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INSTITUTIONAL TRANSFORMATION AND AGGREGATE EXPANSION OF CHINESE HIGHER EDUCATION SYSTEM

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INTRODUCTION

From the 1990s to the beginning of the 21st century, the Chinese higher education system underwent reforms resulting in decentralization and an increase in both the number of higher education institutions and student enrollment. China began to increase college admission dramatically in 1999, when a decentralized system was put in place. The provincial sector played a leading role in the “massification” of Chinese higher education. It is the kind of competition mentality that provided the momentum and drove provincial governments to expand higher education enrollment in their jurisdictions. Statistical analysis shows that standard deviations among the provinces in terms of college admissions varied narrowly in 1999-2010, and the coefficient even declined for the years of 1999-2004 when the Chinese higher education system expanded dramatically. This implies an improvement in the extent of equalization of higher education opportunity among the provinces. In addition, scale expansion has facilitated the development of a market mechanism for higher education admission and graduate employment. Nevertheless, there are some limitations with expansion under the patterns of decentralization. Due to constraints on provincial finance, dramatic expansion of enrollment may have affected the operating conditions and quality of Chinese higher education.

Although there is a large amount of literature on higher education expansion in China, most research focuses on the influence of expansion on the higher education system and on society. Very few studies analyze in any depth the reasons for this expansion. Wan (2006) believes that a major cause of the expansion since the 1990s is the central government’s efforts to stimulate consumption and ease employment pressures, satisfy relatively high interest and demand for higher education among the public and provide the government with a way to link higher education expansion with a state blueprint. However, most existing studies have only discussed this issue from the perspective of social and economic development or the policy of central government. Very few studies have mentioned the behavior of local governments in the expansion. Against this backdrop, we explore the issue from a different perspective and propose the following three research questions: 1) How does the decentralized higher education administrative system influence enrollment expansion? 2) Are there any changes in terms of regional gaps, diversity and quality of higher education system with expansion under the decentralized administrative system? 3) Are there constraints on higher education expansion under the decentralized system?

THE ANALYTICAL FRAMEWORK

Higher education expansion, which refers to moving from elite to mass then finally to universal higher education, is a common development worldwide. However, the paths and motivations of higher education expansion in different countries vary due to different administrative systems of higher education (Trow, 2006; Teichler, 2007; Kerr, 2001). Countries with small populations tend to adopt a unitary higher education administrative system, while for those with large populations, both central government and local governments are involved in the process. In the latter case, the higher education system can be divided into two kinds according to the power relationship between central and local governments: the centralized system and the decentralized system. In the existing literature on higher education, very few studies have attempted to explain the relationship between the centralized/decentralized system and higher education expansion. In this paper, the authors will try to create a framework to analyze this issue based on the following views on decentralization and local government competition in China.

Chinese Style Market-Preserving Federalism

Qian and Weingast (2008) propose the theory of Chinese style market-preserving federalism. They suggest that the strong incentive of Chinese local governments derives from two sources. One is administrative decentralization. The devolution of administrative power over the economy gives local governments more discretion over economic decision-making. The other is the reform program of fiscal decentralization, which mainly refers to a contract system for revenue and expenditure of the local governments, allowing the local governments to pursue fiscal incentives. The theory of Chinese style market-preserving federalism provides a unique perspective for analyzing the reform motivation of China's local governments.

Promotion Tournament Theory

Promotion tournament theory can be an important one for analyzing fiscal decentralization and expenditure on public services by the local governments. Promotion tournament is an administrative governance model, which refers to a rule made by the government at a higher level on promotion of officers at lower levels, with winners of the competition being promoted. The criteria for promotion, such as GDP growth rate or other quantitative criteria are created and controlled by the government at higher levels. The central government uses this method to provide a strong incentive to the officers of local governments who care about their political careers (Zhou, 2007). By using the provincial level data since the late 1970s, Zhou, Li and Chen (2005) find that there is a significant positive correlation between the promotion probability of provincial level officers and the growth rate of provincial GDP. The method of competitive performance evaluation that is applied by the central government in the practices of evaluation and assessment may enhance this effect.

Fiscal Decentralization, Promotion Tournament and Education Expenditure of Local Governments

Most existing studies on the relationship between decentralization, local government competition and education development mainly focus on the effect of fiscal decentralization to education expenditure. Some studies find that the reform of fiscal decentralization encourages competition among local governments and increases the supply of public goods. Gong and Lu (2009) find that there is a positive correlation between degrees of fiscal decentralization and education including higher education expenditure, and that education expenditure increases with fiscal decentralization. But some other studies show that the reform of fiscal decentralization is implemented under a context in which authority between different levels of government is not well defined, and local governments are short of steady revenue. It neither reflects households' preferences for local public goods, nor provides incentives to encourage local governments to provide effective public goods. So that in public goods supplied by local governments, those related to economic growth increase rapidly, while others such as education are insufficient (Shu, 2010).

