Geographical Stratification and the Role of the State in Access to Higher Education in Contemporary China

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Abstract

This article extends the geopolitical theory on geographical stratification to understand the persistent inequality in access to higher education in contemporary China. Drawing on empirical evidence on the geographical distribution of institutions, and differentiated admissions and recruitment processes, I examine how political and institutional arrangements shaped opportunity structures in access to higher education for students from different geographical origins. I conclude that the state's decentralized governance gave the eastern area more power and advantages while the students from the poor western and central regions suffered a lack of opportunities in achieving upward social mobility through higher education.

Key words: China, higher education, geographical stratification, the *Gaokao*, cut-off points, the quota policy

1. Introduction

China's rapid rise over the past two decades has significance beyond the economy and geopolitics. As an emerging economic giant it is also becoming an increasingly important geo-political and cultural force in the world (Jacques, 2012). Many questions remain about whether it can sustain its extraordinary developmental momentum (Hutton, 2007) but if this is to be the 'Asian Century' (Arrighi, 2007) global interest in China's cultural traditions and institutions will undoubtedly increase. Already its higher education system is attracting widespread interest for its massive output of science and technology graduates (Brown et al. 2011). How did China progress from the chaotic Cultural Revolution period, when education experienced its darkest hour, to the current situation, when China's output of skills and talent presents a growing challenge to the West? What has been the role of education in China's economic ascent and in the re-shaping of the social structure?

And how does education mediate the growing internal contradictions in China, not least those associated with increasing the level of inequality. To date there has been only limited empirical research on these questions, and we know very little about the changing role of education in shaping life chances in different regions. The latter constitutes the main focus of this research which aims to provide an in-depth investigation of education opportunities by students from different geographical origins in contemporary China.

Geographical stratification in developing contexts has been under-researched and under-theorised in the studies of education and development and the sociology of education. Two lines of inquiry have shaped the debate on the relation between education and geographical stratification. One line of these focuses on changes in economic conditions since the 1970s and their implications for educational provision and outcomes for people from different geographical origins. Modernization theory argues that geographical stratification is linked to the processes of economic modernization and development (Treiman, 1970; Forsythe et al., 2000). Most developing contexts are characterised by sharp regional economic disparities and the uneven distribution of social infrastructures. In education, schooling systems are often better funded in urban or affluent regions than in rural or poor areas (Hannum and Wang, 2006). The uneven distribution of educational resources and infrastructures has had direct implications on educational attainment. Evidence from African countries, including Ghana and Mali, and from Brazil demonstrates dramatic regional differences in educational attainment, as measured by trends in attendance and completion rates since the expansion of educational opportunities (Rigotti and Fletcher, 2001; ORC/Macro, 2000).

A second type of research highlights the changes in politics and governance in education and the implications of these changes for geographical inequality. Literature in development studies argues that widening geographical inequality has been related to decentralised governance or devolution practices in economic and social policies (Rodríguez-Pose and Gill, 2004). Devolved fiscal policy in the public sector is argued to be the primary contributing factor to differentiated educational outcomes among regions. Decentralised funding policy in education delegates funding responsibilities for education to the regional or local levels; hence, initially developed areas have better financial capacity in educational provision than poor areas which will inevitably lead to greater regional differences. Evidence from China

(Yao and Zhang, 2001), Brazil (Azzioni, 2001), the USA (Bernat, 2001) and some European countries (Loughlin, 2001; Petrakos, 2001) suggests that decentralised systems of governance have favoured rich regions in terms of resources, capacities and competitiveness and has disadvantaged poor areas, thus increasing geographical inequality.

These studies focus primarily on the geographical distribution of educational resources, infrastructures and funding, and the implications of this for educational attainment and skills outcomes. However, they do not provide a detailed account of the processes through which geographical unevenness reproduces inequality of opportunity. Nor do they explore the institutional arrangements which underpin the persistent patterns whereby rich regions continue to improve in educational attainment while poor regions stagnate or decline. Furthermore, these studies often contribute little to the theorization of geography as an indicator of social stratification and how it interplays with other indicators such as class, ethnicity and gender, particularly in developing economies.

This article provides new evidence on geographical stratification in access to higher education in contemporary China. China's tremendous rise as an economic power has exacerbated inequality between different regions. Geographical stratification not only exists between rural and urban areas; but it is also evident in large regional differences. The state played an important role in producing this uneven pattern of economic development with its gradualist strategy of initiating market reforms first in the eastern and coastal areas, and only later extending them to the rest of China (Arrighi, 2007). This article seeks to shed light on how this geographical stratification impacts on the educational opportunity structures in China today and, in particular, how political and institutional arrangements have exacerbated geographical stratification in access to higher education.

The analysis uses theories of geographical stratification drawn from political economy to explain the persistence of regional inequality during China's transition to a market economy since the 1970s and to show how state policy has reproduced this geographical stratification in access to higher education, including in all types of post compulsory institutions in the China Statistical Yearbook, which are equivalent to the ISCED 4, 5 and 6. Specifically, it examines the impact of a set of institutional arrangements – including those for the national entrance examinations (the *Gaokao*) and the decentralized admissions and recruitment planning procedures - on shaping

the opportunity structure. By tracing the patterns of educational progression by selected birth cohorts, I demonstrate how these institutional arrangements affected the chances of students from different geographical origins to get access to higher education, and particularly to the elite universities. I then use the evidence on the uneven distribution of higher education institutions and types of universities, the progression rates to higher education and differentiated admission and recruitment criteria across provinces to argue that political decentralisation policies in higher education result in a deep-seated contradiction between the state's national development strategy and the objective of reducing regional disparities.

2. Theoretical standpoints on geographical stratification

Geographical stratification has been an enduring interest in political economy. Political economists and economic geographers highlight the geographical dimension as an important aspect of stratification in capitalist economies (Harvey, 2011; Massey, 1987, 2005; Ohnmacht et al., 2009). Geographical stratification is explained by the interplay of regional differentiation and economic and political forces. Geographical inequality is understood as a consequence of differentiated proximity to natural resources, labour and consumer markets (Harvey, 2011; Smith, 1994). It is also affected by the availability of infrastructures, including the transport and communication systems (Harvey, 2011). Capitalist production in market economies demands geographical mobility (Lindgren and Lundahl, 2010; Urry, 2007) not only at the national level but also in the global market (Cresswell, 2006; Baumawn, 1998). Therefore, the capacity of achieving geographical mobility at the national and international level is regarded as a stratifying factor alongside income, wealth, status, occupation, and social capital in the increasingly globalized world (Ohnmatht et al., 2009).

