Equality and Equity in Chinese Higher Education in the Post-massification Era: An Analysis Based on Chinese Scholarly Literature

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Abstract

This paper examines several research questions relating to equality and equity in Chinese higher education via an extended literature review, which in turn sheds light on evolving scholarly explorations into this theme. First, in the post-massification era, has the Chinese situation of equality and equity in higher education improved or deteriorated since the late 1990s? Second, what are the core issues with respect to equality and equity in Chinese higher education? Third, how have those core issues evolved or changed over time and what does the evolution indicate and entail? Methodologically, this paper uses a bibliometric analysis to detect the topical hotspots in scholarly literature and their changes over time. The study then investigates each of those topical terrains against their temporal contexts in order to gain insights into the core issues.

Keywords: equality and equity; Chinese higher education; post-massification era; regional disparities

Expansion and diversification are often twin phenomena in higher education development. While expansion may enhance the opportunities for large numbers of people to experience some form of higher education, diversification is likely to lead to inequality of opportunity with respect to the quality of the education received as well as future options for subsequent education and employment. China is not immune to this trend. The drive towards massification, which began in the late 1990s, has ushered in and maintained the tensions between equality and efficiency. As participation in higher education grew at an unprecedented rate, the Chinese government launched several excellence initiatives, such as the "211" and "985" projects and most recently the "double first-class" programme, to create centres of excellence in the Chinese system. Compared with other nations, the vertical diversification in the Chinese system

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appears to be more rigorous – boosted by the concentrated use of public resources, which is in turn underpinned by the notion of meritocracy rooted in the Confucian tradition.[1] Interwoven with such vertical diversification, the gender and socio-economic status (SES) gaps continue to exist among students in terms of their academic attainment, social engagement and career opportunities. This scenario is further complicated by gaps in social and economic development and regional disparities in a massive country like China, and internationalization (which entails access to various kinds of resources – material, capacity and status). Arguably, the Chinese government has been endeavouring over the years to improve equality and equity in Chinese higher education, especially with respect to geographically imbalanced and unequal access to higher education resources.[2] Yet, such efforts are constrained by the tensions between goals of equality and efficiency – a dilemma quite typical for a developing country such as China.

Against this backdrop, this paper examines several research questions via an extended scholarly literature analysis, which in turn sheds light on evolving scholarly explorations into the issues of equality and equity. First, in the post-massification era, has equality and equity in Chinese higher education improved or deteriorated? Second, what are the core issues with respect to equality and equity in Chinese higher education? Last but not least, how have those core issues evolved or changed over time and what does this evolution indicate and entail? Equality and equity issues in Chinese higher education are not new in scholarly literature in mainland China; however, they are often examined as specific issues and in a segregated manner. In this sense, they provide an "accumulative database" for this study, whose comprehensive and integrated approach may result in an "atlas" of the Chinese situation. Here, higher education equality is aligned with "sameness" (the same opportunity and process) for everyone, while higher education equity is rather focused on the fairness of procedure as well as outcome for everyone. Such a distinction is important in this paper and, to some extent, it is used as a conceptual framework to detect the orientation and development of such scholarly discussions. Methodologically, this paper carries certain characteristics of a mixed-methods study, using a bibliometric analysis to detect the topical hotspots in scholarly literature and their changes over time. It then investigates each topical terrain against their temporal contexts to gain insights into the core issues. Arguably, such an approach is new to the literature concerning equality and equity issues in Chinese higher education. As such, this paper throws new light on the evolution of equality and equity issues in Chinese higher education since the late 1990s.

1 For more of this discourse, please see Liu, Ye 2016.
2 Hayhoe 1996.

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The Methods: Using a Bibliometric Analysis as a "Compass"

As mentioned above, this study uses the current mainland Chinese literature as a data source.[3] This literature embeds the empirical aspects of the issues in scholarly research. Much may be explored and analysed from this body of literature, despite the challenges of navigating through such a large mass. There have been only a few similar attempts to date. Fan Wankui and Duan Zhaobing apply textual analysis to 141 pieces of research dealing with equality issues in Chinese higher education that were published between 1999 and 2010. They sort these items according to date of publication, publisher journals, authors' information and themes of study. Their analysis detects a rise in equality studies together with increasing diversification in research methods and theoretical perspectives, yet they also find significant arbitrary variations in topics from year to year.[4] This is a useful attempt and highlights the validity of the second and third research questions of this study. Nevertheless, Fan and Duan's analysis is limited in its scale/scope of study owing to the manual nature of its processing (of literature). Yang Haiyan computes shared keywords in articles devoted to higher education studies that were published between 2004 and 2014 in the scholarly journals included in the Chinese Social Sciences Citation Index (CSSCI), and concludes that higher education equality has become a popular research subject.[5] Yang's study endorses the value of this paper's research questions in general; however, it fails to shed light on specific topics and issues tackled in the literature concerning equality in Chinese higher education. Chen Xinzhong and Lu Yao apply bibliometric analysis (assisted by CiteSpace software) to 4,682 Chinese journal articles examining equality and equity in higher education access opportunities and published between 2005 and 2014.[6] Their analysis reveals a steady rise in the number of articles focusing on higher education equality/equity, and the progress made from studying equality of access to examining equity in essence.

Inspired by this type of research, this study uses a bibliometric analysis of the Chinese literature – also assisted by the CiteSpace (5.1.R8.SE) programme – yet improves such research in three ways. First, this study uses a wider time span, from 1999 to 2017, hence tracks development in this research terrain over the entire massification period. Second, it takes an all-parameter approach, examining not only access issues but also all aspects pertaining to higher education equality and equity in China. Last, it covers articles sourced from the CSSCI database, primarily for two reasons: first, such articles provide mainstream and high-quality research outcomes, given the high threshold adopted by this database and, second, the CSSCI-listed journals publish proportionally more articles concerning such

3 Such data are gained from the Chinese Social Sciences Citation Index (a major Chinese scholarly journal index in social sciences), which assures quality and validity of the data used for analysis in this study.
4 See Fan and Duan 2011.
5 Yang, Haiyan 2015.
6 Chen and Lu 2016.