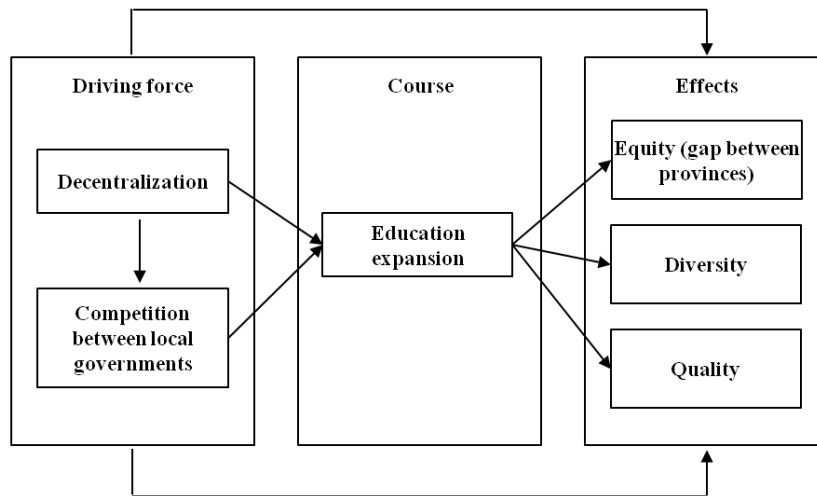


Figure 1. An analytical framework on decentralization, higher education expansion and their interactive effects

Drawing on the aforementioned views, the authors propose an analytical framework in Figure 1, comprising of three parts: higher education decentralization, expansion and their interactive effects. This is also the main logical framework for this chapter. In the last 30 years, decentralization, which refers to change from a highly centralized administrative system to a decentralized one involving both central and local governments, is the primary goal of reform of higher education governance. Meanwhile, expansion is always the theme of higher education development. Scale expansion can lead to some intended or unintended consequences which catch the public's eyes and need to be explored. Three domains of the consequences are defined here in terms of equity, diversity and quality.

ANALYSIS AND DISCUSSION

In this section, two hypotheses are proposed according to the aforementioned analytical framework. The first hypothesis concerns the driving force of higher education expansion. Specifically it is a decentralized system that can lead to competition among provincial governments for a bigger enrollment ratio, and this can in turn speed up the achievement of the higher education massification objective. The second hypothesis pertains to the consequences of higher education expansion. Both positive and negative effects may be observed. According to a market logic, positive effects are expected to dominate in terms of diversity and equity, and negative effects on quality are to be expected due to resource deficiencies. In the following paragraphs, evidences will be explored and analyzed to verify the above-mentioned hypotheses. The data has been obtained by field work, official yearbooks and statistics.

Process of Higher Education Expansion under a Decentralized Structure

Before China's reform and opening up started in 1978, centralization was the distinguishing feature of China's higher education administration. Most universities were under the jurisdiction of the central government except for some local universities. The mission of these institutions was training specialized talents for particular industries, such as metallurgy, geology, petroleum, machinery, textiles, agriculture, and forestry. Local governments thus lacked the motivation to develop higher education. To a large extent, they regarded higher education as a financial burden and were not willing to increase their expenditure on it. Even in the 1990s when the large-scale mergers of higher education institutions in China began, some provinces were still reluctant to take up responsibility for institutions which had been under the management of central government ministries before their dissolution. Provincial governments also showed little interest in running institutions together with the central ministries. Besides, there were little communication and cooperation between universalities

managed by central government and those by local governments, which led to barriers between these two kinds of institutions, as well as the problem of program overlappings (Yan & Min, 1999). Decentralization has been the fundamental mode of reform since economic reform started in 1978. Decentralization, which refers to the shift from a sectoral economy to a regional economy, as well as from a centralized fiscal system to multi-level fiscal system, reflects the trends of the market economy and satisfies this mode of economic development (Xin, 2000). In the context of economic and fiscal reform mentioned above, decentralization, which refers to the devolution of power from central government to local governments, became the thread of higher education administrative system reform since the 1980s, and especially prominent in the 1990s. The Decision on the Reform of Education System made by the Central Committee of Chinese Communist Party and the State Council and issued in 1985 stated that:

To encourage governments of all levels to develop education, an administrative system involving three bodies: central government, province (municipality) and central cities will be used.

However, in the mid-1980s, reform proved so difficult that there was no real change in the Chinese higher education administrative system. In 1989, universities managed by the central government still accounted for 32.83% of the total, and the number of students in national universities accounted for 43.89% of the national student body (see Table 1).

Year	National				Local			
	No. of institution	Proportion of institution (%)	No. of student	Student Proportion (%)	No. of institution	Proportion of institution (%)	No. of student	Student Proportion (%)
1989	353	32.83	913,841	43.89	722	67.17	1,168,270	56.11
1999	248	23.16	1,242,943	30.42	823	76.84	2,842,931	69.58
2010	111	6.59	409,742	8.74	1,573	93.41	4,278,001	91.26

Table 1. The number and proportion of national and local universities and their respective student totals in 1989, 1999 and 2010

Data source: Educational Statistics Yearbook of China (1989, 1999 & 2010). Beijing: People's Education Press. [中国教育事业统计年鉴. 北京: 人民教育出版社.]

After Deng Xiaoping's Southern Tour in 1992, the market economy was confirmed as the primary reform orientation at the 14th National Congress of the Chinese Communist Party. Following this decision, the pace of economic reform speeded up, and the demand for higher education administrative reform rose accordingly. The Outline for Education Reform and Development in China issued in 1993 stated that:

To establish a decentralized educational administrative system should involve both central government and the provinces (autonomous regions and municipalities). The central government is in charge of some key universities which are closely related to national agendas of economic and social development and serve as models for other higher education institutions, as well as those universities which are closely related to certain industries, thus make it difficult for local governments to manage. According to the fundamental policies and macroscopic planning of the central government, provinces (autonomous regions and municipalities) will take responsibilities for local universities. Accordingly, the central government should delegate the power of decision making to provinces (autonomous regions and municipalities) and extend the latter's jurisdiction to coordinate those universities administered by the central government but located in their territories.