Moreover, geographical stratification is affected by institutional and administrative arrangements in relation to economic production, social relations, technological forms and localised life styles at the regional level (Morrow, 2006). The state plays an important role in these institutional and administrative arrangements, constantly adjusting its mode of governance at the national and regional level to guarantee the mobility of capital and to favour the conditions that yield economic growth and enhanced living standards (Harvey, 2011). Geographical stratification is thus shaped by inter-related economic and political factors, and has effects on

opportunity structures. Education opportunities, in particular with higher education, are essential to understanding social mobility and stratification (Shavit et al., 2007). Access to higher education opportunities is shaped by stratifiers such as social class, gender and ethnicity (for example, Mountford-Zimdars et al. 2013; Boliver 2015). Geographical origin is also highlighted as an important stratifying dimension in access to the opportunity structure.

There are many examples outside China of geographical inequality in access to higher education. A study by Metcalfe (2009), for instance, shows how the geographical distribution of higher education institutions reinforces regional inequality in British Columbia in Canada. Research on the USA shows persistent inequality in access to a selective public flagship university by students from different geo-spatial origins (Turner and Pusser, 2004). Similar research also shows that students from several cities have strong advantages in access to the University of California leading to an unequal pattern of participation by geographical origins (Martin et al., 2003). A case study in Sweden concludes that geographical stratification affects students' aspirations in higher education and careers, and that students from poor regions are least likely to achieve upward social mobility (Lindgren and Lundahl, 2010). These studies demonstrate that geographical origin is an important factor to understanding unequal access to higher education. Moreover, institutional arrangements such as the geographical distribution of universities also shape education opportunities differently for those from different geographical origins. The next section will extend these theoretical standpoints to the context of contemporary China and investigate access to higher education by students from different geographical origins.

3. Geographical stratification, economic development, social mobility and the state in China

China has several attractive attributes as a case through which to examine the dynamics of geographical differences, economic forces and political arrangements.

First, China has a long history of uneven regional distribution of resources and population due to its vast territory and special geographical features (Harvey, 2005). The main regions in China can be characterised as eastern coastal, central and western areas, as detailed in Table 1. Eastern and coastal regions include three municipal cities - Beijing, Shanghai and Tianjin[1]- as well as coastal provinces such as Zhejiang,

Shandong and Guangdong. The geographical advantages of eastern coastal areas include closer proximity to Hong Kong and Taiwan, better connections with international transport and trade, and close ties with the overseas Chinese capital and entrepreneurial talents (Walker and Buck, 2007). Central areas feature those primarily agricultural provinces from north to south such as Inner Mongolia, Shanxi, Henan and Anhui. Western regions include those provinces with large minority populations such as Tibet, Xinjiang, Gansu, Ningxia and Sichuan.

Table 1: Three regions and provincial units in China

Region	Provinces
Eastern coastal	Beijing, Tianjin, Liaoning, Hebei, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangxi, Guangdong, Hainan
Central interior	Heilongjiang, Jilin, Inner Mongolia, Shanxi, Henan, Anhui, Hubei, Jiangxi, Hunan
Western	Xinjiang, Gansu, Ningxia, Qinghai, Shaanxi, Tibet, Sichuan, Chongqing, Guizhou, Yunnan

Second, China's particular geopolitical circumstances in the 1980s – a time when most of the Communist bloc was collapsing – encouraged the state's development strategy of cautious gradualism (Arrighi, 2007). Compared to the Eastern European countries and Russia which followed the shock therapy[2] masterminded by IMF (International Monetary Fund) and underwent a catastrophic transition, China developed a gradualist strategy of Reform and Opening-up. This introduced the market economy, foreign trade investment and structural reforms exclusively in eastern and coastal areas in the 1980s, only later extending this to the central and western area in the late 1990s and early 2000s (Gao and Tong, 2008). Specific institutional arrangements were followed to implement this gradual strategy, including establishing the 'Special Economic Zones' and the 'East Coast-First' policy (Rozelle, 1996). Several south-eastern provinces were chosen as pilot sites for more extensive market transition from the late 1970s to the 1980s. By the 1990s, the state had invested substantially in the development of the key cities, such as Shanghai and Tianjin on the eastern coast (Vermeer, 2004).

In parallel with these policy measures was the changing role of state governance. The state decentralized legislative power, as well as tax and fiscal responsibilities, to local administrations and governments (Chan and Wang, 2008). Controlled decentralization resulted in the rapid economic growth of a market economy in the eastern coast. In the meanwhile, central and western regions lagged behind and stagnated. These regions were disadvantaged by their geographical locations, lack of efficient transport and infrastructures, and by unfavourable political and institutional arrangements (Lu and Deng, 2011). As Lu and Deng explain, the eastern coastal region benefitted from the preferential policies and its economy grew rapidly, which widened the gap between the east and the hinterland and intensified regional conflicts (Lu and Deng, 2011: 2). Geographical stratification was therefore an inevitable consequence of the state's development strategy and decentralisation policy which also had direct implications on educational resources and infrastructures.

Geographical disparity was highlighted as the key 'stratifier' in educational opportunities and provision (Hannum and Wang, 2006: 258). Research has provided evidence on substantial regional differences in educational provision, resources and funding (Tsang, 2000; Piazza and Liang, 1998). More specifically, some studies have linked the decentralisation policies such as the devolution of school funding from the central to the local government to growing disparities in educational outcomes, including the enrolment rates, completion rates and progression rates from primary to secondary level between western and eastern provinces between 1980s and early 2000s (Park et al., 2003; Zhang and Kanbur, 2005; Tsang, 2000; Wong, 2002). Park et al. demonstrated that the ratio of primary education expenditure per student between Shanghai and poorest provinces doubled between the 1990s and 2000s (Park et al., 2003).

Unlike schooling in China, where student attendance is mainly localised, higher education allows scope for students from different geographical origins to apply to institutions outside their geographical area. However, this does not necessarily lead to greater equality of opportunity due to the mechanisms that govern access to universities. Access rather than choices in higher education will be the main focus of this article. The rationale for this particular focus is to highlight decentralised admission and recruitment policies associated with the centralised entrance examination and the impact on the opportunities for students from different

geographical origins. The following section moves on to investigate geographical patterns in participation in higher education in contemporary China.