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topics.[7] Arguably, the CSSCI database provides both quality and quantity assurance for the bibliometric analysis in this study. As such, this study is based on a total of 410 articles published 1999–2017 in the CSSCI-listed journals that explicitly address equality and equity in Chinese higher education, and runs a bibliometric analysis with the keywords in those articles.

The outcome of the bibliometric analysis is graphically presented in a TimeZone view of the topical areas regarding equality and equity in Chinese higher education (Figure 1). There are four clusters of hotspot topics concerning higher education equality/equity in China: higher education massification; higher education finance and cost; access equality or disparities; and social strata/stratification mobility rate. The graphic also has a temporal dimension: the time period 1999 to 2004 presents a topical cluster connecting higher education massification to the discussion of efficiency and equality; the time span 2004 to 2008 reveals a topical area that clusters accessibility and finance/cost studies; and the recent decade 2008–2017 manifests attention turning to social stratification in higher education as well as the consequent disparities – this is particularly the case since 2013. Specifically, the massification topical cluster includes equality and efficiency, equal opportunity and social equity. The finance topical cluster covers tuition fees, bursaries, loans, cost and appropriation. Some of the finance-related topics (for example, resource distribution) extend into the years after 2008. The social strata topical domain spans minority groups, harmonious society, family SES, cultural reproduction and stratification mobility rates. Hence, this graphic reveals distinctive core issues in different time periods. We then ask: why have the core issues evolved over these time spans, and how might they showcase development regarding higher education equality and equity in China? Such insights could not be derived from the bibliometric analysis, but are obtained through examining the substance of each topical area in the next section.

The Discussions: Conducting Topical Area Analysis to Gain Further Insights

This section is devoted to discussions of each topical area in an attempt to gain insights into how the core issues may have changed over time and to capture their trajectory of evolution.

The period focusing on higher education efficiency and equality: 1999–2004

Chinese higher education accomplished the move from an elite to a mass system in approximately one-fifth of the time it has taken other major countries to make the same journey.[8] The expansion campaign began in 1999 with an sharp annual

7 Ibid. This study retrieved articles from 1,303 journals. Of these, 15% were drawn from 17 journals listed in the CSSCI database (that is, only 1.3% of the total number of journals surveyed).

8 Please see Zha 2011 for details.

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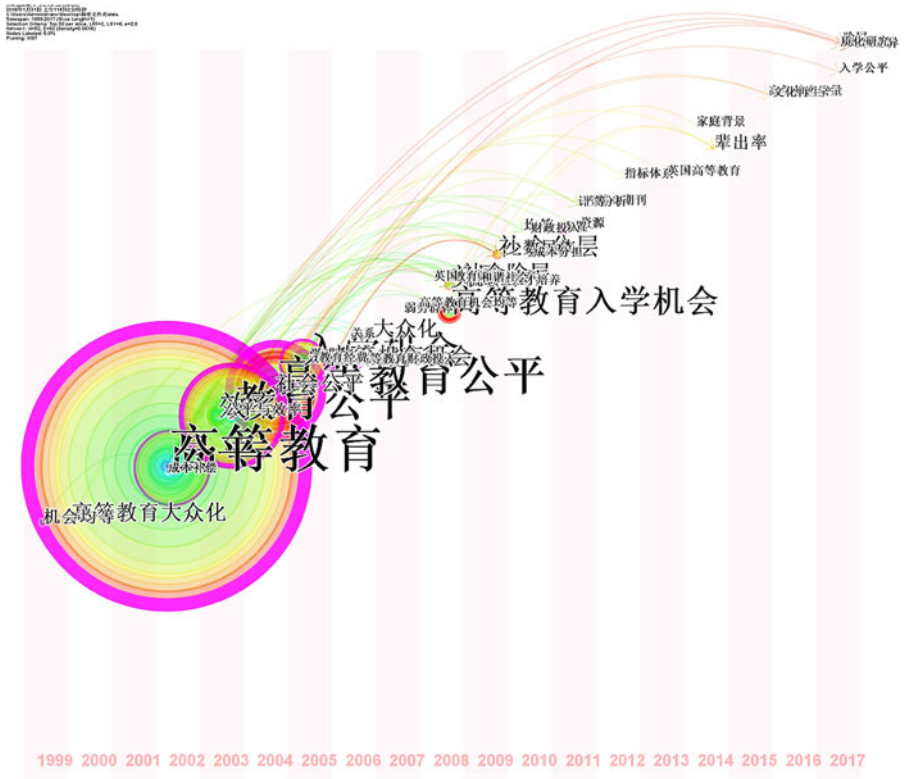
Figure 1: **TimeZone View of Topical Areas Regarding Higher Education Equality and Equity in China, 1999–2017**



increase of 47.2 per cent in new enrolments. Very rapid expansion continued until 2004, when the higher education student population in all forms was twice that of 1998. After 2004, enrolments continued to rise, but at a relatively slower pace. Around that time, the scale of Chinese higher education surpassed that of the US system and became the world's largest in terms of enrolment size.[9] In approximately the same time span, the Chinese state launched two major elite university schemes, namely the "211" and "985" projects.[10] These projects expressed China's determination to support a small number of top universities

9 Hayhoe and Zha 2006.

10 The 211 project was announced in 1993 but not implemented until 1995. It expressed China's intention at state level to identify and give special resource support to 100 top universities, and raise them up to "world-class standards" in the 21st century. Eventually, a total of 112 universities were selected for the 211 project. Understanding that the 211 project might be too ambitious, China sanctioned an even more elite initiative, the 985 project (announced in May 1998) to concentrate resource support at a much higher level in a smaller number of elite universities in order to create world centres of academic excellence on Chinese soil. Altogether, 39 universities were ultimately included in the 985 project, all of which were included in the 211 project. After 2017, these elite university schemes were superseded by the "double first-class" initiative, which pledges to boost first-class universities and first-class disciplines in China.