From then on, the reform of decentralization of higher education administrative system moved into the substantiated stage. The State Council continued to draw lessons from the reform in progress. It held four forums on higher education administrative reform in Shanghai (1994), Nanchang (1995), Beidaihe (1996) and Yangzhou (1998) respectively, and set up a principle regarding the direction of reform. The principle included joint jurisdiction, adjustment of jurisdiction, cooperation between

central and provincial governments and institutional mergers (Li, 2003). With the restructuring of the State Council and abolition of some central ministries in 1998, the relationship of administrative subordination of some universities had to be changed accordingly. According to a decision on the administration of universities that had fallen under the jurisdiction of dissolved ministries, the relationships of administrative subordination of 93 universities were altered, and a new governance system was applied in 81 universities under the joint management of both central and local governments. The Ministry of Finance allocated educational funds to local governments at the standards of 1998 budget. Specifically, the amount of the educational allocations equalled the adjusted budget of 1998 (after deduction of special subsidies) plus an addition of 15% of the adjusted budget. The State Economic and Trade Commission, the State Planning Commission and other related ministries confirmed to support the expenditure on facilities at the level of the average of budgetary non-operating revenue over the past five years. The central government was to fund this part for a period of time based on current construction projects, and then the local governments would gradually take over the capital responsibility. The Higher Education Act of the People's Republic of China issued in 1998 stated that:

Administration of higher education would be divided between central and provincial (autonomous region and municipalities) governments, and the local governments would take the main responsibility for planning and coordination of higher education in their jurisdictions, under the guidance of state policy.

In 1999, after 10 years of reform, universities managed by the central government accounted for 23.16% of the total, the number of students of central universities accounted for 30.42% of the total student population, both far lower than those figures in 1989 (see Table 1). The Announcement on Authorizing Province, Autonomous Region and Municipalities to Examine and Approve the Establishment of Higher Vocational Institutions, issued by General Office of State Council in 2000, delegated the power of approving the establishment of higher vocational colleges to provincial level governments. This action strengthened the decentralized system.

By 1999, when the enrollment expansion started, the decentralized administrative system of higher education has already been formed. The students of local universities accounted for around 70% of the total student body. By the beginning of 2004, 250 higher education institutions out of 367 which had been managed by central government were reassigned to provincial governments after the adoption of a series of decentralization reform measures (Education Year Book of China, 2004, p. 856). In the decentralized administrative system, provincial governments have more authority regarding higher education planning and coordination than before, and higher motivation to run and strengthen universities. For rich provinces in the east, higher education developments did not satisfy their economic status. There existed a greater ability, more resources, and more enthusiasm to develop their higher education systems. Aside from the provincial governments, there was a potential for other parts of society to become involved in education provision. In affluent areas such as Zhejiang Province, the approval authority and financial responsibility were further delegated to governments at the city level, which led to an enrollment expansion and strengthened the relationship between higher education and the local economy. In summary, local universities played an important role in the process of rolling out mass higher education. After 10 years of continuous expansion of college enrollment, in 2010, the ratio of the number of provincial higher education institutions to the total had risen to 93.41%, and the ratio of the number of provincial college students had risen to 91.26% (see Table 1).

In conclusion, in the 1990s and the first decade of the 21st century, the process of enrollment expansion and higher education massification was accompanied by the reform of administrative system. The goal of mass higher education was reached under an increasingly decentralized system. The following sections will further elaborate the ways in which this newly decentralized higher education system influenced the expansion of college enrollment.

Competitions among Local Governments under a Decentralization Regime Accelerating Higher Education Massification

China's higher education administration is closely related to the country's national economic and political systems. After reform and opening up began, the decentralization of higher education administrative system was shaped by reforms of the national economic, administrative and financial systems. As for the economic system, the establishment of the market mechanism refers to a change from a centralized sectoral economic model to a decentralized regional economic model. As for the administrative system, the provincial governments were given more authority in terms of planning and decision making than before. As for the financial system, prior to 1980, China had adopted a centralized financial administrative system in which the central government took and allocated all tax revenues. In 1980, China started to implement the decentralized financial system in which provincial governments started to take full responsibilities for their finances. In 1993, China started to implement a localized fiscal tax policy. The path of the reform moved from a centralized budgeting system to a decentralized one (Wu & Ma, 2012). Therefore, in the context of national macroeconomic reform, it was imperative to conduct reform to decentralize the higher education administrative system in the 1990s.

At the end of the last century, the centralized higher education administrative system became decentralized. At the same time, due to the Asian financial crisis and the need to stimulate domestic consumption, the process of higher education massification started (Min & Wen, 2010). Against this backdrop, we now explain how the decentralized administrative system affected higher education expansion, and how competitions among provincial governments played an important role in the rapid move towards mass higher education.

