokao. It is hard and unrealistic to move universities from Beijing to other provinces in the short term. The universities should be aware that ability and excellence are the most significant criteria when determining whether a student should be admitted.

5. Conclusion

After reforming and developing for decades, Gaokao helps countless students change their lives, stepping from their hometowns to developed cities. But it is not fair enough to ensure complete equality and equity. This paper proposes that the range of available curriculum places too many limits on students, such a tight frame might prevent students from utilizing their talents. And for art students, they are experiencing lots of challenges and opposing voices. The choice of art should just originate from passion, but now they are doubtful about choosing art because they cannot pass Gaokao. In addition, admission to universities is not equal all over the country, which means students from different regions have different opportunities of being admitted. Last but not least, special policies about Gaokao are not appropriate or reasonable.

Reforming the education system is a complicated and long process. It requires efforts from both the government and universities. The primary aim is to unify the whole system, different students in different regions should have the same level of access to universities. This study summarized the current problems existing in the Chinese Gaokao system, but it lacks innovation and is more about summarizing, sorting out, and analyzing. Suggestions for improving China's current education system lack practicality, and are mostly theoretical, and should be analyzed in the context of specific national conditions.

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