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and raise them to world-class standing. The selected elite universities benefited from the provision of substantial additional resources and were host to most of the country's graduate education programmes and research activities. The most elite of the universities were protected from overexpansion so as to focus on achieving global excellence; expansion mainly took place in the lower echelons. Local institutions (those under provincial and municipal jurisdictions), including newly emerging higher vocational colleges and private institutions, absorbed most of the additional enrolments. Notably, enrolments in the national elite universities grew mainly in a symbolic way, at graduate level or with the development of new programmes, from 1.36 million in 1997 to 1.63 million in 2005. By contrast, local institutions increased their enrolments most dramatically in the same period, from 1.79 million to 11.89 million.[11] At the time of writing, the local institutions accommodate over 95 per cent of the student population in the Chinese higher education system.

Such vertical diversification widened the gulf between elite and non-elite institutions. Figure 2 shows the growing revenue gap between national and local universities with the expansion of Chinese higher education.[12] Even more striking, in 2002 the 72 national universities under the Ministry of Education obtained research funds nearly twice as large as those shared by 1,154 local institutions.[13] On average, their research budget was more than 24 times bigger than that of local institutions. It was within this context that discussions emerged regarding the trade-off between efficiency and equality in the growth of Chinese higher education. On one hand, the expansion in the size of the Chinese system enabled more students to access higher education, while the stratification represented an effort to enhance the efficiency of the Chinese system as a whole. On the other hand, the increased enrolments were mostly absorbed by local and low-echelon institutions, which in turn resulted in a differentiated and often weakened learning experience for most students, thus significantly undermining educational equity. In the face of this dilemma, Jian Liu maintains that it was collectivism and elitism coupled with utilitarianism that legitimized and strengthened the hierarchy of Chinese higher education; however, it was the Confucian meritocratic tradition that mediated the public demands and the state's deliberate policies on differentiated provision, and thus moderated the debates about inequality.[14] Concerning the access/efficiency aspect, Chen Liang and colleagues draw on longitudinal data gathered from student registration cards from Peking University and Soochow University (both belonging to the elite category) from 1952 to 2002, and assert that the recent expansion helped students from worker and peasant families to rapidly rectify the previous monopoly of their upper-class

11 Ma 2009.

12 The term "national universities" refers to those administered directly by the Ministry of Education (72 in total) as well as other central ministries, while those under the jurisdiction of provincial or municipal governments are referred to as "local institutions" in this paper.

13 Zha 2011.

14 Liu, Jian 2012.

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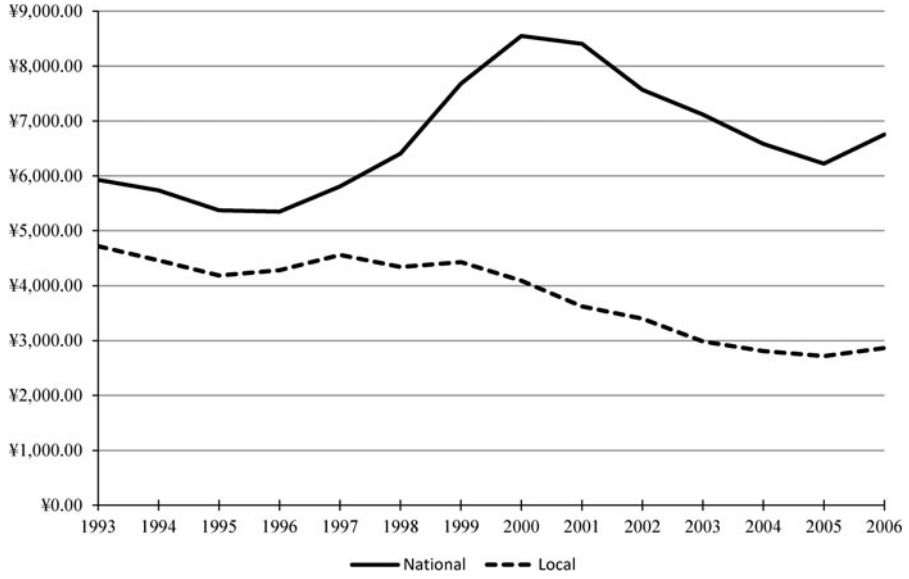
Figure 2: **Changes in per Student Funding for National and Local Universities in China, 1993–2006**



Source:
Compiled with data from Bao and Liu 2009.

peers.[15] Similarly, Liu Jingming demonstrates that the offspring of the working classes were continuously expanding their opportunities to access all types of higher education and contends that the access inequality between provinces significantly decreased owing to the wider access to higher education.[16] On the equality front, however, Yang Dongping empirically reveals that the gap between different social classes in terms of higher education opportunities has shown a widening trend since the launch of China's efforts to expand higher education enrolment.[17] Further, Yue Changjun confirms that, along with male students, students with better family backgrounds in terms of occupation, education, region and economic status had better opportunities to attend elite universities, and that these groups became more and more advantaged during this period.[18]

The period focusing on higher education accessibility and finance equity: 2004–2008

The massification of Chinese higher education was coupled with a decentralization of the system, which put an absolute majority (around 95 per cent) of higher education institutions under local control. The local higher education institutions

