Chinese Universities in the National Innovation System: *Innovation, Industrial Linkages, Entrepreneurship Ecosystem and Internationalization*

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Chapter 2 (draft to be edited)

State mediation, Policies and Strategies in Higher Education （1978-2017）

Since the Reform and Opening up Policy 40 years ago, China's higher education policy had a significant impact on the development of higher education. Higher education policy in China has experienced enlarging higher education scale, the construction of national key disciplines, "Project 211","Project 985" and "Double First-Class University", and so on. Along with the historical changes and rapid evolution, China higher education policy has maintained its policy continuity and formed its own characteristics, but in different periods it has showed different policy emphasis and key contents. In terms of china's higher education development, higher education policy has also achieved fruitful results, but at the same time also exposed some problems which are worthy of deep reflection. As the subsystem of national education policy, higher education policy is mainly dominated by the state macro development strategy, the policy formulation and implementation is rooted in the different historical stages of national economical and social development demands. Higher education policy in china is the joint action result of various factors for comprehensive consideration based on state system, political and economic and social development status of higher education.

1. Background

a. Enlarge HE scale

At the end of 1978, the total population of China was 9625.9 billion, with a gross domestic product of 367.87 billion Yuan, including 101.85 billion Yuan in the first industry, 175.52 billion Yuan in the second industry and 905.1 billion Yuan in the tertiary industry， and there were 598 institutions of higher education when the gross enrollment rate of education was 1.55%.[1] That time, the national economic and social development is in full bloom with great development demand. All industries are in urgent need of a number of high-quality professional talents and frontier science and technology, expanding education scale and improving education quality to become a necessary and urgent demand for the whole society. Speed up the development of higher education and construct a number of outstanding scientific research and teaching first-class universities not only is the inherent requirement of promoting the national economic and social development, at the same time also become an important part of improving the country's national international competitiveness and influence. According to Wan, Y (2006), a variety of factors have led to the enrollment expansion, including the expectation to stimulate domestic consumption and to ease the immediate pressure on the labor market, the high public interest and demand for higher education in Chinese society, and the political will of the Chinese government to develop higher education. [2] Deng Xiaoping proposed that to fulfill the goal of Four Modernizations[①], and china must implement "Three steps" economic development strategy which is "by the middle of 21st century, the per capita GNP will have reached the level of a moderately developed country, and people will have a relatively prosperous life and basically achieve modernization". While in process of fulfill modernization, the modernization of science and technology is the core aspect. Deng Xiaoping put forward the concept of "developing education first", which means education is basic element to develop science and technology. With science and technology as the key aspect and education as the fundamental aspect of economic development in China, Deng Xiaoping put forward that focus on a number of high level universities, relying on higher education to provide scientific and technological innovation, technical services and talents support for national economic and social development.[3] Education and science and technology had been given great priority of development since Reform and Opening up Policy, and national eager for excellent quality of education and disruptive innovation is stronger than ever. With the Reform

[①] Four Modernizations is first put forward by Mao Zedong in 1950s which is referred to as industrial modernization, agricultural modernization, scientific and technology modernization, national defense modernization. And it is first officially public in the report "on the work of government" by Zhou Enlai in the third National People's Congress. Deng Xiaoping continued to pursue the goal of realizing the Four Modernizations, and made it clear that "China should follow a chinese-style modernization path" which is different from developed countries.

and Opening up Policy, socialist economic construction has been developing continuously. However, the traditional education system has not been able to meet the needs of economic construction. Yet, higher education reform is imperative. Deng Xiaoping proposed constructive theories and principles for the solution of higher education reform, and wrote for Beijing Jingshan Middle School: "education is faced to the modern change, to the world, to the future" [4]which require higher education reform be based on reality, improve quality, reform system and update concepts and methods. On the other aspect he indicated that higher education should break the closed model and go to the global world, and update in accordance with the forefront development trend of world science and technology and provide high level talents for economic construction. To promote the reform of higher education, Deng made it clear that "running education requires walking on two legs, paying attention to both popularization and improvement".[5]Higher education focuses on building a number of key universities and cultivating high-level talents. On the other hand, ordinary and local higher education institutions should actively develop, which will bring out talents quickly and meet the needs of socialist modernization. Deng Xiaoping's thought of higher education laid foundation for the expansion of higher education.

From the foundation of People's Republic of China in 1949 to nowadays, China's higher education has grown from a small scale to a larger scale. To be more specific, the scale of higher education was accelerated from 1978 to 1986, and turned to steady development from 1987 to 1998. [6]After Fourth Plenary Session of the Thirteenth Central Committee of The Communist Party of China (CPC) which is held in 1989, china conducted governance rectification and deepen reform in accordance with central committee’s important decisions. State Education Commission adjusted the work deployment of higher education, and put forward "adhere to direction, stable size, adjust structure, improve conditions, deepen reform, improve the quality of education" as work guidelines. [7]In 1992, State Council approved the opinions of State Education Commission "On Accelerating Reform and Actively Developing Education", in order to better meet the needs of China's socialist modernization drive, it is necessary to accelerate reform and actively develop higher education. Through reform China's higher education should have a great development scale, structure more reasonable, a higher level quality, and the benefit is improved obviously, by the end of the century which will preliminary build socialism higher education system with Chinese characteristics. [8]In 1993, State Council promulgated “Outline of China's Education Reform and Development”, which proposed that the scale of higher education should be stable, the structure should be optimized, and the level should be improved.[9] Firstly, the outline made clear the development goal of higher education, which are "higher education institutions cultivate specialized talents to meet the needs of economic, technological and social development, concentrate on to organize a number of key universities and key disciplines, the cultivation of high-level talents basically based on domestic, the quality of education, science and technology level and benefit of running a school have obviously improved."[10]Secondly, the outline