In economics, the administrative system of China since adoption of the reform policy was seen as an M model in contrast to a U model. The M model refers to a decentralized system. Under the decentralized system, provincial governments set high goals for economic development and implemented their plans under the mechanism of a promotion tournament. This gave incentives to maintain China's GDP growth rate at a relatively high level for a long time (Qian & Xu, 2008; Qian & Weingast, 2008). It became common that if the central government set a goal for economic development, the local governments would set an even higher one in order to compete with each other (Zhou, 2008).

The authors hold that the model of higher education growth should be akin to that of the economy. Table 2 gives details of growth of Chinese higher education in terms of aggregate size and increase rate from 1998 to 2010. It can be seen that there was a rapid expansion of higher education during 1999-2006. The annual growth rate of student population was more than 10%, and the gross enrollment rate rose from 9.8% in 1998 to 22.0% in 2006. The Action for Education Promotion for the 21st Century issued by the central government and the State Council in 1999 set the goal that the gross enrollment ratio should reach 15% in 2010. In the first two years, the expansion of higher education was much faster than expected. The central government then reset the deadline of achieving the goal of mass higher education to 2005. However, it was proved that the reset goal was still conservative, as a 15% gross enrollment rate was achieved as early as in 2002. China thus entered the stage of mass higher education far ahead of schedule. Compared with data from other countries, China took less time to achieve this goal (Hao, Long & Zhang, 2011; Zha, 2011). This leads us to ask: Why did the enrollment expansion of higher education in China occur so much faster than expected? Was there a similar phenomenon in higher education growth as in economic development in the sense that, if the central government set a goal, the local governments set even higher ones in order to compete with each other?

Table 2. Key indicators on higher education development in China (1998-2010)

Year	No. of institutions	No. of undergraduates and junior college students (10 thousand)	The growth of number of undergraduate and junior college students		The number of faculty members (10 thousand)	The scale of the institutions (people per institutions)	Student-teacher ratio	Gross enrollment rate (%)
			Quantity (10 thousand)	Rate (%)				
1998	1022	340.87	23.43	7.38	40.7	3335	11.62	9.8
1999	1071	413.42	72.55	21.28	42.6	3815	13.37	10.5
2000	1041	556.09	142.67	34.51	46.3	5289	16.30	12.5
2001	1225	719.07	162.98	29.31	53.2	5870	18.22	13.3
2002	1396	903.36	184.29	25.63	61.8	6471	19.00	15.0
2003	1552	1108.56	205.20	22.72	72.5	7143	17.00	17.0
2004	1731	1333.50	224.94	20.29	85.5	7704	16.22	19.0
2005	1792	1561.78	228.28	17.12	96.6	7666	16.85	21.0
2006	1867	1738.84	177.07	11.34	107.6	8148	17.93	22.0
2007	1908	1884.90	146.06	8.40	116.8	8571	17.28	23.0
2008	2263	2021.00	136.10	7.22	123.7	8931	17.23	23.3
2009	2305	2144.66	123.66	6.12	129.5	9086	17.27	24.2
2010	2358	2231.79	87.13	4.06	134.3	9298	17.33	26.5

Data source: Authors own calculations based on Report on Education Development Statistics of China. [中国教育事业统计公报]. Retrieved March 15, 2013 from http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/moe_335/index.html.

In 1999, when the central government made the schedule of massifying higher education, it did not expect that the enrollment expansion would take off so fast. A possible reason for the rapid expansion is that the local governments and institutions have authorities on enrollment, and their desires that had been compressed for years now broke out because of the expansion policy, which led to the fast growth beyond the expectation. For example, in 2001, the government of Jiangsu Province allowed the universities to break the limitation of enrollment plan set by the Ministry of Education. Universities in the province could increase enrollment as long as they had the ability to do so and ensure quality (Education Year Book of China, 2002, p. 494). In 2001, Sichuan Province planned to enroll 120,000 students, but the actual number was 128,800, 7.3% more than planned (Education Year Book of China, 2002, p. 661). In 2004, the national plan for enrolling undergraduates and junior college students was based on an annual growth rate of 8%, while the growth rate of Shanxi Province reached 26% (Education Year Book of China, 2005, p. 848). The growth rate of higher education is shown in Table 2. Below, we highlight examples from some provinces: In Hubei Province, the higher education enrollment increased 239.17% from 2001 to 2005, at an average annual rate of 20%, and the gross enrollment rate in the age cohort increased from 14% in 2000 to 24.9% in 2005. In Anhui Province, enrollment increased by 1.7 times from 2000 to 2005, with the gross enrollment rate rising from 8.5% in 2000 to 17.3% in 2005. In Xinjiang Autonomous Region, enrollment grew by 1.49 times, with the gross enrollment rate growing from 8% in 2000 to 19.5% in 2006¹. In 2005, after six years of expansion, the gross enrollment rate for higher education of most provinces had exceeded 15% except in Guizhou Province, Yunnan Province and Tibet Autonomous Region, showing that rapid expansion was common in most provinces.