4. Higher education expansion and institutional arrangements in shaping the opportunity structure of geographical origins

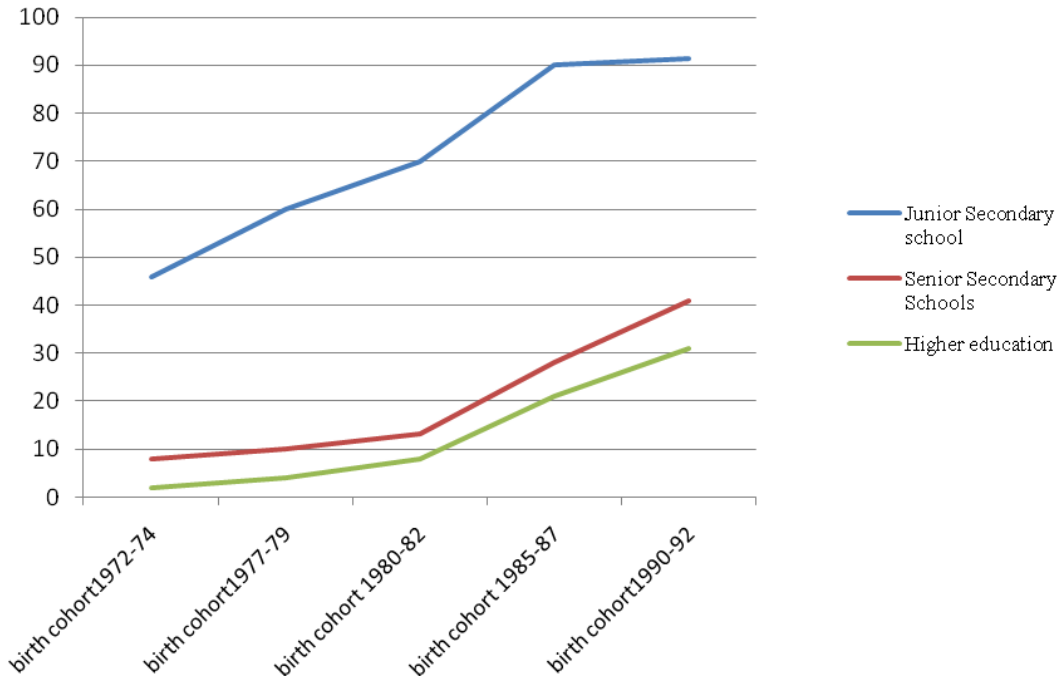
Higher education has expanded at a rapid rate in China since the early 1990s. The number of students rose from 1.58 million in 1990 to more than 23 million in 2006, the latter representing 21 per cent of the 20-24 ago cohort, (NSBC, 2007). This expansion provided more opportunities for students to apply to universities in regions beyond their own locality. The fee-charging introduced in almost all types of institution[3] in 1997 ended the state-funded era and marked the beginning of a marketized model of higher education. This retreat from central government responsibility for higher education, known as the *binggui*[4] policy, resulted in an increase in the number of provincial higher education institutions. The total number increased by 42 per cent between 2000 and 2005 (NBSC, 2001, 2006). Most of the growth in universities in this period occurred in the provinces (NBSC, 2001, 2006). The total number increased another 22 per cent between 2005 and 2009 (NBSC, 2010). Since the state had delegated the majority of financial responsibilities in higher education to individual families, local governments and institutions, it could then concentrate its funding on selected universities. From 1998 it focused on developing world-class universities to promote the quality and reputation of Chinese higher education institutions worldwide.[5]

Figure 1 illustrates the scale of the expansion of higher education by comparing the progression rates[6] at various selection points of the educational career of selected birth cohorts. The birth cohorts selected for comparison are the 1972 to 1974 birth cohort, the 1977 to 1979 birth cohort, the 1980 to 1982 birth cohort, the 1985 to 1987 birth cohort and the 1990 to 1992 birth cohort. The reason for choosing these cohorts is to draw a parallel between the life course of these birth cohorts and the key changes of state policy in higher education. The transition points of these birth cohorts from senior secondary schooling to higher education were at around 1990, 1995, 1998, 2005 and 2009. The progression of their educational careers occurred in parallel with the beginning of reforms in higher education (1990), the introduction of the *binggui* policy (1995), the world-class university project (1998) and the growth of institutions at the provincial level (since the 2000s). The years of 1996, 1999, 2005 and 2009 are

selected since they represent important stages in the reform of higher education. The *binggui* was introduced in 1995 and was gradually adopted throughout all provinces and different types of universities by the late 1990s and the early 2000s. A direct effect of the *binggui* policy was an increase in the number of students enrolled in higher education. The data on the year of 1996 were used as the baseline to illustrate the scale of the recruitment expansion thereafter. The world-class university project was initiated in 1998 and 40 universities were awarded world-class university status in 1999 with several more universities receiving the designation in 2005.

Figure 1 shows that the progression rates for the first two birth cohorts were very low – at around 2 per cent and 4 per cent. Around 8 per cent of the 1980-1982 birth cohort was enrolled in four-year higher education institutions after the *binggui* policy was introduced. There was a significant increase in the progression rate for the 1985-1987 cohort, rising to 21 per cent. This was at around 2003-2005 when the *binggui* policy was more comprehensively adopted by all types of institutions. From around 2005 to 2010, there was a dramatic rise in the progression rate -31 per cent of the 1990-1992 cohort now progressed into higher education, the figure representing a fourfold increase on the progression rate for the cohort ten years older.

Figure 1: The progression rates at various points of educational career of selected cohorts



Source: the China Statistical Yearbook (NBSC 1996, 1999, 2001, 2006, 2009).

Note: The progression rate at each transition point is calculated by comparing the data on new recruitment to junior secondary schooling, senior secondary schooling and higher education to the data on the number of graduates at the preceding educational level.

The expansion of higher education thus massively increased opportunities for participation overall. However, it remains to be explained how students from different geographical origins were affected by the expansion. We therefore need to examine key institutional arrangements in the admission and recruitment system to understand geographical differences in access to higher education. In 1977, after the end of the Cultural Revolution (1966-1976), the National Entrance Examination (the *Gaokao*) was re-introduced to replace political screening (for Party membership and the loyalty to the Regime) as the main form of selection and to highlight the growing importance of meritocratic criteria in a country which was undergoing an historical transition to a market economy.[7] The *Gaokao* is a standardised examination system at the national level, except in some developed areas, such as Shanghai, Guangzhou, and Hainan that have adopted local *Gaokao* systems. However, the extent to which the *Gaokao* functions as an effective and fair selection system for students from different geographical origins remains unexplored. Particularly with the introduction of decentralised admission and recruitment policy to higher education, the state's changing governance has significant implications on the opportunity structure for students from different geographical origins in access to higher education.