15 Liang et al. 2012.
16 Liu, Jingming 2006; 2007.
17 Yang, Dongping 2006.
18 Yue 2015.

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consist mostly of newly founded universities and higher vocational colleges. Arguably, it is the local institutions that have achieved the massification of higher education. Between 1997 and 2005, they increased by 2.5 times in terms of aggregate total, and by 7.7 times in terms of total enrolments.[19] This decentralization happened as Chinese universities and colleges were being granted less and less government funding at all levels, which was perhaps inevitable during such a dramatic expansion. The share of fiscal appropriations in institutional revenues declined significantly, from 93.5 per cent in 1990 to 42.5 per cent in 2005. Local institutions had to raise an increasing proportion of their operating funds from non-governmental and market sources. Adding to the expansion and decentralization was a cost-sharing and cost-recovery policy, which introduced tuition and other fees for students[20] and no longer regarded the state as the sole provider of higher education.[21] This policy led to rapid increases in tuition charges,[22] and a consequent dichotomous pattern in the financing of Chinese higher education in which fiscal appropriations and tuition fees constituted the two main sources of funding. In contrast to the diminishing share of government appropriations, the share of tuition fee contributions was ever increasing, from almost nothing in the early 1990s to nearly one-third of total revenue in 2005. Understandably, many local institutions received much less government funding compared to their national-level peers, and the contribution of student fees to revenues exceeded 40 per cent.[23] The constraints imposed by the limits on their resources meant that local institutions often offered educational programmes of lower quality than those offered in national universities, and they were not able to subsidize their students' educational activities and professional development. Students therefore paid relatively more to go to local higher education institutions yet received poorer quality education there. Such students were often from the lower SES family backgrounds. Such scenarios caused a shift in the focus of scholarly discussions from access equality to education equity. Here, access equality means providing access to everyone regardless of socio-economic status and situation, and education equity refers to giving students a comparable and appropriate education to their individual needs and learning abilities.

Arguably, education equity requires resource support for both institutions and students, and equality in providing such resource support. However, Pang Guobin notes a widening resource gap between national universities and local institutions in conjunction with the higher education enrolment expansion during

19 Ma 2009.

20 This policy was launched system-wide in 1997, although it had been piloted in small (but increasing) scales since the early 1990s (Li and Guo 2004; Yu, Chunping, and Zhang 2007).

21 Li and Guo 2004.

22 Between 1993 and 2004, the average tuition fees in Chinese higher education increased almost eightfold, while per capita disposable incomes in urban and rural areas in the same time span grew by 3.7 times and 2.8 times, respectively (Zhao and Song 2008).

23 Kang 2007.

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this period.[24] Certainly, public finance could not afford to fund all of the costs of this expansion, which meant that many areas of the higher education sector received lower levels of resource support. From 2000 to 2004, the funding appropriation per student changed by an annual rate of 0.66 per cent, -7.83 per cent, -8.47 per cent, -5.87 per cent and -2.70 per cent, respectively. State finance leaned towards the national universities, leaving local institutions severely underfunded. In 2001, local institutions and their enrolments constituted 92 per cent and 85 per cent of China's total higher education institutions and student population, yet their combined revenues only accounted for 57 per cent of the country's higher education incomes, and their per student expenditure and per student appropriation were 49 per cent and 43 per cent of those of their national peers. Against this backdrop, Wang Shanmei's voice was among the first to call for measures to address the problem of unequal education opportunities caused by tuition charges, advocating for multiple forms of aid such as tuition waivers, scholarships, bursaries and student loans in order to support those students unable to afford their higher education.[25] In his 2005 paper, Yang Kerui argues that China's current student aid policy, which relies primarily on loan schemes rather than bursaries, has done little to help the poorest students. He calls for the introduction of a state bursary programme to support students in extreme poverty at a level equivalent to the minimum urban living standard, noting that the Chinese government started, from 2005, to guarantee a subsidy of 150 yuan per month for the poorest 5 per cent of students in institutions of higher education.[26]

Yu Chunping and Zhang Minghao's paper highlights the fact that tuition and other fees charged by universities and colleges soared in the 1990s, especially when compared to the income increases of rural and urban residents. By 2003, average tuition and other higher education fees accounted for 189 per cent and 59 per cent of the mean income of rural and urban residents, respectively, which was unaffordable for many low-income families and those in rural areas in particular.[27] Luo Pushang and associates used 2008 data to show that under government control, student aid was distributed evenly across different types of institutions. This, however, disproportionally benefited students in the more selective universities, who were more likely to be from better-off backgrounds. As less selective higher education institutions have a greater proportion of lower-SES students, this policy left about 20 per cent of low-SES students with no support whatsoever.[28] As such, Luo and his co-researchers anticipated that tuition and other fees would impose a heavier burden on those students coming from low-SES families. The years that followed saw an increase in higher education funding appropriations, with public expenditure per student increasing at an

24 Pang 2007.
25 Wang 2000.
26 Yang, Kerui 2005.
27 Yu, Chunping, and Zhang 2007.
28 Luo, Song and Wei 2011.

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annual rate of 10.5 per cent from 2005 to 2015.[29] This increase in public spending was presumably aimed at easing the financial pressure on poverty-stricken students in higher education.

The period focusing on social stratification in higher education: 2008–2017

Social stratification was observed in Chinese higher education in the mid-1990s, prior to the enrolment expansion. Based on an analysis of 1995 data gathered from students in 37 universities, Zhang Yulin and Liu Baocun calculate that the ratios of opportunity to go to university for the children of peasants, workers, government officials, enterprise/business managers and professionals are 1 : 2.5 : 17.8 : 12.8 : 9.4, respectively.[30] Overall, a child from a peasant family is 5.6 times less likely to go to university than a non-peasant peer. This gap widens to 9.2 times in terms of going to the top universities, and the gap further grows to 17.9 times (for universities as a whole) and 31.7 times (for top universities) specifically for the child of a peasant and that of an official. Zhang and Liu attribute such inequalities in accessing university to the inequality of resources that exists between rural and urban schools, unbalanced admission quotas between rural areas and cities, and the organizational flaws that allow corruption in the admission process.