The fast higher education expansion has brought in public criticism and caught attention of the central government. Investment and quality became two major concerns. Consequently, the central government started to control the expansion of local universities. During the period of the Eleventh Five-Year Guideline (2006-2010), the growth rate of numbers of new college students declined and then remained low. One of the authors of this chapter was invited as an expert and attended a conference in July of 2007, which was organized by the planning bureau of the Ministry of Education (MOE) and dealt with higher education development in five provinces during the period of Eleventh Five-Year Guideline. Materials provided at this conference reflected the active attitude of the provincial governments regarding provincial higher education expansion. Generally speaking, provincial governments set high goals for higher education development (including gross enrollment rate, the number of new institutions, the number of upgraded and transformed institutions, etc.), despite the MOE's message that provincial governments would need to slow down the pace of higher education expansion, and pay more attention to quality assurance. Before the event, the MOE had issued a document in 2006 that conditioned establishing new higher education institutions during the Eleventh Five-Year period, and pointed out some problems in higher education expansion in the past five years, for example:

Some regions pay too much attention to the quantity of enrollment while the quality is ignored, there is still a problematic trend to expand enrollment without considering the availability of resources.²

It required all provinces to control the growth rate, keep the enrollment rate stable and pay more attention to quality. It also made three rules on setting up new institutions: First, the average annual higher education expenditure per student funded by the local government over the previous three years was RMB 5,000 yuan or more. Second, strict control over new institutions would be applied to those provinces with per student expenditure between RMB 3,500 and 5,000 yuan, while the education expenditure accounted for 18% of total expenditure in a province. Third, there would be in principle no allowance of new institutions in the provinces with per student expenditure less than RMB 3,500 yuan and showing no significant increase in the current year.³

Although the MOE pointed out some problems caused by the fast expansion of higher education, most provinces still wished to keep the high growth rate during the period of the Eleventh Five-Year Guideline. In light of the MOE document, the expert group members (including one of the authors) discussed each province's higher education development plan during the Eleventh Five-Year period, and provided comments for modifications. Below are a few excerpts from the comments:

Table 3. Expert group's comments to the Eleventh Five-Year Guideline of four provinces

Expert group's comments	
Province A	<ul style="list-style-type: none"> - Too many institutions (29 institutions) will be established or upgraded, the scale is too large, - The policy of the central government, the State Council and the MOE which require the local governments to control the growth rate of enrollment and the number of new institutions, maintain the scale of higher education, and pay more attention to the quality are not implemented well;
Province B	<ul style="list-style-type: none"> - There is a big gap between the guideline and the policy of intensive development, scale control and quality improvement. Too many institutions will be established or upgraded. It seems that the higher education development is too fast in the guideline, - They aimed too high to achieve the goal of 30% gross enrollment rate at the end of the Eleventh Five-Year Guideline;
Province C	<ul style="list-style-type: none"> - 15 institutions will be established or upgraded, the number is too large, - The fundamental spirit of growth control is not reflected in the plan;
Province D	<ul style="list-style-type: none"> - Too many institutions will be established or upgraded, - The goal is too difficult to achieve.

By analyzing the process of setting up higher education goals during the Eleventh Five-Year Guideline in some provinces, the authors can conclude that the goals of higher education

development set by provincial governments are beyond the expectations of the central government. From the perspective of game between the central government and the local governments regarding the goals during the Eleventh Five-Year Guideline period, competition among provincial governments under the regime of decentralization appears to be a driving force behind the expansion. Under the market mechanism where labour force enjoys free mobility, there is a significant change in the provincial governments' ideas and behaviors regarding higher education development in their jurisdictions. When satisfying human resource supply with needs of local economic growth is no longer a criterion for planning higher education development, the provincial legislatures started to use the enrollment rate as an indicator for the purpose of evaluating performance of the provincial education administrations (Yan & Mao, 2013).

Will Competitions among Local Governments Widen Inter-Provincial Gap of Higher Education Development?

In 1949, when the People's Republic of China was founded, higher education institutions were not evenly distributed across the country. Most universities were located in coastal cities with only a few in inland cities. Under the policy of "considering the whole country as a single entity", this arrangement did not result in problems in supply of talents. Nevertheless, the central government made some adjustments on the geographic distribution of universities. Rules issued by the MOE between 1955 and 1957 stated: Universities in coastal cities were not allowed to expand except for those which had special programs; efforts should be made to reduce scale and improve quality. Universities in cities near the coast could grow reasonably, and those in inland cities are allowed to expand considerably (MOE, 1999, p. 364). Higher education in China remained small scale and elite, and very few university age populations had the opportunities to receive higher education. So there was no strong demand on the equity of higher education distribution.

Since the 1990s, equity gradually became an important criterion for evaluating the development of higher education. After decentralization of the higher education administrative system in the 1990s, the geographic distribution of higher education was adjusted. However, some universities which were once controlled by the central government were given over to local governments, and began enrolling more local students. Would this situation widen the gap in higher education resources and higher education access opportunities among different regions? During the expansion, did the higher education access opportunity gap among provinces grow or narrow? A lot of studies discussed the issue of equality extensively, and their findings have been inconsistent, but the focal point has always been placed on inter-provincial differences in higher education access opportunities.