The decentralisation of higher education selection in China has involved two policy measures, the differentiated selection (cut-off points) and the quota policy. The *Gaokao* is a national examination with national standards for assessment, but differentiated admission and recruitment policy involves regions specifying different standards for entry to university. The differentiated selection system involves each province setting a minimal level of points (or 'cut-off' points) for entry to different types of universities within the province. Cut-off points[8] are determined by provincial or local ministries of education each year, after the *Gaokao*, based on distribution of scores in that year of students in that area. Moreover, each institution then adjusts its own cut-off points against the provincial guideline for entry to different fields of study. In addition to this differentiation in entry requirements by regions, China's universities also operate a quota policy, which adjusts entry requirements depending on the place of origin of applicant, normally giving advantages to local students.

This quota policy is supposedly an instrument for recruitment planning used by individual universities which is designed to reflect their capacity for enrolling new students in the light of their levels of funding and supply of teachers. Specific quotas are calculated and published annually by each university prior to the *Gaokao*. However, the twist of the quota policy lies in its geographical discrimination and local protectionism. The quota represents the total number of new places available each year in a university, and in theory these places are open to all students. However, in practice, individual institutions set up specific quotas for each province. For example, a university in Jiangsu province fixes a quota of 100 new places in Computer Sciences for applicants from Jiangsu while only allocating 20 places to applicants from its neighbouring province, Anhui. The tendency to favour local candidates and screen outsiders by manipulating the quota policy has significant impact on geographical stratification.

China offers an interesting case where the state has played an important role in the expansion and the development of higher education while, at the same time, being responsible through its decentralised governance for the uneven geographical development. It provides a unique opportunity for examining the extent to which the state, the national examination system and decentralised admission and recruitment policies have affected students' opportunities to get access to higher education and to different types of universities, particularly in relation to their geographical origins.

5. Methods and data

To investigate the impact of differentiated admission and quota policies on geographical inequality, I will present below evidence in the form of the distribution of universities across provinces, the geographical differences in progression rates to higher education, geographical variations in cut-off points and the quota arrangements in elite universities. This study draws on the data sets at the national and provincial level. The National Statistics Bureau of China publishes the China Statistical Yearbook every year, which provides the official documentation on education at both the schooling and university level. The China Statistical Yearbooks provide specific data on student enrolments and graduation rates of senior secondary schooling by each province and recruitment to higher education at the national and provincial level in selected years. In addition to the China Statistical Yearbooks, there are data on the

number and distribution of higher education institutions available from the dataset of the Ministry of Education.

Data on cut-off points and quotas are not available from a national source, but can be found for each province in selected years from various datasets of provincial ministries of education and online datasets including the Sunshine Project of the *Gaokao*, and the Sina Education Database, which will be specified when the details are introduced. To assess the impact of decentralised admission and recruitment policies in the broader context of higher education expansion and the world-class university, I will present over-time data for the selected years of 1996, 1999, 2005 and 2009 to draw a coherent parallel with the time when key policy changes including the *binggui* and the world-class project were implemented. Peking University will be used as a specific case study to illustrate the effects of access to a world-class university. It is one of only two universities which are solely funded by the state's elite project. Peking University is located in the capital city, Beijing, in the eastern part of China. Hence, the elite status and the geographical location of this university provides an interesting case for examining access to elite university by students from different geographical origins.

The main method used in this study will be a simple quantitative analysis using descriptive time-series national and provincial data on higher education. The rationale for choosing this method deserves some explanation. First, the empirical objective of this study is to illustrate the picture of geographical differences in the admission and quota policies in higher education rather than estimate the possibilities or chances of students from different regions in access to higher education. Therefore, the simple statistical method is used instead of, for instance, the logistic regression analysis employed in other studies - for example, Hannum and Wang (2006) - to predict the possibilities of education attainment by geographical origin. Second, this study aims to cover all provinces and municipalities, then highlight the differences between the three regions in the recruitment and quotas. Therefore, the statistical analysis will process detailed information on a total of 31 variables (provinces) and calculate the differences between the national and provincial data, for example, by the subtraction of the provincial secondary graduation rates from that of national rates in Table 3 and by the subtraction of the cut-off points and the quotas at the provincial level from that of the national ones in Table 4, Table 5 and Table 6. This simple statistical method will demonstrate a picture of geographical differences in access to higher education

across all the provinces, thus allowing us to understand the geographical divide in the opportunity structure. The discussion below considers each indicator in detail.

6. Decentralised admission and recruitment into higher education and the geographical inequality

Table 2 shows the distribution across provinces of higher education institutions, including elite and key universities. The elite universities are those included in the world-class project in 1998 while the key universities are the ones secondary in status and funding to the elite universities. The key universities were the product of the 211 project proposed in 1995, which aimed at improving the quality of higher education in China[9]. There is a distinction between the elite and key universities, with the former one as the 985 universities and the latter ones as the 211 institutions. It can be seen that the majority of elite universities were concentrated in Beijing, Shanghai and other Eastern provinces. In 2011, 25 per cent of all elite universities were located in Beijing and another 13 per cent in Shanghai. By contrast, the western region accounted for only 15 per cent of the elite universities. There were no elite universities in western provinces like Qinghai, Ningxia, Xinjiang, Guangxi, Guizhou, Yunnan, and Tibet. The distribution of key universities was similarly skewed. Beijing accounted for nearly a quarter and the eastern provinces together for 80 per cent. As far as the total number of higher education institutions is concerned, more than 77 per cent were in the eastern region. Key areas in western China, such as Chongqing, Sichuan and Shaanxi only account for 7 per cent of total number of higher education institutions. In terms of the distribution of all types of institution, three provinces in the eastern region, Liaoning, Jiangsu, Shandong, and Shaanxi, in the western region, each had more institutions than all other provinces, except Beijing, Shanghai and Chongqing.

Table 2: The distribution of HEIs and types of universities across provinces

	Provinces/cities	Number of elite universities	Number of key universities	Number of all types of HEIs
Eastern	Beijing	10	29	58
	Shanghai	5	12	31
	Tianjin	2	4	19
	Liaoning	2	4	44
	Shandong	2	5	51
	Jiangsu	2	11	46

	Guangdong	2	4	39
	Hebei	1	2	36
	Zhejiang	1	1	33
	Fujian	1	2	23
	Guangxi	0	1	21
	Hainan	0	1	5
Central	Hunan	3	3	31
	Hubei	2	7	38
	Heilongjiang	1	4	31
	Jilin	1	3	28
	Anhui	1	3	33
	Jiangxi	0	1	24
	Inner Mongolia	0	1	12
	Shanxi	0	1	19
	Henan	0	1	38
Western	Shaanxi	3	7	40
	Sichuan	2	5	32
	Chongqing	1	3	15
	Gansu	1	1	14
	Xinjiang	0	2	11
	Yunnan	0	1	20
	Guizhou	0	1	17
	Ningxia	0	1	5
	Qinghai	0	1	3
	Tibet	0	1	3
National	Total	43	123	820

Source: The list of higher education institutions with four-year undergraduate programmes (Ministry of Education, 2011).