defines the development strategy and specific guidelines for higher education. Higher education should meet the needs of speeding up Reform and Opening up Policy and modernization construction, actively explore new way of development, and make the scale more larger, structure more reasonable, quality and efficiency improved more obviously. In the development of higher education, the path of developing intensively and improving efficiency and distinguishing between different regions to identify development goals and priorities should be stick to. Thirdly, the outlines points out that higher education system should deepen reform, which dedicated to solve the relationship between government and higher education institutions, central and local government, and to build up the system of government macro management and universities run independently facing to the society. The admission system should combine national task plan with the regulatory plan, and the country would gradually implement higher education charging system, besides most students would choose their own jobs in employment labor market.[11] These policies had great changes from policies before and profoundly affected the future development of China's higher education. Issued by State Council in July 1994, “Implementation Opinions on Outline of China’s Education Reform and Development" put forward that "higher education is on the road of connotation development which is given priority to, and should make the size more appropriate, structure more reasonable, quality and efficiency significantly improved." [12] Series of national policy documents had mentioned higher education’s great importance and put forward clear strategy aims especially in higher education scale and structure which indicated future development direction.

Since 1998, scale development policy of higher education in China has great changes from "basically stable" to "positive development". Higher Education Law of People's Republic of China promulgated in 1998 proposed that "adapt to the needs of economic construction and social development, formulates plans for the development of higher education institutions, which are held in various forms and develop higher education undertakings." [13]In many subsequent education policy documents issued after the promulgation of higher education law, the dominant ideology of higher education law is strictly inherited and continued. As introduced in January 1999, Education Revitalization Action Plan for 21st Century mentioned "positive steady development of higher education, to speed up the pace of higher education reform, improve education quality and managerial benefit".[14] In June 1999, "Decision on Deepening Education Comprehensively Reform and Promote Education Quality" by State Council put forward that "adjust the structure of existing education systems and expanding higher education scale" and "positive develop higher education".[15] After several years of continuation, China's higher education scale development policy began to enter a balanced phase in 2006. [16]In May 2006, State Council decided to appropriately control increase in enrollment, keep enrollment relatively stable and focus on improving higher education quality. Released in May 2007, The 11th Five-year Plan of National Education Development put forward “appropriately

control enrollment growth, relatively stable recruitment of students scale" as the goals of higher education development."[17] Since 1998, expansion policy has effectively shifted Chinese higher education from elite stage to mass stage, and gross enrollment has been enhanced to a large extent which has been greatly influenced by economy develops at full speed, globalization and the demands of more chances for high quality higher education.

Table 1: Main policies on HE scale enlargement

S.No	Policy Statement/Year	Main points of recommendations
1	1993, State Council policy "On Accelerating Reform and Actively Developing Education".	In order to better meet the needs of China's socialist modernization drive, it is necessary to accelerate reform and actively develop higher education.
2	1993 State Council policy "Outline of China's Education Reform and Development"	Higher education should meet the needs of accelerating reform, opening up and modernization, and actively explore new ways of development, so as to achieve greater development in scale, more reasonable structure, and significantly improve quality and efficiency.
3	1994 State Council policy “Implementation Opinions on Outline of China’s Education Reform and Development"	Higher education should take the road of connotation development as the main road, so that the scale is more appropriate, the structure is more reasonable, and the quality and efficiency are obviously improved.
4	1999 Ministry of Education policy "Education Revitalization Action Plan for 21st Century"	Actively and steadily develop higher education, accelerate reform of higher education, and improve its quality and efficiency
5	1999 State Council policy "Decision on Deepening Education Comprehensively Reform and Promote Education Quality"	To expand the scale of higher education and actively develop higher education through various forms. By 2010, the enrollment rate of higher education among the same age population in China will increase from 9% now to about 15%.

b. Fiscal HE funds are in shortage.

In the early period of Reform and Opening up Policy, national economy has just started and in its infancy phase of life cycle, many national economy key areas such as industry, education, science and technology all in urgency need to be comprehensively restored, and that time the whole national budget which can be used and allocated in education investment is quite limited. As is known to all, China’s financial funding for education was less than 4% of GDP in the long run. In order to promote development and popularization of general education, a large part of education funds was used to invest general education. Fiscal funds which can be assigned to higher education are much rarer, and the funds applied directly to scientific research innovation and higher education development is even less. From 2006 to 2012, the ratio of fiscal expenditure of education to GDP increased year by

year, reaching the highest level of 4.28% in 2012. While since 2012, the proportion has been declining year by year, down to 4.10% in 2014, back to 4.26% in 2015. In 2012 state financial education funds accounted for 4% of GDP for the first time, which has become of great importance a turning point and milestone in China's education reform and development history. Similar to the change trend of the proportion of fiscal education expenditure to GDP, 2012 was also peak year of the proportion of fiscal higher education expenditure to GDP. From 2006 to 2011, the proportion gradually increased to 0.94% in 2012. While after 2012, the proportion of fiscal higher education expenditure to GDP in 2013-2014 has decreased, and remained at around 0. 80%.