These questions should also be discussed with an analysis of statistical data. By computing the dispersion of university enrollments in each province between 1998 and 2010, the authors list two parameters in Table 4 - range and standard deviation coefficient - which could describe the magnitude of dispersion. These parameters will show directly the inter-provincial gaps of higher education aggregate size were widened or narrowed, which in turn answers the question whether or not the expansion under the decentralized system had positive effect on social equity. It should be noted that we can neither separate the number of enrollment of universities managed by central governments which enroll students across the country from the provincial data, nor consider the

inter-provincial exchange arrangement of enrollment. So the parameters cannot reflect the actual differences among provinces exactly. However, we still can make some preliminary estimation on the dispersion of enrollment of each province. Table 4 shows that the range increased year by year, but this index is not the best one to reflect the dispersion. The authors then use standard deviation coefficient to replace range. The standard deviation coefficient increased from 0.615 in 1998 to 0.649 in 2006, which does not equate to a large change. During 1999-2003, this index declined from 0.625 to 0.616 as enrollment dispersion between provinces declined. That is to say the growth rates of provinces with smaller enrollment scales were higher than with larger enrollment scales. This shows that the gap in higher education access opportunities between provinces narrowed during this period.

Table 4. Dispersion of university enrollment in each province from 1998-2010

Year	Minimum	Maximum	Range	Mean	Standard deviation	Coefficient of standard deviation
1998	1385	84946	83561	34955.71	21495.408	0.615
1999	1657	127013	125356	49953.35	31237.224	0.625
2000	2320	172491	170171	71163.61	44176.021	0.621
2001	2420	215734	213314	86541.61	53675.672	0.620
2002	3414	222880	219466	103386.32	63914.734	0.618
2003	4279	273894	269615	123280.68	75985.668	0.616
2004	6003	327452	321449	144303.94	91520.996	0.634
2005	7589	400573	392984	162728.42	105004.741	0.645
2006	8359	422220	413861	176146.13	114235.014	0.649
2007	8046	417544	409498	182554.65	114956.461	0.630
2008	8520	465593	457073	196019.74	124642.417	0.636
2009	9020	469097	460077	206288.13	130634.180	0.633
2010	9213	475212	465999	213469.39	134283.151	0.629

Date source: The data is calculated based on the data from the website of National Statistics Bureau. Retrieved March 15, 2013 from <http://www.stats.gov.cn/tjsj/ndsj/>.

Note: Range= Maximum-Minimum. Standard deviation coefficient= Standard deviation/ mean.

The gross enrollment rate is a common index to evaluate the level of higher education development; it reflects the level of higher education access opportunities in a region. As this rate is not listed in regular statistical yearbooks, the authors explored the Education Statistical Year Book

of China and other sources in order to collect the data of 2002 and 2005 in 12 provinces (see Table 5). Next, such data will be used to show changes in the gross enrollment rates of higher education. Standard deviation coefficients are calculated using the method mentioned above (Standard deviation/mean). This shows that in 2002 the standard deviation coefficient of the gross enrollment rate of all provinces is 0.38, the value of 2005 is 0.31, smaller than that in 2002. It means that higher education access opportunities in 12 provinces got closer to each other in 4 years of expansion. It can be inferred that the expansion under the decentralized system has had positive effects on narrowing gaps of higher education access opportunities among the provinces.

Table 5. The gross enrollment rate for higher education in 12 provinces in 2002 and 2005.

Year	Neimenggu	Jilin	Jiangsu	Zhejiang	Anhui	Jiangxi	Shandong	Henan	Hubei	Guangdong	Sichuan	Guizhou
2002	12.3	18	20	20	12.5	13.5	15	13	18	15.3	14	9
2005	18.4	28.0	33.5	34.0	17.3	20.5	19.2	17.0	24.2	23.7	21.0	10.0

Data source: Educational Statistical Yearbook of China (2003). Beijing: People's Education Press. [中国教育年鉴. 北京: 人民教育出版社.]

The data of 2005 is from materials on the Eleventh Five-Year Guideline of higher education of each province provided by the Planning Bureau of MOE in 2006. [教育部规划司提供的各省高等教育“十一五”发展规划论证材料。]

According to our research in some provinces and universities, there is a trend that higher education access opportunities are distributed evenly along with the enrollment expansion. For example, some universities managed by the Beijing municipal government tend to enroll higher percentages of students from other regions in order to enhance their freshman's average score in the entrance exams. Another example is Jiangsu Province. The higher education enrollment rate reached 74% in Jiangsu Province in 2003, but the quota for out-of-province was controlled by the local government in order to ensure access opportunities to the local students (Educational Statistic Yearbook of China, 2004, p. 508). However, in 2008 when Jiangsu was the site of fieldwork for this study, an officer of the Provincial Education Department told us that, with the decline of the school age population and the increase of the local enrollment rate, the potential to expand higher education enrollment in the province was limited. To ensure the quantity and quality of students, the local universities started to increase the ratio of students from other provinces. A similar trend was observed during fieldwork in Zhejiang Province in 2010.

Therefore, during the process of enrollment expansion, universities in well-developed regions would expand their space spontaneously and increase enrollment from poor regions when local demand has been met. This action may narrow the gap in higher education access opportunities among regions. There is certainly a significant difference between developed and less developed areas in opportunities for higher education access, especially high quality higher education opportunities. This difference can be reflected by indexes such as the gross enrollment rate of higher education, high school graduation rate and ratio of students who have entered top universities. Narrowing the gap among provinces is an important goal for higher education development in the future. Achieving this goal will take time because inequity in economic development has to be

addressed first. However, under the mechanism of pursuing high quality, higher education equity issue is expected to be improved.