Table 3 provides details of quasi-progression rates from senior secondary schooling to higher education for different provinces in 1996, 1999, 2005 and 2009. Due to lack of national data on students' geographical origins, progression rates are estimated on the basis of the data from each province on senior secondary graduation and university entrance. The progression ratio is calculated as new entrants to higher education divided by senior secondary graduates. This, of course, does not provide an exact basis for comparison across regions because not all senior secondary graduates going to university do so in their own region[10]. However, it was suggested that 86 per cent of university candidates chose to go to an institution in their home province in Wu and Zhang's study on students' choices in higher education (Wu and Zhang,

2010). Therefore, I use quasi-progression rates in this article to capture an estimated transition from schooling to universities across all the provinces.

Table 3 provides the national average progression rates, and then subtracts the provincial rates from the national one, which allows a comparison of geographical differences. The table shows that access to higher education increased dramatically across all provinces from 1996 to 2009. Between 1996 and 2005 the national progression rate increased from 34 per cent to 76 per cent. However, the eastern provinces recruited significantly more students to higher education than the western provinces. Beijing, Shanghai and Tianjin from the eastern region had higher recruitment than the rest of the provinces. This pattern was correlated to the higher number of institutions that were located in these areas. Several eastern provinces, such as Jiangsu, Hebei, Shandong and Guangdong, had consistently higher rates of access to higher education, when compared to the rest of eastern provinces. Sichuan and Shaanxi were the only western provinces that had relatively high levels of higher education participation.

Table 3: Quasi-progression rates of senior secondary school graduates to higher education* in 1996, 1999, 2005 and 2009

	Provinces/cities	1996	1999	2005	2009
	National rates	0.34	0.59	0.76	0.78
Eastern	Beijing	0.96	1.34	1.41	1.5
	Shanghai	0.47	0.59	0.53	1.26
	Tianjin	0.46	0.55	1.05	0.9
	Liaoning	0.16	0.23	0.23	0.18
	Jiangsu	0.02	0.06	0.09	0.06
	Fujian	0.01	0.01	0.04	-0.03
	Guangdong	-0.03	-0.07	0.06	-0.01
	Hebei	-0.07	-0.13	-0.13	-0.08
	Zhejiang	-0.08	-0.12	0	0.1
	Guangxi	-0.08	-0.15	-0.16	-0.07
	Hainan	-0.08	-0.22	0.04	0.12
	Shandong	-0.1	-0.24	-0.06	0.01
Central	Jilin	0.15	0.24	0.21	0.14
	Heilongjiang	0.06	0.16	0.24	0.2
	Hubei	0.04	0.03	0.06	0.05
	Shanxi	-0.04	-0.04	-0.11	-0.12
	Henan	-0.04	-0.08	-0.24	-0.17
	Jiangxi	-0.05	-0.09	0.11	0.08
	Hunan	-0.08	-0.01	-0.02	-0.02
	Anhui	-0.09	-0.13	-0.1	-0.18

	Inner Mongolia	-0.17	-0.28	-0.24	-0.19
Western	Shaanxi	0.08	0.17	0.04	0.03
	Sichuan	0.05	-0.02	-0.04	-0.11
	Tibet	0	0.1	0.23	-0.1
	Yunnan	-0.05	-0.06	-0.03	-0.09
	Guizhou	-0.09	0.01	-0.18	-0.2
	Gansu	-0.09	-0.16	-0.24	-0.21
	Xinjiang	-0.13	-0.22	-0.22	-0.29
	Ningxia	-0.17	-0.33	-0.36	-0.27
	Qinghai	-0.2	-0.36	-0.3	-0.41

Source: China Statistical Yearbook (NBSC 1996, 1999, 2001, 2006, 2010)
Notes:

1. Data are not available in China for the proportion of senior secondary graduates in each province who progress to university. However, data are available on the number of senior secondary graduates and new entrants to higher education in each province. As a best approximation to actual provincial higher education progression rates this table presents quasi progression rates which are calculated by dividing the number of new higher education entrants in each province by the number of senior secondary school graduates in the same province. These quasi progression rates are benchmarked against the actual national progression rates for particular periods by subtracting the national rate from the provincial rate. Positive values show quasi provincial rates above the national rate; negative values represent provincial rates below the national rate. For example, the quasi progression rate for Beijing in 1996 was 1.3. It was above 1 (100%) because of the high number of senior secondary graduates from outside Beijing attending universities in the city. The benchmarked quasi progression rate of 0.96 is calculated by subtracting then national rate for that year (0.34) from the Beijing rate of 1.3.

2. Data for each region were arranged by progression rates in descending order.
3. * Higher education institutions are equivalent to the ISCED4, 5 and 6.

The previous section demonstrated geographical inequality in progression rates from secondary schooling to higher education, with comparatively more advantages for students from the eastern coastal areas. However, half of the provinces in the eastern region, including Guangdong, Guangxi, Hebei, Zhejiang, Hainan and Shandong, seem to have relatively lower progression rates than the rest of the region, based on the quasi progression rate values. This is probably due to the large number of senior secondary graduates who leave their provinces to study elsewhere (which is not captured by the quasi rate). Loyalka's research provides a snapshot of student mobility in access to higher education institutions with four-year bachelor degrees in 2006 and shows that the outflow rates then were 41 per cent, 44.2 per cent and 91.1 per cent, respectively, for Guangxi, Hebei and Hainan, compared to the national

outflow rate of 35.1 per cent[11] in 2006 (Loyalka, 2009: 62). However, this still does not explain the relatively lower progression rates in Shandong and Zhejiang where the availability of institutions was relatively abundant. Although only based on anecdotal evidence, another explanation, at least for Zhejiang, may be that in this highly industrialised and affluent province there are many entrepreneurial opportunities available which encourage young people to make early transitions to the labour market rather than go to university. Sichuan and Shaanxi appeared to perform better than other western provinces. This may be due to relatively large numbers of universities to population in these two areas (see table 2). Another factor in the case of Sichuan may be Chongqing's status as one of the four municipal cities and the impact of this on the level of governmental investment in higher education in the province of Sichuan. Further research may shed more light on particular regional factors which help to explain variations in quasi progression rates, but a full picture will not be possible until provincial data are available on actual progression rates.