The inequality of resource supply is exacerbated by the stratification of Chinese higher education, which in turn affects the outcomes of higher education. Wu Hongbin and Guo Jianru disclose China's higher education rankings in the post-massification era: 985 project universities are at the top of the chart, followed by the 211 project universities, then local universities established prior to 1999 (the starting point of the expansion and massification), newly founded local universities, and higher vocational colleges placed at the bottom.[31] In 2013, among their 85 sample universities, the institutional revenue averaged at 4.0 billion yuan for 985 project universities, 1.5 billion yuan for 211 project universities, and 0.7 billion yuan for local universities. Also, they find there is a clear correlation between institutional revenues and the proportion of (relatively privileged) urban students enrolled in the various categories of universities: 61.5 per cent in 985 project universities, 50.0 per cent in 211 project universities, 43.7 per cent in top local universities (those enjoying the joint sponsorship of central ministries and local governments), 40.4 per cent in ordinary local universities and 32.5 per cent in newly founded local universities.[32] Zhou Jincheng, Dai Wenjing and Liu Dashang find that there are persisting and growing gaps between national and local universities, as well as with higher vocational colleges, in terms of fiscal appropriation.[33] Although local universities have received

29 Fang and Liu 2018.
30 Zhang, Yulin, and Liu 2005.
31 Wu, Hongbin, and Guo 2018.
32 Ibid.
33 Zhou, Jincheng, Dai and Liu 2018.

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increases in per student funding since 2005, they have not managed to close the income gap with national universities. Rather, as growth in funding for local universities began to slow around 2012, the fiscal gap with national universities in terms of per student appropriation has grown even wider.[34] Compared with local universities, higher vocational colleges have received even less funding, while enrolling over 27 per cent of all higher education students, mostly from vulnerable social groups. Given that local universities have fewer resources and are thus equipped with far fewer facilities – and this is also the case for higher vocational colleges – Zhou Yong highlights the despair of poverty-stricken rural students who, seeing that there is little social mobility to be gained from attending local institutions, spurn higher education altogether.[35] Xie Ailei describes a shift in how these despairing students view higher education, from "learning for uselessness" to "learning for hopelessness." Poor rural families have little economic or cultural capital to enable their offspring to gain social mobility via an education at the best universities, while education in low-echelon institutions often results in low-status jobs or even no employment at all.[36]

Consequently, some argue that the expansion and massification of Chinese higher education have essentially reinforced social strata reproduction and social stratification, albeit while also improving an overall participation rate in higher education.[37] Others, however, hold that poor students may still acquire and develop cultural capital via higher education – despite their economic constraints – which in turn can boost their upward social mobility. Yu Xiulan and Han Yan observe certain aspects of the unique fluidity and mobility of cultural capital in the Chinese higher education system and Chinese society at large. In contrast to the class division and social exclusion concerning cultural capital reproduction in some other societies, as discerned and analysed in Pierre Bourdieu's classic texts,[38] they notice no significant difference in cultural habitus between middle-class families and those at the bottom social stratum; even families in extreme poverty maintain high educational expectations for their children.[39] If diligence and tenacity could be viewed as part of cultural capital, students from families on the lowest socio-economic rungs could be viewed as holding more cultural capital than their middle- and upper-class peers. Such qualities are more likely (compared with other "highbrow" habitus) to lead to good academic performance and scores, which are, arguably, the sole factor enabling access to top universities in China. In other words, while economic income serves to solidify social class distinctions, cultural capital demonstrates fluidity across social strata in Chinese society and thus may be leveraged to foster higher education equity,

34 Ibid. In 2005, government-funded appropriation per student in local universities was on average 5,435 yuan less than that in national universities. This difference, however, grew to 12,472 yuan in 2016.
35 Zhou, Yong 2017.
36 Xie, Ailei 2017.
37 See Deng 2013; Lian 2012; Sun 2010.
38 Bourdieu 1974; 1977; 1990.
39 Yu, Xiulan, and Han 2018.

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as long as the low-SES students could be assisted with a compensatory path to desirable educational destinations.

Starting in 2012, the Chinese government launched a number of special student recruitment schemes to aid students in poverty-stricken areas. These include the State Special Recruitment Scheme (*guojia zhuanxiang jihua* 国家专项计划, SSRS hereafter), which every year enables around 10,000 students from impoverished areas to attend good quality universities and colleges,[40] the Local University Special Recruitment Scheme (*difang zhuanxiang jihua* 地方专项计划, LUSRS hereafter), which requires participating top local universities to set aside 3 per cent of their recruitment quota for rural students and, finally, the National University Special Recruitment Scheme (*gaoxiao zhuanxiang jihua* 高校专项计划, NUSRS hereafter), which supports rural students to attend national universities under the jurisdiction of the Ministry of Education and other central ministries. Under the NUSRS, 95 participating institutions set aside up to 2 per cent of their enrolment quota for such students. Wu Qiuxiang and Cui Shen note an annual increase of 170.5 per cent in the number of rural students who have benefited from the NUSRS since 2014, and that by 2017, approximately 200,000 rural students had been enrolled at top national universities through its support.[41] Wen Wen, Lian Zhixin and Yang Fan's study focuses on a group of rural students admitted to a 985 project university in Beijing in 2014 through the NUSRS. They find that, on average, the parents of those students did not complete junior high school and so, with less than nine years of basic education, they constitute a disadvantaged group. Without the assistance offered by the NUSRS, 95 per cent of the students would not have had the opportunity to attend this leading university.[42] Xiong Jing and Yang Jie investigate the academic development of a group of NUSRS-sponsored rural students studying at a first-rate university in Shanghai. This study, however, finds that these students are more likely to encounter obstacles to their academic progress and thus need more time than their peers to adapt to study programmes at the university.[43] Xiong and Yang's study demonstrates that students' self-commitment and a supportive environment may significantly impact their academic performance: with each unit increase of their self-commitment, they may improve academic adaptability by 20.9 per cent; with every unit increase of teachers' instructive intensity, the students may improve their adaptation by 18.2 per cent.