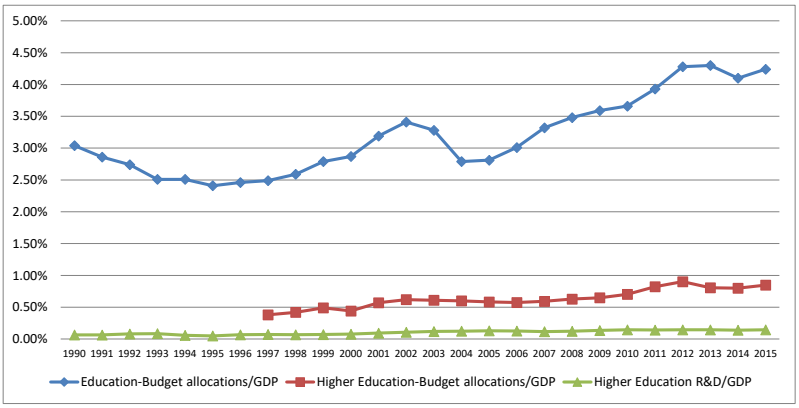

Chart 1: Education Budget Allocations/GDP

Data sources: GDP: 2017 China Statistical Yearbook .Pages 56-57; Higher Education R & D: 1990-2016 China Statistical Yearbook

Based on national education financial shortage objective situation and higher education large scale limitation, central government had to gather resources to choose a few representative universities with great development ability and comprehensive competiveness to invest to, and when "concentrate resources to accomplish large undertakings" is the mainly principle of higher education strategies. Considering on the uneven development status numbers of domestic universities and limited financial funds of education, government had to select a batch of universities with excellent teaching and scientific research ability to provide more resources and formulate preferential policy and push these excellent universities in advance listed in priority development strategy. After several years of focused development, a number of universities would keep a leading place in world higher education, which may greatly improve china’s international competitiveness and influence. Although to some extent it was a stopgap measure in fiscal shortage period, key construction projects had become a basic strategy selection in the area of higher education in China.

2. Key Construction Policy

In 1980s, government invested a special fund support for some elite universities which formally opened the prelude of China's higher education key construction policy. Started in 1990s, “Project 211" and "Project 985" is not only continuation and extension of previous construction policy of key universities, but also strategic choice for higher education to cope with challenge of 21st century in knowledge economy and international competition. "Project 211" and “Project 985" are the largest construction projects in higher education, which has accelerated the construction of high level universities in China. Due to the construction of key university and key discipline, higher education policy improve the quality of teaching and scientific research, striving to build a number of world-class universities and a number of internationally renowned university of high level, improving the international competitiveness of higher education. Recent years, the implementation of "2011" and the newly “Double First-Class University” project is a supplement and adjustment to the major construction policies of higher education.

a. 1980s: recovery and construction of national key disciplines.

Deng Xiaoping saw education reform as the first step towards social reform in China, and he decided to restart the university examination. In 1977, China's College Entrance Examination was reinstated, and a series of higher education policies were established, including the restoration of education system of graduate students, the establishment of degree system, sending large-scale of students go to abroad and strengthening construction of key universities. From 1977 to 1979, in total about 18 million young people took the examination and about 880,000 became university freshmen. [18]These major policies have stimulated the vitality of higher education, and promoted higher education development in a comprehensive way.

In 1978, State Council established 88 national key universities. From 1978 to 1981, State Council successively increased 10 key universities to 99 key universities in 1981.The 99 national key universities have been merged and renamed to become today's 88 national key universities.[19] These national key universities are still generally with quite excellent development capability. The 88 key universities identified in 1978 covered a wide range of types, including 51 polytechnic university（accounting for 56%）,16 comprehensive university（accounting for 21%）, and 9 agriculture and forestry university（accounting for 10%）, and 6 medical university（accounting for 7%）. The total number of polytechnic university, comprehensive university, agriculture and forestry university, and medical university add up to 93% of the national university system. In the forthcoming "211 Project" and "985 Project", comprehensive and polytechnic universities still keep the majority. Agriculture and forestry and pedagogical universities had been in key universities teams with small

numbers. And in "985 Project" the number of comprehensive universities is more than one half which manifested the national strategy and determination to build a few comprehensive universities into world-class universities.

Table 2: national key universities types allocation

University types	**National key universities in 1978 (total 88)**	**211 Project (total 112)**	**985 Project (total 39)**
Comprehensive	21%	38%	54%
Polytechnic	56%	34%	36%
Agriculture and forestry	10%	7%	5%
Medical	7%	5%	
Foreign language	2%	2%	
Pedagogical	2%	7%	5%
Politics and Economics	1%	5%	
Art	1%	2%	

In May 1985, "Decision Reform of Education System "[20]was systematically put forward by CPC Central Committee and expounded the reform of education system which focused on guiding ideology, objectives, tasks and measures, as the landmark important literature of China's education policy, opened the great journey of education reform. Specifically, the Decision pointed out that education must serve the socialist construction, which must rely on education. The fundamental purpose of education system reform is to improve the national quality and bring out more and better talents. Higher education institutions shoulder the important task of cultivating senior specialized talents and developing science and technology culture. The strategic goal of higher education is by the end of 20th century a system of complete disciplines, reasonable levels and proportions will be established, with a total scale matched to the national economic strength. The cultivating of senior talents is basically based in China which can make a great contribution to independent development of science and technology and the solution of major theoretical and practical problems in socialist modernization. In order to achieve this goal, the key of higher education reform system is to change the management system that government had too much control over higher learning institutions. Under the guidance of national education policy and planning, this Decision intend to enlarge school-running autonomy of higher education institutions, to strengthen social contact between higher education institutions and other various aspects of production and research, and to make higher education institutions initiatively adapt to economic and social development needs.

After promulgation of the Decision, system reform became the focus of higher education policy. In aspect of macro-management system reform, governments of provinces, autonomous regions and municipalities directly under the central government have strengthened overall control over higher education, and expanded autonomy of higher education institutions. In terms of higher education system reform, implement central, provincial (autonomous regions and municipalities directly under the central government) and center city tertiary education system, explores the inter-departmental cross-regional joint school, changed the single system of running schools by government. In reform of internal management system of universities, the principal responsibility system, teacher appointment system and post responsibility system have been tried out, and the logistics socialization reform has been initiated. Structural reform of higher education was highly valued and became another major strategic policy closely related to education system reform. In reform of disciplinary structure, departments of finance, politics, law and management are accelerated development, and the growth of emerging and marginal disciplines are supported. At the same time by developing vocational and adult education, higher educational formal structure is increasingly diversified.