The Expansion of Higher Education and Institutional Change

According to the analysis above, it is clear that the decentralized administrative system not only helps to encourage the local governments to expand higher education and increase the opportunities of higher education access, but may also promote equity in higher education. Will the expansion influence the diversity of higher education system? The authors will discuss this question here by examining the actions of each province during the expansion from Educational Statistic Yearbook of China during 2000-2007 and other materials.

First, the expansion of higher education has positive effects on diversity in the higher education system. The further development of private higher education and vocational higher education are two notable examples. Table 6 shows the increase of the number of private colleges and vocational colleges. The percentage of private colleges' enrollment in the total is calculated using the data from Educational Statistic Yearbook of China. Meanwhile, adult higher education has changed along with social demands, and some adult colleges have transformed into regular universities. The number of adult universities has decreased year by year. In 1999, in order to achieve the goal of expansion, Guangdong Province adopted several measures to develop potentials of expanding higher education within universities: set up vocational colleges in some universities as the main stream of the expansion; select adult universities with good resources to enroll students as regular universities; some technical secondary schools were allowed to set up higher vocational programs (Educational Statistic Yearbook of China, 2000, p. 685). Sichuan Province adopted similar measures to Guangdong Province in order to achieve the goal of expansion: developed higher vocational education with great efforts, establishing eight new vocational colleges in 2001; making full use of the resources of private universities and private colleges in public universities, establishing 13 private universities in 2001; making full use of resources of some adult colleges and technical secondary schools; supporting online education in some universities (Educational Statistic Yearbook of China, 2002, p. 661).

Table 6. Number of higher education institutions of different type in 1998-2010.

Year	Regular			Adult	Private	
	Total	Undergraduate	Higher Vocational college		Private	Private college in public university
1998	1022			962		
1999	1071			871		
2000	1041			772		
2001	1225			686		

2002	1396			607		
2003	1552			558	173	
2004	1731	684	1047	505	228	
2005	1792	701	1091	481	252	295
2006	1867	720	1147	444	278	318
2007	1908	740	1168	413	297	318
2008	2263	1079	1184	400	318	322
2009	2305	1090	1215	384	336	322
2010	2358	1112	1246	365	353	323

Data source: http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/moe_335/index.html. Retrieved March 2013.

Second, with the establishment and improvement of market mechanism, it starts to influence resource allocation in higher education. Besides that, it started to regulate the enrollment and employment of university graduates as a natural outcome. As mentioned above, universities in rich regions increased enrollment from underdeveloped regions under pressure to ensure the quantity and quality of their student body. At the same time, rich regions also encouraged local higher school graduates to apply to universities of higher quality in other regions. For example, Shanghai adopted such measures in 1999 when the enrollment expansion started (Educational Statistic Yearbook of China, 2000, p. 510). Most high school graduates in rich cities such as Beijing and Shanghai are not willing to leave their hometowns and tend to choose universities in their own cities to avoid losing their residency. Therefore, students who apply to universities in other cities can enter universities of better quality with the same exam scores. In order to encourage high school graduates to apply to universities in other cities, cities such as Beijing have allowed high school graduates to keep their residency registration (hukou) in Beijing if they go to a university in another city. With the enrollment expansion, the employment of university graduates is becoming a problem. To solve this problem, some regions have had to remove regulations regarding employment. For example, in 2001, the employment rate of undergraduates of the whole country was 75% and the number of junior college graduates was 40%. Under the pressure of unemployment, restrictions on talent mobility were removed by the central government, and charges for leaving the province, leaving the system and joining in a local population were cancelled (Educational Statistical Year Book of China, 2002, pp. 217-218). More mobility between regions of university graduates occurred after removing such restrictions. In 2001, graduate students of regular universities who choose to work in other provinces accounted for 37.86% of total graduate students in Hunan Province, the number for undergraduates was 57.4%, and that of junior college students was 22.03% (Educational Statistic Yearbook of China, 2002, p. 604). In 2003, Hunan Province removed all the regulations that go against the employment of university graduates, and broadened the channel of working in other provinces for graduates (Educational Statistic Yearbook of China, 2004, p. 633). In 2004, the Education Department of Heilongjiang removed all the regulations, too. Charges for leaving the

province was cancelled, as well for leaving the system for students of junior normal colleges or below (Educational Statistic Yearbook of China, 2005, p. 618). Under the market mechanism, some talented students left underdeveloped regions while others returned. For example, in Guizhou Province, there were 5.7 thousand local students who graduated from universities in other provinces, and 2.5 thousand returned to Guizhou upon graduation, equating to 44%. The employment rate of these students was 79%, higher than the total employment rate of university graduates and junior college graduates (Educational Statistic Yearbook of China, 2002, p. 677). In sum, a dynamic picture is observed for admitted and graduated students moving between provinces.

Third, higher education expansion and the increase in higher education access opportunities has helped to remove unreasonable regulations, in turn having a positive effect on building a lifelong learning system. In the process of education expansion, Shanghai provided more higher education access opportunities to three groups: students of technical schools, junior colleges and higher vocational colleges, largely because there were not enough high school graduates. This action has had a positive effect on building connections between high schools and technical high schools (Educational Statistic Yearbook of China, 2000, p. 510). In the process of expansion, the central government removed the regulation on age and marriage status of college students as well.