If those studies focus on a special group among the socio-economically disadvantaged students, the recent increased attention to the first-generation students represents a broad concern for the well-being of poorer students generally. Students who are the first to attend university in their families (which are

40 This scheme initially covered 680 poverty-stricken counties spread across 21 provinces. It is now reported to have covered over 800 counties and enabled 63,000 students to study in over 200 universities and colleges in 2017 (Wen, Lian and Yang 2018; Cao, Zhang and Hou 2018).

41 Wu, Qiuxiang, and Cui 2018.

42 Wen, Lian and Yang 2018.

43 Xiong and Yang 2018.

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normally of low SES) now make up over 70 per cent of total enrolments in Chinese universities.[44] Research identifies the key characteristics of such students: most come from rural areas (around 70 per cent) and have parents with a junior high school education or less; many (nearly 65 per cent) are in the top 20 per cent of achieving students in their high school classes; an absolute majority (90 per cent) cluster in local universities and most (close to 75 per cent) major in STEM programmes. In addition, they are underprivileged and underperform – in comparison with other student groups – in active learning experiences (for example, engaging in scholarly discussions beyond curricular requirements), extended learning activities (for example, language ability acquisition beyond degree requirements, study-abroad courses/programmes), and research-oriented activities (for example, participating in professors' research projects, presenting/publishing in scholarly conferences and journals). Thus, they lag far behind their peers in terms of pursuing advanced studies (17.8 per cent versus 33.5 per cent). Such a portrayal indicates that the first-generation university students have the potential (and motivation) for academic and professional development, but owing to their severe lack of social and cultural capital, they need a systemic boost in order to achieve academic success.

Further Discussion: Revisiting Regional (and Institutional) Disparities in Contemporary Context

Geographically and historically, China is broadly divided into three major economic development zones: the developed region includes principally the coastal municipalities and provinces in the east; the medium-developed region comprises mainly those provinces in central China; and the hinterland west is a less-developed region.[45] Such economic disparities have certainly found expression in higher education, with the more developed regions clearly enjoying superior higher education resources. To a certain extent, inequality was rectified by administrative power under the planned economy regime. Notably, the higher education reorganization campaign in the early 1950s intentionally launched a "geographical rationalization of higher education" over the six major geographical regions,[46] with every region having at least one of each of the three main types of institution,[47] all of which were directly administered by a national

44 See Zhang, Huafeng, Zhao and Guo 2016; Zhang, Huafeng, Guo and Shi 2017.

45 This paper adopts the following division of China's economic development regions, as stated in the Seventh Five-Year Plan: the East Coastal Developed Region comprising 11 provinces and municipalities (Beijing, Fujian, Guangdong, Hainan, Hebei, Jiangsu, Liaoning, Shandong, Shanghai, Tianjin and Zhejiang); the Central Medium-developed Region comprising 10 provinces and autonomous districts (Anhui, Guangxi, Heilongjiang, Henan, Hubei, Hunan, Inner Mongolia, Jilin, Jiangxi and Shanxi); and the West Underdeveloped Region, which includes 10 provinces and autonomous districts (Chongqing, Gansu, Guizhou, Ningxia, Qinghai, Shaanxi, Sichuan, Tibet, Xinjiang and Yunnan).

46 Hayhoe 1996, 77.

47 They are, namely, comprehensive universities with programmes in the basic arts and sciences, polytechnic universities with a wide range of applied scientific programmes, and teacher training universities responsible for setting national standards for education.

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ministry of higher education and played roles as both national and regional core universities.[48] In order to achieve a higher education "geographic map that included the center and hinterland parts of the country more fully,"[49] a considerable number of major coastal universities were relocated partially or fully to central and hinterland locations, and a dozen new institutions founded in the hinterland.[50] Consequently, some coastal places lost many of their higher education institutions to central or hinterland China. For example, Shanghai had 37 universities in 1949, but only 15 in 1953 as a result of many being relocated in whole or in part to the central and western regions; Guangdong province saw its higher learning institutions reduced from 12 in 1949 to seven in 1953; and the eight universities in Fujian province were reduced to four in the same period. In the meantime, many central and hinterland provinces and autonomous districts enjoyed a significant boost to the numbers of universities within their jurisdictions. Institutions increased from three to seven in Shaanxi province, two to four in Henan province, two to five in Hunan province, one to four in Shanxi province, and none to two in Inner Mongolia Autonomous District. As a result, a few higher education hubs were created in central and even in hinterland China in cities such as Xi'an (Shaanxi province), Lanzhou (Gansu province), Chengdu (Sichuan province) and Chongqing (previously a city in Sichuan and now an independent municipality) in the western hinterland, and Wuhan (Hubei province) and Changchun (Jilin province) in central China. Hence, it might be fair to say that the legacies of regional disparities in higher education were to a certain extent offset by the Chinese state's administrative forces prior to the reform era when a market economy started to take hold.