In 1987, State Education Commission issued “Notice of Selection Institutions of Higher Education Key Disciplines”, and selected a total number of 416 national key disciplines, covering the country's 108 universities. Construction funds of national key disciplines are mainly used for maintenance and updating laboratory equipment, improvement of teaching conditions, etc., which do not involve investment in school infrastructure. The selection and construction of key disciplines embodies the development idea changes from focus on university construction to a batch of disciplines construction. Key disciplines selection effectively expanded the coverage of key construction policy and for those not to be included in "priority" universities it provides opportunity for disciplines construction, and it also helped to ease resources imbalance and consequent contradiction between different types of university.

b. Early 1990s: Project 211.

In 1993, in order to meet challenges of world new technology revolution, State Council promulgated "Outline of China's Education Reform and Development", [21]which put forward that concentrate on central and local governments’ capacity to build 100 key university and disciplines. A group of higher education institutions and disciplines, in terms of education quality, scientific research and management, will achieve high level status and strive to the forefront of 21st century. That same year, State Education Commission issued "On the Key Construction of a Group of Higher Education Institutions and Disciplines", [22]and decided to set "Project 211". Facing to 21st century to develop around 100 higher education institutions and disciplines, "Project 211" is in full swing.

It is mentioned in the policy text that the core task of "Project 211" is to improve the education quality, scientific research level and educational efficiency of universities. To achieve the goals, there are a lot of vital measures to abide by. Firstly, relevant universities should strive to build a team of teachers with good political professional quality, reasonable and relatively stable structure, and create a large number of academic leaders and core backbone teachers with profound academic attainments and certain influence both at home and abroad. Secondly, to strengthen the ideological and political work of education and improve the overall quality of students is an important mission. Thirdly, to adjust structure of disciplines, strengthen discipline construction, carry out in-depth teaching reform, and better meet the needs of economic construction and social development is also a task of great importance. Fourthly, substantially improve the material conditions such as equipments, books, construction of laboratories and significantly enhance the strength of scientific research is highly expected by universities. Besides, to draw on advanced foreign experience, enhance international exchanges and expand international influence is most universities' big hope to compare with global first class universities. The policy mentioned that relevant government departments should provide preferential policies support for "Project 211" universities, especially to further expand autonomy and accelerate formation of operational mechanisms which is actively adapt to social needs, self-motivation, self-development and self-restraint.

In 1995, "Overall Planning of 'Project 211' Construction"[23] was issued, which brought 112 universities into construction and become the largest higher education key construction project since the founding of China. According to Planning, the contents of "Project 211" mainly include overall conditions of universities, key subjects and education public service system. Overall condition construction is the foundation. Subjects construction is the core, which is an important sign to reflect the level of teaching and research, and an effective way to improve overall level of universities. Public service system is based on universities, and according to the principle of sharing resources and serving the whole country, the infrastructure construction of universities in China is strengthened from the whole, so as to improve level and efficiency of higher education. The funds required for "Project 211" shall be jointly raised by the state, departments, local governments and universities. According to the current management system of higher education, construction funds are mainly raised and arranged by departments affiliated to universities and local governments. Central government arranged certain special funds to provide support and played a role in promoting, guiding and regulating construction projects."Project 211" is dedicated to key disciplines and education public service system construction nationwide, providing subsidies for necessary infrastructure construction of few universities. During period of 9th and 11th Five-year Plan, central government increased funding of “Project 211", which amounted to 20 billion Yuan and became an important funding source for “Project 211” universities.

Table 3: Overview of "Project 211"

	Total Funds	**Main Application Way**	**Fund Sources**
Project 211 Ⅰ Phase (1995-2000)	18.63 billion	99 universities, 602 Key disciplinary, 2 public service system and supporting infrastructure construction	The central government allocated 2.76 billion. The department and local government support 10.32 billion. The university raised 5.56 billion.
Project 211 Ⅱ Phase (2001-2005)	18.75 billion	107 universities, 821 Key disciplinary, 3 public service system, teacher development and supporting infrastructure construction	The central government allocated 6 billion. The department and local government support 5.97 billion. The university raised 6.78 billion.
Project 211 Ⅲ Phase (2008-2011)	The central government allocated 10 billion	112 universities, 1073 Key disciplinary, Innovative talent cultivation, public service system	The central government allocated 10 billion funds.

Data sources: official reports and some data from media, Internet and research reports through different channels

"Project 211"construction can be divided into three phases according to its policy evolution. The first phase of "Project 211" was implemented in 99 universities, with 602 key disciplines and 2 national education public service system construction. The second phase of "Project 211" was implemented in 107 universities, with 821 key disciplines and 3 national education public service systems. In order to realize breakthroughs in key areas, to highlight innovative talent training and team construction, to promote mechanism reform, to build international advanced higher education public service platform, further narrowing the gap with world first-class university. The third phase of "Project 211" was implemented in 112 universities, distributed in 31 provinces, with a total of 1,073 key disciplines. As the foundation project for speeding up higher education development in China, "Project 211" provided unprecedented development opportunities and corresponding sufficient resources for high level universities especially key disciplines construction.