A TENTATIVE CONCLUSION: LIMITATION OF THE DECENTRALIZED EXPANSION

The decentralized administrative system has had positive effects on expanding the scale of higher education, narrowing opportunity gaps between regions and improving the flexibility of educational system, but it still has some limitations, mainly in the following aspects: fiscal investment cannot keep a pace with higher education expansion; in only seven provinces and municipalities, including Beijing, Shanghai, Tianjin, Guangdong, Zhejiang, Qinghai and Tibet, is the per student expenditure from the government budget above RMB 5,000 yuan, being less than that in all other provinces. The educational expenditure from the government has decreased while tuition fees have increased. Expenditure on facilities has mainly been raised by universities themselves or by way of loans. Debts have occurred because a lot of universities have had to borrow money from banks. For example, in 2005, educational expenditure per student from the government budget of Hebei Province was only RMB 2,757.33 yuan, whereas the expenditure in Inner Mongolia was RMB 3,600 yuan per student. The situation for Shandong Province was almost the same. During the Tenth Five-Year Plan period, the total number of students increased 2.9 times, while educational expenditure from government increased only 0.78 times, making per student expenditure dramatically lower. A lot of indexes on resources per student have decreased, and some of them to a figure even lower than the warning point. Meanwhile, there was a heavy burden for universities because the fast expansion of higher education mainly relied on the fund raised by university themselves and loans. In 2005, the educational expenditure per student in Jiangsu Province was RMB 14,084 yuan, while the expenditure from the government budget was only RMB 4,971 yuan, the accumulative debts for total universities reached RMB 30 billion yuan in the same year. In 2005, the educational expenditure per student for Anhui Province was RMB 8,445.1 yuan, while only about 3,000 yuan of them were from the government budget. During the Tenth Five-Year Plan period, the expenditure on facilities for Ningxia Autonomous Region totalled RMB 5.388 billion yuan, and the government allocated only 1.9379 billion yuan, while the universities had to

raise 3.4501 billion yuan themselves.

Why have local governments and universities paid such great efforts to expand higher education enrollment without considering constraints of financial resources? Under the results-oriented mechanism, local governments have hoped for better political performance, encouraging universities to expand without providing the needed funds. Besides, some local governments have wanted to rely on the central government since the expansion policy was initiated at the center, but the central government has instead encouraged them to solve the problem of resource shortages via loans (Yan, 2012). On the other hand, the motivations and actions of universities themselves should not be ignored. Finance is an important consideration when universities make enrollment decisions. During 1986-2001, the method that the government used to allocate resources to universities was called “comprehensive fixed funds plus special subsidy” (Huang, 2010). In 2002, the method adopted was called “budget for basic expenditure plus project expenditure.” No matter what kinds of method adopted, the amount of expenditure is positively related to the number of students. That is to say, more students, more funds. Tuition is another factor that encouraged the universities to expand enrollment. Universities began to charge tuitions from all the students since 1997, and from then on, the percentage of tuition and incidental expenses in all revenues increased year by year. The number has been largely increasing: 15.71% (1997), 13.42% (1998), 21.30% (2000), 27.00% (2002), 32.38% (2004), 31.76% (2006), 40.39% (2008) (Chen, 2012, p. 168). Under this revenue and cost structure, universities and higher vocational colleges managed by local governments have greater motivations to expand than those managed by central government (Yi, 2009). Put explicitly, quality is relatively difficult to evaluate. When local universities expanded enrollment at the expense of quality, and they would not receive negative feedback. To the contrary, revenue is not a pressing issue for central universities due to abundant funds flowing in from central government. Therefore they concern quality more seriously.

How could the impulses of local governments and universities to expand without considering their resources and quality be better controlled? It is clear that a mechanism of self-discipline for governments and universities should be built, and intermediary organizations should be involved to supervise and evaluate them. Both visible and invisible indexes should take into consideration when evaluating the performance. All of above are important mechanisms which can guarantee the overall effects of decentralized system.

Development is a spontaneous behavior of social organizations. Under the stimulus of the environment, there will be different kinds of movement of organizations: acceleration, slowing down or regressing. In all kinds of development, expansion is a simple and clear one, but there is a complicated logic in it, as well as a paradox about “smaller is better” and “economies of scale.” In addition to questions about regional higher education expansion and the logic of governments we discussed in this paper, there is a phenomenon at a micro level which is worth deeper investigation. For example, why is there a competition for enrollment between colleges and departments within a university? Administrative agencies such as provost office and graduate school which are responsible for the allocation of student quota among colleges and departments can feel the great demands for expansion of colleges and departments, so that we can find a significant difference on the enrollment scale between colleges and department. For example in Peking University, some large colleges have thousands of students, while small colleges have only hundreds of students. This

behavior is not rational from the perspective of economics, because the larger the enrollment is, the greater the shortage of funds is. Most faculty members who have the workload of research worry about if the research be influenced due to too many students and too much workload on teaching. However, there still remains a trend of enrollment expansion. A hypothesis to be verified is that there is micro political logics within universities as well, and the competition for enrollment between colleges and departments is, in fact, a competition for power and status, which are also resources, and sometimes are as scarce and important as cash money.

NOTES

1. Materials on the Eleventh Five-Year Guideline of higher education of each province provided by the planning bureau of MOE.
2. Resource: www.moe.edu.cn
3. According to an officer of MOE, MOE's intention to make this rule is to provide a reason to local education authorities when applying education expenditure to local finance bureaus.

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