As the post-Mao reform era unfolded, China gradually moved from a planned economy to one drawing increasingly on market forces. In the process, the coastal region was quick to take advantage of the fast-growing market elements and rapidly developed its local economies. At the same time, the growth and development of higher education began to be given greater priority on the local development agenda and eventually became an indicator signifying the degree of local development, particularly in the context of an emerging knowledge-based

48 Hayhoe and Zha 2006.

49 Hayhoe 1996, 79.

50 Such universities include the renowned Shanghai Jiaotong University, which was relocated to the hinterland city of Xi'an in 1955 and administered by the-then Ministry of Higher Education; the East China Aeronautic University, which was moved from Nanjing to Xi'an also and was combined with a local engineering institution to form the Northwest Engineering University under the jurisdiction of the-then Ministry of Machine Building; the medical school of Tongji University in Shanghai, which moved to Wuhan and joined its counterpart in Wuhan University to create an independent Central South Tongji Medical Institute under the administration of the Ministry of Public Health; the departments of electronics of Shanghai Jiaotong University, the Nanjing Institute of Technology and the South China Institute of Technology in Guangzhou, which were moved to Chengdu in Sichuan to form the basis for the Chengdu Institute of Telecommunications Engineering under the administration of the-then Ministry of Machine Building; and the famous Tangshan Railway Institute (located close to Tianjin and Beijing), which moved its departments successively to Lanzhou in Gansu province and Emei in Sichuan province, which in turn later became the Lanzhou Railway Institute and Southwest Jiaotong University, respectively, both under the-then Ministry of Railways.

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economy.[51] Local governments were now motivated to invest in higher education. Although this accelerated the expansion of higher education, it also exacerbated the regional disparities in resources allocated to higher education development.[52] According to Liu Liang, local government funding on average accounted for 62.8 per cent of regional resource disparities in higher education between 1998 and 2004, which was a period of rapid expansion of higher education in China.[53] More recent data reveal even more striking differences in higher educational resources across the country: universities with 1 billion yuan or more in revenues are concentrated in the eastern coastal region; in 2018, the top ten wealthiest universities in the coastal province of Guangdong had an average budget twice that of their peers in the central province of Hubei, and 5.2 times larger than that of their peers in the western province of Gansu.

Such disparities in resources inevitably lead to gaps in higher education infrastructure development as well as to gaps in access and quality of higher education. This in turn lends more advantages to economically prosperous areas.[54] In 2017, the developed eastern coastal region was home to 1,129 universities and colleges (42.9 per cent of China's total), the central region had 957 higher education institutions (36.3 per cent), and the underdeveloped western region had 549 such institutions (20.8 per cent). A closer look at the higher education landscape reveals that there were 573 universities (46.0 per cent of China's total) in the developed east, 425 universities (34.1 percent) in the central region, and just 249 (19.9 per cent) in the underdeveloped west. Local institutions constitute the majority of higher education institutions and primarily serve the local population; however, even national universities adopt preferential admission quotas in favour of their localities. As such, students residing in China's coastal developed region have a greater choice in institutions and superior access to higher education than their peers in the central and western regions and, likewise, this is the case for the central students versus their western peers.

Such widening geographical disparities are further complicated by the vertical hierarchies within the system. Propelled by goals of a knowledge-based economy and global competitiveness, the Chinese government has embraced neoliberal strategies in order to enhance elite universities' capacity for efficiency and effectiveness in research, innovation and talent cultivation – but this has often been at

51 Xie, Weihe 2018.
52 Ibid.
53 Liu, Liang 2007.
54 A good example to illustrate this point is Shenzhen. Despite enormous economic growth over the past three decades or so, Shenzhen still suffers from an underdeveloped higher education infrastructure. To rectify this shortcoming, Shenzhen leverages its economic strength and encourages top-echelon universities to set up satellite campuses there. So far, it has successfully attracted over 20 such universities, including 17 985 project universities and one 211 project university as well as six universities from Hong Kong, and it pledges to double its higher education enrolment by 2025. In the same way, Suzhou in one of China's most prosperous provinces, Jiangsu, has had success by bringing in high quality tertiary education resources from home and abroad. To date, it has eight 985 project universities and one 211 project university from other parts in China as well as the University of Liverpool and the National University of Singapore.

Table 1: **Proportion of 211 Project Universities' Major Resources in National Aggregation in 2002 When Phase One Was Accomplished**

Resource Item	211 Project Universities' Proportion (%)
Assets of instruments and equipment	38.7
Doctoral student enrolment	86.0
Master student enrolment	69.1
Bachelor/sub-degree student enrolment	18.3
International student enrolment	58.2
Research funds	70.1
National key research laboratories	100.0
National key study programmes	83.6
Patent registration	72.8

Source:
Compiled with data from Guo 2003, 16.

the expense of equality and equity in higher education. While low-echelon institutions must increasingly rely on market forces (i.e. on revenues generated by non-government sources such as student tuition fees), elite universities enjoy very generous state patronage and receive an extraordinary concentration of public resources. There were 84 national and 28 local universities selected for the 211 project. Under China's Ninth Five-Year Plan (1996–2000), those universities were given a significant advantage in terms of possession of key resources, and were home to most of the graduate education and research in the Chinese system, as shown in Table 1.[55] All 39 institutions selected for the 985 project were national universities. Such a strategically and huge vertical differentiation (widening structural inequality) is inevitably interwoven with regional disparities (persisting geographical inequality), resulting in an interactional process that arguably favours the economically developed locations. Table 2 displays a snapshot of such a changing pattern of regional imbalance and inequality relating to those elite university initiatives in 2002, when both the 211 and 985 projects were fully operational. The more recent "double first-class" initiative launched in 2017 has continued and reinforced both the hierarchization of higher education institutions (the top 10 per cent of universities now house nearly half of all the academic disciplines supported by this project) and the regional disparities (as shown in Table 3).[56] It does appear, however, that the western underdeveloped region has recently gained some benefit owing to a deliberate policy that adds a few western universities to this project.