Table 4 will further illustrate the geographical differences in the admission processes to higher education, by giving the cut-off points for entry to elite and key universities in different provinces. The rationale for choosing the thresholds for the elite and key universities is that these universities recruit students at the national level when compared to those provincial institutions which predominantly enrol students from the home provinces (Tam and Jiang, 2015). In the national *Gaokao*, there are three main fields including: 1) social sciences, arts and humanities; 2) natural sciences, engineering and medicine and 3) music and sports studies. As discussed earlier, cut-off points are established differently for different types of universities and fields of study. They also vary from one province to another. Table 4 presents detailed entry criteria for elite universities in different provinces in 1999, 2005 and 2009. The cut-off points are only provided for two broad fields of studies, including social sciences and natural sciences[12]. The first row of the table shows the national average of cut-off points for different regions in different years. The rows below show how the cut-off points for each region vary from the average. By subtracting the provincial cut-off points from the national ones, we can see the differences between the regions. The provinces with negative numbers had thresholds for entry to elite universities which were lower than the national average. By contrast, provinces with positive numbers had thresholds which were above the national average. Within each region provinces are arranged in descending order by cut-off points.

Table 4: Geographical difference in access to key and elite universities measured by cut-off points across provinces in 1999, 2005 and 2009

		Social sciences			Natural Sciences		
		1999	2005	2009	1999	2005	2009
	National	513	536	526	501	526	510
Eastern	Shandong	-	36	70	-	71	76
	Liaoning	32	-	34	24	-	10
	Zhejiang	19	32	-	39	24	-
	Hebei	16	0	13	45	25	59
	Jiangsu	15	24	-	45	3	-
	Shanghai *	-16	-56	-55	-16	-57	-55
	Tianjin	-17	-38	-15	-13	-68	-8
	Beijing	-47	-50	6	-41	-56	-9
Central	Hunan	43	38	28	36	18	24
	Shanxi	32	-2	22	34	6	37
	Hubei	31	-30	-8	65	-2	30
	Heilongjiang	31	-30	-8	65	-2	30
	Jiangxi	29	18	-11	41	19	8
	Jilin	5	23	4	24	36	29
	Anhui	4	7	17	32	15	69
	Inner Mongolia	-17	-11	-29	-2	29	-9
Western	Sichuan	12	34	14	50	72	-12
	Chongqing	9	13	20	7	22	47
	Guizhou	1	20	6	-21	10	-33
	Gansu	-30	-1	-10	-14	32	11
	Xinjiang	-33	-20	-27	-501	-19	-30
	Ningxia	-33	-24	-	-29	-22	-42
	Yunnan	-38	-1	-6	-61	13	-10
	Qinghai	-38	-94	-83	-81	-96	-110
	Tibet	-	-41	-76	-	-226	-250

Source: The Sunshine Project for the *Gaokao* (2011); the People's Daily (2000); Sina Education (2011). Other sources include provincial ministries of education' announcements on the cutting-off points of the *Gaokao* annually.

Notes:

1. Data for each region were arranged in descending order by cut-off points.
2. No relevant data were available for Hainan and Guangdong in the eastern region.
3. *Shanghai and Guangdong pioneered in implementing the local *Gaokao*, different tests from the national *Gaokao*. Beijing, Zhejiang, Jiangsu and Tianjin introduced their local *Gaokao*s since 2003. The data on Shanghai still permit a quasi comparison given the total points which are the same as inthe national *Gaokao*.
3. Data on several provinces including Fujian, Guangxi, Henan and Shaanxi, are missing; therefore, these provinces are not included in the table.

It is not surprising that the selection thresholds were much lower in undeveloped western provinces, including Tibet, Yunnan, Qinghai, Ningxia and Xinjiang than the national level, given the relatively poorer attainment at the schooling level and low representation of higher education institutions presented in the previous section. However, it is clear from the table that cut-off points were much lower in developed cities such as Beijing, Tianjin and Shanghai. It seems that cut-off points tended to favour students from their home provinces or cities. Students from municipal cities such as Beijing, Shanghai and Tianjin, appeared to benefit from the geographical distribution of key and elite institutions. Access to elite opportunities was most challenging for students from some eastern and central provinces, such as Shandong, Liaoning, Jiangsu, Hunan, Hubei and Heilongjiang. Entry requirements in eastern and central provinces were generally higher than in western provinces; however, access to elite opportunities had become more difficult in western provinces such as Qinghai, Yunnan, Ningxia and Xinjiang.

Table 5 and Table 6 use the case of Peking University to illustrate the geographical differences in the cut-off points and the quota policy. Table 5 provides a set of data which is concerned with de facto cut-off points for natural and social sciences for students coming from different provinces in 1999, 2005 and 2009. The table shows the average entry points to natural and social sciences in Peking University in selected years. Average entry points for applicants from different provinces are then compared to the overall average. By subtracting the provincial points from the national ones, we can see geographical differences in access to elite opportunities[13]. The higher a province ranks in the de facto cut-off points, the more difficult it was for students to get access to Peking University. It is shown again that the average *Gaokao* scores of entrants to Peking University from Beijing were consistently lower than those from other provinces except some western provinces, such as Tibet, Gansu, Qinghai and Ningxia. Students from the municipal city Beijing were advantaged in the severe competition in access to the elite university like Peking.

Table 5: De Facto Cut-off points for different provinces in entry to Peking University in 1999, 2005 and 2009

		Natural Sciences			Social Sciences		
		1999	2005	2009	1999	2005	2009
	National	564.5	636.1	621.1	601.3	659.9	657.1
Eastern	Liaoning	29.5	1.9	20.9	24.7	-21.9	15.9
	Hebei	25.5	-16.1	-12.1	28.7	-13.9	19.9
	Zhejiang	22.5	13.9	65.9	44.7	9.1	28.9
	Fujian	12.5	-6.1	32.9	30.7	-14.9	14.9
	Beijing	-24.5	-28.1	14.9	-29.3	-75.9	-4.1
	Tianjin	-23.5	-27.1	9.9	8.7	-36.9	4.9
Central	Shanxi	31.5	-23.1	-14.1	-6.3	-22.9	0.9
	Heilongjiang	30.5	23.9	13.9	31.7	22.1	21.9
	Hubei	27.5	-27.1	-18.1	34.7	-4.9	11.9
	Jilin	25.5	25.9	-0.1	-11.3	17.1	14.9
	Hunan	24.5	21.9	0.9	14.7	-11.9	-7.1
	Anhui	18.5	-15.1	-2.1	2.7	-5.9	26.9
	Inner Mongolia	-3.5	2.9	-19.1	-59.3	6.1	-5.1
Western	Yunnan	16.5	26.9	29.9	-10.3	17.1	15.9
	Chongqing	16.5	13.9	25.9	27.7	-2.9	20.9
	Sichuan	14.5	13.9	8.9	10.7	38.1	-20.1
	Xinjiang	7.5	14.9	-12.1	6.7	25.1	-16.1
	Guizhou	-5.5	5.9	9.9	-2.3	10.1	-19.1
	Qinghai	-12.5	-19.1	-46.1	8.7	-0.9	-54.1
	Gansu	-18.5	-0.1	-13.1	-11.3	9.1	-12.1
	Ningxia	-26.5	-10.1	-16.1	4.7	-6.9	-27.1
	Tibet	-138.5	-34.1	-93.1	-75.3	-10.9	-80.1