Comrade Hu Jintao put forward that actively promote collaborative innovation through institutional innovation and policy program at 100th anniversary of Tsinghua University in 2011. To encourage universities cooperate with research institutions and enterprises to carry out deep cooperation, to establish a collaborative innovation strategic alliance, to promote resource sharing, to joint to carry out important scientific research projects, university would make a positive contribution for constructing a creative country by substantive outcomes in important sectors. In 2012, Ministry of Education and Ministry of Finance decided to implement "University

Innovation Ability Promotion plan" namely "2011 Plan", and this plan mainly included forefront of science, industry, regional development and cultural innovation four categories which would maintain a cycle. In 2013, Ministry of Education released the first batch of "2011 Plan" collaborative innovation research centers shortlists which including 14 universities, which covers fields of quantum physics, biomedicine, aerospace, new materials and so on. These research directions reflect great demand of china and international frontier. In 2014, Ministry of Education identified the second batch of "2011 Plan" collaborative innovation research centers shortlists which including 24 universities. Instead of a single university, "2011 Plan" focused on collaborative innovation research centers, which is a new type of cross-boundary main body. It takes all kinds of universities as implementation subject, based on "country urgent need, world first-class", and its core goal is to enhance talent, discipline and scientific research innovation ability. It is widely unite scientific research institutes, industry enterprises, local governments and international innovation forces to form a diversified, open and dynamic organization operation mode. "2011 Plan" collaborative innovation research centers which has been identified and implemented are the backbone force of teaching and research in universities.

Project 211project has no policies directed towards urban vs rural. This Project had greatly increased universities' research intensity especially in the field of disciplines research ability's enhancement. In 2012, 112 universities were evaluated by the state. This assessment is for the implementation of construction project from 2008 to 2011. According to assessment results, Ministry of Education, National Development and Reform Commission and Ministry of Finance decided to award 28 outstanding universities. Award winning universities can independently determine the use of incentive funds, but all of them should be used for discipline construction. People's university of China received feedback that eight key disciplines scored more than 90. Among them, the construction project of "economic system with Chinese characteristics" ranks the first in China and "fiscal and financial policy and management" ranks the second. This university has decided to allocate 13.6 million yuan to infrastructure construction needed for key disciplines, talent cultivation and incubation of new interdisciplinary disciplines, as well as high-level laboratory construction to support talent cultivation and discipline construction. [24] "Project 211" had a positive effect on university's scientific research ability, greatly increasing the number of academic papers and research projects, and had a positive effect on the ability of university talents cultivation, greatly increasing the number of graduate students and doctoral students. [25]

"Project 211" had established guiding principles centering on the key disciplines construction, followed closely to key areas of national economic and social development, made overall planning and built a number of basic, applied and philosophy and social sciences disciplines. At the same time, it focused on innovating

discipline construction model, promoted interdisciplinary integration with project construction, supported a number of new interdisciplinary subjects, adjusted and optimized discipline layout structure, and initially formed a key discipline system that meet national development needs. For example, facing the strategic needs of national development, Tsinghua University adjusted the distribution of information, energy, materials and other disciplines to promote academic groups construction. In line with the idea of "comprehensive integration", University of Science and Technology of China built a large disciplines platform for on the basis of "condensed matter physics under extreme conditions", "artificial control of chemical reactions" and other key disciplines. Nanjing University adopts the construction mode of "discipline special zone" and gave more autonomy to the allocation and use of talents, money and materials, thus forming a management and operation mechanism that is not only relatively independent but also mutually supporting with related disciplines. [26]Infrastructure of universities had been greatly improved through the construction of "Project 211". For example, the teaching and research rooms of Renmin University of China have increased by 192%, and more than 95% of public classrooms have achieved multi-media integration. The goal of one room for each professor and one room for two associate professors had been realized. Besides, the campus public service network, the modern campus architecture, the digital library, and the laboratory that connects with international community had all been set up quickly, providing a good guarantee for talent cultivation and scientific research.

c. Late 1990s: Project 985.

When celebrating 100th anniversary of Peking University in 1998, Jiang Zemin put observed and underlined that:

> "In order to realize modernization, China needs to have a number of first-class universities with advanced levels of the world. That university should be to cultivate and bring up high quality creative talent's cradle, should be meet the unknown world, to explore objective truth, which will provide a scientific basis for human to solve the major problem facing front, should be the knowledge innovation, promoting the transformation of scientific and technological achievements to real productivity power, should be a national excellent cultural exchange with the world advanced civilization achievements for reference".[27]

In 1999, to implement strategy of developing the country by way of science and education, "Education Revitalization Action Plan Facing to 21st Century"[28] was announced which mentioned that "China need to concentrate the country's limited financial resources, mobilize the initiative of various sectors, start with the construction of key disciplines, increase investment, and focus on a number of

universities and disciplines that are close to and have the conditions to reach advanced international standards. In the next 10 to 20 years, China will strive to bring a number of universities and a number of key disciplines to the world-class level." Beijing University, Tsinghua University and other higher education institutes are listed in building world-class university, and "Project 985"was officially launched. The "Education Revitalization Action Plan for 2003-2007", [29]released by Ministry of Education in 2004, proposed that "Continue implementation of 'Project 985' and strive to build several world-class universities and a number of internationally renowned high-level research universities. Closely combined with construction of national innovation system, integrate high quality resources, create a batch of high level, open and international scientific and technological innovation platform and humanities and social science research base, cultivate academic masters and innovation team, promote resource sharing, to make a significant contribution to the national modernization construction, improving higher education's overall level and comprehensive strength". As an important part of "Project 985", the "Project 985 Innovation Platform" [30]was launched in 2006 and jointly managed by Ministry of Education and Ministry of Finance. The main task of the project is to focus on key areas and major demands that are urgently needed for country and industrial development. Centering on national science and technology development strategy and frontier disciplines, the project aimed to enhance national strength of top dominant disciplines of industry-featured universities and build a number of world-class academic groups. Universities under construction of this project are selected from the universities in "Project 211" but not in "Project 985". At present, a total of 33 top industrial characteristic universities are listed in "Project 985 Innovation Platform". Unlike "Project 985" which focuses on building top comprehensive universities, "Project 985 Innovation Platform" relies on building top industrial characteristic universities. "Opinions on Accelerating Construction of World-class Universities and High-level Universities"[31] issued by Ministry of Education and Ministry of Finance in 2010 mentioned that "To continue the implementation of 'Project 985', china must adhere to the path of 'distinctive and high-level' development and achieve 'Chinese characteristics and world standards'. The main task of accelerating construction of world-class universities and high-level universities is to strengthen building of talent pool and enhance capacity of independent innovation. With spirit of reform and innovation, china will create a new situation in 'Project 985' and establish a system is suitable for development of world-class universities and high-level universities."