Needless to say, the persisting regional disparities – now interlaced with and complicated by structural and systemic differentiation in the Chinese system – have had a significant impact on the equality and equity of higher education in

55 Notably, the 211 project universities only constituted 17.4% of all the public universities when the data displayed in Table 1 were collected.

56 This new initiative is meant to upgrade the 211 and 985 projects, which were seen as requiring an infusion of new dynamics.

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Table 2: **Chinese Higher Education Regional Disparities, 2002**

HE Parameters	Developed East	Medium-developed Centre	Underdeveloped West
Population	32.9%	48.2%	18.7%
Number of HEI	39.3%	44.5%	16.2%
Undergraduate and sub-degree enrolment	42.2%	43.7%	14.1%
Graduate enrolment	59.1%	27.5%	13.4%
Doctoral programmes	63.7%	24.6%	11.7%
Master programmes	50.9%	34.2%	14.9%
Project 211 institutions	59.4%	27.1%	13.5%
Project 985 institutions	63.3%	20.0%	16.7%
National key programmes	67.7%	21.7%	10.6%

Source:
Adapted from Zha 2006, 207.

Table 3: **Universities and Disciplines Included in the Double First-class Initiative by Region, 2017**

Region	University		Discipline	
	Number	Percentage	Number	Percentage
East	87	62.1%	331	71.2%
Central	25	17.9%	83	17.8%
West	28	20.0%	51	11.0%
Total	140	100.0%	465	100.0%

Source:
Computed with data published by China's Ministry of Education.

the country. With more and better universities clustered in economically prosperous areas, students residing in those areas have greater access and opportunity.[57] In contrast, students living in impoverished regions in western and central China suffer the most from regional disparities in higher education. In response to these realities, deliberate policies have been introduced to support universities and students in those regions. The most important of these is the "Central and west China higher education revitalization plan" (*zhongxibu gaodeng jiaoyu zhenxing jihua* 中西部高等教育振兴计划), which pledges to invest 10 billion yuan in the period 2012–2020 to support 100 local universities in those regions in an effort to raise the higher education infrastructure to a national standard. In more concrete terms, the special student recruitment schemes (the SSRS, LUSRS and NUSRS, outlined above) aim to assist students from poor families in less developed regions to access high-quality universities. While these schemes help to

57 Those national universities, although financed by the central government, always have a preferential admission quota (up to 60% of the annual intake in some cases!) for applicants in their locational provinces or municipalities.

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alleviate the issues stemming from higher education inequality (access to opportunity) and inequity (access to quality), they tend to favour the regions with large impoverished populations, which render more applicants; however, they overlook the different levels of poverty within poor populations. Put another way, these various schemes to reduce inequalities and inequities may help less poor students with better academic performance, but it is those students whose academic performance is impacted by the severe poverty they experience who are actually in more need of assistance.[58]

Concluding Remarks

Using the Chinese scholarly literature as a "compass," this paper looks at the evolving analysis of equality and equity amid the expansion and massification of higher education in China. When relating the evolution of such studies to the research questions, this paper detects various core issues that have emerged at distinct times over the last three decades. The period from 1999 to 2004 sees topical discussion centre on the connection between the massification of higher education and equality and efficiency. This focus switches to accessibility and financial equity in the period from 2004 to 2008. Discussion in the decade between 2008 and 2017 concentrates on social stratification and the outcomes of higher education. Arguably, such a scenario of periodization sheds light on a progressive attention to higher education equality/equity in China, from focusing on higher education access equality/accessibility, to financial equity and, eventually, to issues of social equity, which in turn entails an equation of access-process-outcome in the relevant discourse. This examination reveals the shifts in discourse and policy regarding China's higher education sector, from prioritizing social development efficiency to stressing human development needs.[59] Despite this progression, however, there appears to be a discord with social reality, with ongoing challenges ushered in by cost sharing and cost recovery, differentiation and hierarchization, and widening disparities of regional infrastructure and development in higher education – as well as the combined effects of these factors. Arguably, such developments tend to make higher education equality and equity path dependent on notions and practices embedded in the efficiency model of social development. As such, rural students in China's poverty-stricken hinterland now find it difficult to afford higher education, and even where they can afford higher education, they tend to be concentrated in low-echelon institutions and end up joining the ranks of the so-called "ant tribe" – low-income

58 See Wu, Qiuxiang, and Cui 2018; Cao, Zhang and Hou 2018.

59 Cheng 2017. The efficiency framework for social development uses the approach of promoting efficiency in the first place in order to meet socio-political development needs (typically, the overall human capital outputs and higher education accessibility) while endeavouring to balance efficiency with equality and equity considerations. The human development framework places emphasis on the students – not just some students but all students, and not only access to higher education but also students' lifelong development – and therefore equity is a central concern.

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university graduates who settle for a subsistence-level existence in the cities. Naturally, this troubling scenario and the research findings have caught the attention of the Chinese government and policymakers, who have responded with a series of policies and schemes aimed at rectifying the inequalities and inequities that exist in the higher education system in China. At present, it remains to be seen how effective those policies and schemes will be.

Conflicts of interest

None.

Biographical notes

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摘要: 本文通过梳理和分析中文文献来研究关于中国高等教育公平与公正的几个问题，进而揭示关于这一主题学术探讨的演进过程。首先，在后大众化时期，中国高等教育公平与公正状况自上世纪90年代末以来有所改善、还是退步了？第二，关于中国高等教育公平与公正研究的核心问题有哪些？第三，那些核心问题是如何随着时间演进和变化的，而且核心问题的演进揭示和意味着什么？本文在研究方法上先以文献计量分析确定学术文献中的研究热点及其变化，然后探究每个热点研究范畴以期深入了解那些核心问题的时代背景。

关键词: 公平与公正; 中国高等教育; 后大众化时期; 区域差异

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