Source: The Forum of the Recruitment to Peking University (2011). The calculation is also based on the Guide of the Choices of Higher Education Institutions, which is published annually in each province.
Notes: 1. Data for each region were arranged by cut-off points in descending order.
2. Some data for Guangdong, Shandong, Shanghai, Guangxi, Hainan, Henan, Jiangxi, and Shaanxi are missing; therefore, these provinces are not included.

Table 6 further links the geographical variation in access to Peking University to the quota policy. As discussed previously, cut-off points were decided at the provincial level. The quotas, on the other hand, were decided by individual institutions as part of the recruitment planning. Table 6 provides the quota details in social and natural sciences in access to Peking University assigned to each provinces and municipal cities in 2005 and 2009. The higher the quota set for applicants from a particular province, the greater the chance for applicants meeting the minimum entry level to be accepted by the university. The table shows that there had been a decline

of total quotas in 2009 compared to that in 2005. The majority of the provinces provided lower quotas for access to Peking University in 2009 than in 2005. However, there were two cases of a substantial increase in the quotas allocated to students from Beijing and Shanghai. The quota increased by 50 per cent to students whose geographical origin was Beijing. Students from some eastern and central region, for example, Zhejiang, Liaoning, Heilongjiang, Anhui and Jilin, were most disadvantaged in the competition to Peking University since the quotas allocated to most of central provinces halved between 2005 and 2009. The quota for enrolment to Peking University also decreased during the same period for students from the provinces with large minority populations including Inner Mongolia, Shaanxi, Gansu, Guizhou, Yunnan and Ningxia. There was an increase of 2 and 1 quota respectively for students from Qinghai and Tibet in 2009. However, given the fact that these western provinces were provided with lower quotas, for example, five in Tibet and 18 in Qinghai, access to Peking University for Tibetan and Qinghai candidates could be very difficult and more competitive than was the case for the local candidates from Beijing.

Table 6: De Facto quota for different provinces in entry to Peking University in 2005 and 2009

		Quota 2009	Quota 2005
	National Total	1,519	2,202
Eastern	Beijing	272	182
	Shandong	91	106
	Shanghai	65	58
	Tianjin	63	79
	Fujian	58	79
	Guangdong	51	146
	Zhejiang	31	109
	Liaoning	45	196
	Hebei	33	77
	Guangxi	20	45
	Hainan	21	20
Central	Henan	81	117
	Hubei	68	98
	Hunan	60	79
	Heilongjiang	51	105
	Shanxi	43	73

	Anhui	38	63
	Jiangxi	38	26
	Jilin	37	82
	Inner Mongolia	29	42
Western	Chongqing	63	91
	Shaanxi	52	69
	Sichuan	47	75
	Xinjiang	38	31
	Gansu	31	39
	Guizhou	27	32
	Yunnan	26	41
	Qinghai	18	16
	Ningxia	17	22
	Tibet	5	4

Source: The Forum of the Recruitment to Peking University (2011). The calculation is also based on the Guide of the Choices of Higher Education Institutions, which is published annually in each province.

7. Discussion

Evidence presented in the preceding sections highlights the geographical inequalities in access to higher education in China which are the product of decentralisation in the admission and recruitment process. Contributing to this inequality are the uneven geographical distribution of universities, regional variation in cut-off points for university entry, and the quotas for entrants from different regions established by each university. The highly uneven distribution of higher education institutions had direct implications on access to higher education for students from different geographical origins. The elite and key universities recruited students nationally, but favour applicants from their own provinces. Other universities mostly recruit from the local area. Since elite universities are concentrated in the eastern provinces, and since their quota system is biased towards local candidates, high school graduates in the eastern provinces have a higher chance of gaining access to elite institutions than their peers in other regions. Candidates from western provinces have comparatively much less opportunity to be enrolled in elite universities than those from eastern provinces. They also have a lower chance of entry to non-elite universities since they have significantly fewer universities in their area. Candidates from Beijing, Liaoning, Shandong, Jiangsu and Shaanxi had much greater advantages in access to higher

education generally due to the higher number of higher education institutions in the province.

The inequality of access to higher education between eastern, central and western provinces is also demonstrated by the data on quasi-progression rates from senior secondary schools to higher education. Although progression rates increased significantly across all provinces between 1999 and 2009, the divide between eastern and western provinces remained. The dramatic increase in progression rates across all provinces resulted partly from the *binggui* policy which introduced fees for study in higher education. This incentivised universities to provide more student places. Research on the USA, South Korea and Japan, also shows a link between the charging of fees and increasing participation[14] (Shavit et al., 2007). However, this increase in participation was not accompanied by greater geographical equality in access.

Geographical inequality in access to higher education was partly an effect of new decentralised policies on the admission and recruitment. Differentiated cut-off points and the quota policy had undermined the *Gaokao* as a meritocratic selection system. The *Gaokao* unified students from different geographical origins under the same examination system. However, the differentiated admission criteria and allocation of quotas for candidates from different provinces contradicted the *Gaokao* as a national selection system. The uneven academic attainment amongst candidates from different provinces had been the key rationale for differentiated cut-off points and the quota policy. Lower academic attainment among students from western provinces was related to the poor supply of teachers, infrastructures and other educational resources in these regions. However, the state's decentralisation policy which allowed regional differentiation in cut-off points had been operated in such a way as to strengthen advantages of developed areas rather than to guarantee educational opportunities for the western provinces.