It can be seen from above, in contrast to "Project 211" focusing on construction of whole university and key disciplines, "Project 985" aims to focus more on world-class universities and world-class disciplines. "Project 985" universities (39) are a strong candidate for world-class university under national support, and "Project 985 Innovation Platform" (33) are given the function that to give full play to the advantages of industry characteristics and a number of disciplines dedicated to build a

world-class group. "Project 985" has also effectively mobilized local governments to participate in world-class universities and disciplines.

As a major education deployment in China at the turn of century and China's construction of world-class university has entered a new stage of higher level and greater impact. The first phase of "Project 985" began in 1999 and ended in 2001, with a total number of 34 universities. The first phase of construction aimed to do adjustment and optimization of discipline structure and university direction, strengthen innovative talent quality, and obtain a number of research achievements to the world's advanced level. In 1998, 10 of China's "Project 985" universities were given three-year grants in excess of 30 billion RMB (current price) for quality improvements.[32]The second phase of "Project 985" began in 2004 and ended in 2007, with 39 universities distributed in 18 provinces and municipalities. The second phase of construction's goal is to actively explore new mechanism, introduce a number of world-class university academic leaders and academic team, build a batch of innovation platform and base, and promote formation of a group of world class universities. In 2010, according to the opinions of Ministry of Education and Ministry of Finance on accelerating the construction of world-class universities and high-level universities, a new round of "Project 985" has been implemented.

As the highest level of elite university group in China's higher education system, "Project 985" played a leading role in cultivating a batch of high-level elite talents, bearing many frontier science and technology innovation research, promoting industry-university-research cooperation and supporting the development of less developed area's universities and discipline in some accent.

The construction of "Project 985" had achieved remarkable results. Through world-class university and innovation platform construction, new breakthroughs had been made in universities' discipline construction, and the level of discipline had been rapidly improved, forming a number of disciplines that are close to or reach the advanced international level. The team building had gone up to a new level, bringing together a number of international academic masters and young and middle-aged scholars. The quality of talents had been recognized internationally and international influence of China's higher education had been enhanced. China had made a number of important scientific research achievements that represent the highest level of the country and a number of philosophical and social science innovation achievements that have important influence. "Project 985" is becoming more and more mature and it had received extensive attention from the international community. Practice proved that implementation of "Project 985" is a successful exploration of constructing a high-level university suitable for China's national conditions. The overall strength of universities that been "Project 985" unit had been significantly improved, and the gap with world famous university had been significantly narrowed. However, compared with world's top universities, there is still a considerable gap in the cultivation of top

innovation talents, independent innovation ability and international competitiveness, institutional and academic environment construction.

Table 4: Overview of Project 985

	Total Funds	**Main Application Way**	**Fund Sources**	**Universities**
Project 985 Ⅰ (1998-2001)	22.77 billion	34 universities, disciplinary, faculty, teaching bases, public service system and infrastructures	The central government allocated 13.11 billion. The department and local government support 9.66 billion.	Tsinghua University; Beijing University; Xiamen University; China University of Science and Technology; Nanjing University; Fudan University; Tianjin University; Harbin Industrial University; Zhejiang University; Nankai University; Xi'an Jiaotong University; Huazhong University of Science and Technology; Shanghai Jiaotong University; Southeast University; Wuhan University; China Ocean University; Shandong University; Hunan University; Renmin University of China; Beijing University of Science and Technology; Jilin University; Chongqing University; University of Electronic Science and Technology; Dalian University of Technology; Sichuan University; Sun yat-sen University; South China University of Technology; Beijing University of Aeronautics and Astronautics; Lanzhou University; Northeastern University; Northwestern Polytechnical University; Beijing Normal university; Tongji university; Central South University
Project 985 Ⅱ (2004-2007)	22.58 billion	39 universities, Construction of platform base, faculty	The central government allocated 15.8 billion. The department and local government support 6.78 billion.	China Agricultural University; National Defense University of Science and Technology; Northwest Agricultural and Forestry University; East China Normal University; Minzu University of China
Project 985 Ⅲ (2010-)	More than 45 billion	disciplinary, faculty, public service system	The central government allocated 26.5 billion. The department and local government support 18.6 billion.	

Data sources: Construction report of “Project 985”

http://edu.sina.com.cn/gaokao/2012-01-11/1502323846_2.shtml)d.

d. 2014-now:“Double First-Class” project

When visit to Peking University on May 4th 2014, Xi Jinping proposed that "To build a world-class university in China, we must have Chinese characteristics. It is impossible to succeed without characteristic and following others' lead. Here can apply a sentence, the more national the more world. There will be no second Harvard, Oxford, Stanford, MIT, Cambridge, but there will be the first Peking University, Tsinghua University, Zhejiang University, Fudan University, and Nanjing University. We should conscientiously absorb the world's advanced experience in running universities, and more importantly, follow the education rule and establish universities in China".[33] In 2015, State Council issued "Push Forward World First-class University and First-class Discipline Construction Overall Plan”[34] and speed up to build a batch of world first-class universities and first-class disciplines to improve comprehensive strength and international competitiveness of higher education in China, to realize historic leap from higher education big country to higher education strong country, which is a major strategic decision of State Council in the development of higher education, and the basic principles are "Aim for first class. Based on the discipline. Leverage performance. Reform is the driving force". The key points of Ministry of Education's work in 2016 are clearly put forward, to speed up construction of first-class universities and first-class disciplines, to formulate a “Double First-Class” implementation method. In 2017, "Interim Measures for Promoting the Construction of World-class Universities and World-class Disciplines"[35] was issued by The National Development and Reform Commission, Ministry of Education and Ministry of Finance. National Education Work Conference put forward that start “Double First-Class” construction, cultivating top creative talent. Ministry of Education put forward that implement “Double First-Class” construction, set up construction of expert committee, subject selection standards, procedures and scope, organizational and information publicity network platform, and so on. In September 2017, Ministry of Education, Ministry of Finance, National Development and Reform Commission announced the list of “Double First-Class” construction universities. Among them, there are 42 universities in the first-class universities, 36 in class A and 6 in class B. The number of first-class discipline universities is 95. Now, “Double First-Class” construction covered a total number of 147 universities in all.

Related policy documents above deployed the specific implementation measures which were different from the previous "Projects 211" and "Projects 985". Both in theory and in fact, “Double First-Class” is not completely mechanical continuation of "Project 211" and "Project 985", and there had been some adjustments on the basis of inheriting existing policies.

Firstly, in aspect of strategy goals, “Double First-Class” pay attention to "first-class universities" and "first-class disciplines". It was officially released in 2015, and the principles, objectives and general ideas have been determined. At macro level, "Double First-Class" policy is a national strategy which is major national strategic choice and is expected to improve higher educational international competitiveness in new era of socialism with Chinese characteristics. In this respect, "Double First-Class" is a kind of inheritance of existing "Excellence Initiative in Tertiary Education" which is represented by "Projects 211" and "Projects 985" and it is the

policy behavior that national finance focuses on resources, and rapidly promotes several existing universities to reach the first-class level in the world. While, “Double First-Class” policy target is detailed divided into three time nodes. By 2020, a number of universities and disciplines enter into a world-class objective. By 2030, there is more significant progress of university and disciplines and the number of world's top universities and disciplines would significantly increase, to build a number of world-class universities which would be in the forefront of world class universities for the first time, to build a number of world class leading disciplines. By the middle of 21st century, the number and strength of first-class universities and disciplines can be among the highest level in the world. The ultimate goal of "Double First-Class" is to establish a first-class system of higher education institutions. Concentrated financial resources helps to keep advantages of higher education will be configured according to national development requirement, to help higher education achieve a "leap frog" in the take-off stage of economic development and rise of nation.

Secondly, in aspect of specific implementation measures and selection way, the core aspect of “Double First-Class” policy is "first-class disciplines". According to "Interim Measures for Promoting the Construction of World-class Universities and World-class Disciplines",[36] strengthen the overall planning, insist on supporting the best and supporting the newest, and build universities in accordance with the layout of "first-class universities" and "first-class disciplines", guide and support universities with strong capabilities to properly position themselves, develop their own features and develop in a differentiated way, and strive to form a first-class university and discipline system that will support China's long-term development. The construction of first-class university should be a long-term key construction, with advanced educational concept, strong educational strength and high social recognition. It should have a certain number of leading domestic and international high-level disciplines and achieve remarkable results in reform and innovation and the construction of modern university system. The first-class discipline construction universities should have high level disciplines that are in the forefront of domestic or international frontier, and the discipline level is in the forefront of the influential third-party evaluation, or the country is in urgent need of, has significant industry or regional influence, and the discipline advantage is prominent and irreplaceable. It goes without saying that the core aspect of "Double First-Class" policy is "first-class disciplines" constructions. Different from "Projects 211" and "Projects 985"concentrating on the whole university's development, "Double First-Class" policy strengthen the significance of first-class disciplines and increase investment to development these disciplines.

Thirdly, in aspect of operation mechanism, dynamic management mechanism is innovatively adopted in "Double First-Class" policy. In order to overcome the drawbacks of curing "identity" and "label" brought by traditional policy of "Projects 211" and "Projects 985", "Double First-Class" introduced competition and dynamic exit mechanism which is a new attempt. "Interim Measures for Promoting the Construction of World-class Universities and World-class Disciplines" [37]mentioned that strengthen process management, implement dynamic monitoring, follow up and guide timely. On the basis of discipline, government would break up the solidification status and formulate a dynamic adjustment mechanism and scientific and reasonable performance evaluation methods, carry out mid-term and final evaluation, strengthen

dynamic financial support, form incentive and restraint mechanism, and enhance practical effect of construction. According to mid-term evaluation results, more support will be given to the universities and disciplines with strong implementation, good progress and obvious results. While for those with poor implementation, slow progress and lack of effective construction universities and disciplines, warning and reduce support will be implemented, and the scope of construction shall be adjusted for those have major problems, no longer have construction conditions and have not improved after the warning and rectification.

Specifically, "Double First-Class" policy's construction task[38] mainly includes five aspects, which are to build a first-class faculty, to cultivate top innovation talents, to raise the level of scientific research, to inherit and innovate excellent culture, to promote the transformation of scientific and technological achievements.