Geographical disparity was also demonstrated in access to elite universities. The regions set different cut off points not according to an absolute standard but rather based on the region's distribution of scores in the *Gaokao* and the number of students who would be allowed access to university places at different tiers. Cut-off points for elite universities in western provinces, such as Chongqing, Yunnan and Xinjiang, increased over time, suggesting that average performance in the *Gaokao* was improving. Moreover, since the majority of elite universities were based in the eastern region and the cut-off points had been rising for candidates from the western area, it

had become more difficult for students from these provinces to be accepted to elite universities. Candidates from developed cities, such as Beijing, Tianjin and Shanghai, had the most advantages in the competition for elite opportunities given the much lower entry requirements while access to elite opportunities was most selective and difficult for students from central provinces such as Hunan, Hubei, Heilongjiang and Jilin. It seems that central provinces were most disadvantaged in the meritocratic selection. The recruitment to Peking University illustrated how privileges for students from developed eastern areas had been doubly strengthened by differentiated cut-off points and the quota policy. These decentralised policies protected the local students from the severe competitions in the *Gaokao*. The policy of differentiated quotas for students from different regions was used by the universities to favour the local candidates.

8. Conclusion

This article has investigated the causes of geographical inequality in access to higher education in China. In particular, it examines how political and institutional arrangements in relation to the admission and recruitment process have exacerbated geographical inequalities in access to elite universities. Several important findings arise from the analysis of the data. First, evidence on increasing participation by different birth cohorts since 1978 suggests that the state has played the key role in expanding higher education opportunities. The state's ambition of economic development and national competitiveness had prompted drastic reforms in higher education, most importantly, initially, with the replacement of political criteria, such as the Communist Party membership and loyalty to the Regime during the Communist era, for access to higher education with the more meritocratic *Gaokao* based selection system during the market reform. The reforms highlighted the role of the state in expanding educational opportunities to promote the skills and attitudes appropriate for development and to garner support for the state. Second, the evidence on increasing recruitment of undergraduates and the narrowing gap across provinces in the cut-off points for entry to higher education suggests an improved academic performance of students from the western area. Evidence on the quota policy and the differentiated admission criteria across provinces suggests that the state's policy of decentralisation - with devolution of admission and recruitment powers to the local and institutional levels - increased geographical stratification.

At the theoretical level, the evidence from the study supports the geo-political argument on the interplay between spatial differentiation, economic development, political arrangements and geographical mobility. Geographical stratification was enhanced through systematic institutional and political arrangements, firstly in the economic restructuring during China's transition to a market economy, then in the opportunity structures such as access to higher education. The state played an essential role in the uneven economic development of different regions. Moreover, the decentralized governance allowed the eastern provinces to increase the advantages of their people in accessing higher education. The same institutional structures punished the students from the poor western and central region who were relatively disadvantaged in their opportunities in achieving upward social mobility through higher education. Geographical advantages of eastern regions were legitimatized through the decentralised policy measures, thus increasing geographical stratification.

At the contextual level, several points arise from the geographical inequality in access to higher education in contemporary China. Decentralised governance introduced in higher education led to the differentiated cut-off points and the quota policy that undermined meritocracy and exacerbated geographical inequality in the opportunity structures. In effect, the state's economic aims of accumulating human capital for nation-building through the meritocratic expansion of higher education were compromised by the growing power of the eastern political elites supporting preferential access to higher education for their local populations. The developed areas were the real winners from the quota policy. Hence, I argue that decentralisation policies in higher education, whilst consistent with the state's economic development objectives, have resulted in intensified regional inequality in access to higher education and the social mobility this offers.

Notes

[1] The fourth municipal city is Chongqing, which is located in the western province of Sichuan.

[2] The 'shock therapy' is a term coined by Jeffrey Sachs. It refers to a rapid market reform transition compared to a gradual reform for the post-Communist societies. For example, Poland experienced a '500 days' of the shock therapy, including extensive privatization of state assets, price liberation and the removal of the state control and planning in 1990 (IMF, 2014: 11).

[3] Fees exemption has been limited in selected higher education institutions, including some military colleges and institutions which are specialised in education, forestry, fishing and agriculture. Tuition fees for different universities are detailed in "The Standards for Fee-charging in Different Institutions" (China Education Online, 2010).

[4] The *binggui* policy was a substantial reform in the recruitment, fee-charging, and job assignment in higher education in China. By 1997, the *binggui* policy was implemented in the majority of higher education institutions, which is detailed in Achievements of Reforming Higher Education in the Past 30 Years (Ministry of Education, 2008).

[5] The idea of promoting the status and reputation of Chinese universities worldwide was first proposed in the 211 project in 1995. The 985 project was another product of the government's ambition to play a leading role in the knowledge economy and in scientific and technological innovation.

[6] The progression rate refers to the percentage of students population progressed from one level to the next. For example, the progression rate from primary to junior secondary level means the percentage of the students graduated from primary education to be enrolled in the secondary.

[7] The *Gaokao* candidates come from three main categories including 1) natural sciences, engineering and medicine; 2) arts, humanities and social sciences, and 3) music and sports studies. For the candidates from first two fields, math, Chinese and a foreign language are compulsory examinations while math exam is optional for the candidates in music and sports studies. The selection criteria are based on a combination of the points from the selected subjects. This article focuses on selection criteria for first two broad fields.

[8] This article focuses on cutting-off points from the national *Gaokao*s for the comparison purpose.

[9] This project aimed at developing around 100 key higher education institutions with excellent research centers, and key fields of study; and these institutions are labeled as 211 universities. The overall funding for the 211 project was around 18.6 billion from 1996 to 2000 and a further 18.7 billion was provided from 2001 to 2005 (Ministry of Education 2001).

[10] In some provinces which draw many students from outside, there is therefore an over-estimation of the actual progression rate. This is why the progression rates for Beijing (1996, 1999, 2005, 2009), Tianjin (1999, 2005, 2009) and Shanghai (1995, 2005, 2009) come out as more than 1.00 (100 %) in Table 3.

[11] Loyalka's research focused on higher education institutions with four-year bachelor degrees. Therefore, he estimated the national outflow rate in 2006 was 35. 1. Wu and Zhang (2010)'s study took into consideration of all types of higher education

institutions, equivalent to the ISCED4, 5 and 6. They estimated the outflow rate was less than 14 per cent (Wu and Zhang, 2010).

[12] Cut-off points are published to distinguish the vertical structure of higher education systems and the horizontal division between fields of study. For the former vertical structure, cut-off points are provided for non-degree institutions, general degree universities and elite/key universities. For the latter horizontal fields, two criteria of cut-off points are published for two broad fields of study, namely, the social and nature sciences respectively. Each field of study then indicates itself as either natural or social science category in the College Choice and Option forms.

[13] The data for each region are arranged in descending order of average entry points.

[14] Shavit et al.' study primarily focused on East Asian societies and Western industrial countries. Therefore, the results on the expansion of higher education and the impact on increasing participation might not be extended to other developing contexts.

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