Policy mentioned that will fully implement strategy of strengthening universities with talents, strengthen supporting and leading role of high-level talents, and accelerate the training and introduction of a number of first-class scientists, leading figures in disciplines and innovative teams that are active in international academic front and meet major strategic needs of country. It is proposed to cultivate top-notch innovative talents. And policy will continue to cultivate people with integrity, give prominence to the core role of talent cultivation, and focus on cultivating all kinds of innovative, applied and compound talents with a sense of historical mission and social responsibility, innovation spirit and practical ability.

On aspect of research, guided by the country's major needs, policy will enhance scientific research capabilities at a high level and make important contributions to economic and social development and the implementation of national strategies. And will strengthen top-level design and strategic planning for disciplines distribution, with a focus on building a number of leading domestic and international priority disciplines and areas, and to improve basic research level, strive to be the international academic forefront and even the pacesetter. Policy will vigorously promote innovation in the model of scientific research organizations, rely on key research bases, focus on major research projects, improve research mechanisms, carry out collaborative innovation, optimize resource allocation, and enhance scientific and technological innovation capabilities. A number of new university affiliated think tanks with Chinese characteristics and global influence will be found to enhance capacity to serve the country's decision-making. Faced with problems of think tanks' poor quality and difficulty to meet demand of decision-making need, Xi Jinping clearly put forward to promote new think-tank with Chinese characteristics to the national strategic level in April 2013. First, think tank is an important part of national soft power. Second, it is pointed out that the development of think tank in China is relatively lagging behind, and it should play a bigger role and the development demand is urgent. Third, construction goal of "new types of think tank with Chinese characteristics" is put forward. This is the basic development direction of Chinese think tanks at present and in the future. The fourth is to explore organizational form and management mode of new types of think tank with Chinese characteristics, and the foothold is to provide high-quality intellectual support for the scientific decision-making of central government. Universities as the main force of philosophy

and social science in china and interdisciplinary talents gathered highland are an important force in constructing think tank with Chinese characteristics, to serve for the decision making, to enhance the national core ability, to drive reform and innovation. Based on development and prosperity of philosophy and social sciences, university would play a greater role in constructing a batch of think tank with important influence both at home and abroad. Ministry of Education issued “Plan for Construction of University Affiliated Think Tank”[39] in 2014, focusing on urgent need and main direction of the country. The specific tasks are including integrate high-quality resources, expanding application channel and building a high-end publishing platform, reforming management mode and innovating organization form, strengthening organizational leadership and providing strong guarantee. This is the first document focusing on construction of university affiliated think tank with Chinese characteristics, which provides important strategic guidance for construction of think tanks in universities, and also promotes establishment of a large number of think tanks in universities. And nowadays, university affiliated thinks tanks with Chinese characteristics have made great progress and most university had constructed a number of research institutes with characteristics and development orientation of think tank. There is no doubt that these institutes founded strengthen think tank system and mechanism construction, make full use of university’s disciplinary resources and high level talents knowledge to provide professional policy advice for government and decision makers. To a large extent, it effectively assisted in improving university’s social contribution by knowledge transfer and innovation, and from another aspect it improves social sciences’ development in university.

Besides, strengthen the construction of university culture, enhance cultural awareness and institutional confidence, and foster a spirit of first-class universities and university culture that promotes social progress, leads the progress of civilization and has its own characteristics, also become an important content. In achievement transformation, policy will deepen integration of industry and education, combine the construction of first-class universities and disciplines with the promotion of economic and social development, increase the contribution rate of universities to industrial transformation and upgrading, and strive to become a source of innovation that catalyzes industrial and technological change.

According to "Measures for administration of special funds for construction of world-class universities (disciplines) and special development guidance in central government universities" issued by Ministry of Finance and Ministry of Education on July 2017,[40] the talent fund is mainly used to cultivate, introduce and hire leading academic talents and excellent teams, focus on the construction of "Double First-Class" and their characteristic development, increase the incentive for high-level talents, and shall not be used to raise salaries across the university. The policy will highlight the "high, refined, sophisticated and lacking" and focus on introducing more high-level overseas talents. On the talent introduction funds, "Double First-Class" has no definite restriction, according to each university's actual situation, which will strengthen each university's autonomy to arrange the use of funds. For example, Shanghai Jiao Tong University will use 40% of "Double First-Class" total funds to academic talents. As well to locals and expatriate foreign Chinese or foreigners, if

through academic recognition they can reach the standards of high-level talents, their salary is the same.

3、The basic characteristics and implementation effect.

a. National HE’s scale expanded and quality improvement is urgent.

In line with the enrollment expansion, number of Chinese higher education institutions has also increased year by year since 1978. Adapted to the great demands of higher educational expansion, a lot of higher education institutions were established in the last decades of years. In 1949, there were 205 universities in China. After the action of "Readjustment of Colleges and Departments", there were only 181 universities in 1953 and 404 universities in 1977. After higher education scale enlargement, university number added up to 1,022 in 1998 and 2,596 in 2016. From 1978 to 2015, number of Chinese higher education institutions has also increased 328%. Of the nearly 2,600 universities in China, more than 1,300 are higher vocational colleges which have basically developed since 1998. Of the more than 1,200 undergraduate institutions, more than 600 have been developed since 2000, and most of them were mainly transformed from vocational universities. Since the reform and opening up in 1978, especially since the big expansion of university enrollment in 1999, China has accelerated to become a great country of education. In 2002, China's higher education gross enrollment rate reached 15% and entered the mass stage recognized by academia. Mass of higher education in China has continued to improve, with the gross enrollment rate rising to 42.7% in 2016. The total scale of education in China has reached 36.99 million, accounting for one fifth of the total size of education in the world, and china is rapidly moving towards higher education massification.[41]

In this sense, China's higher education system has a low starting point, a short history and a low development focus.[42] From aspect of education scale and quality, the new founded higher vocational universities are the main body of higher education system in China. And China's massification of higher education mainly depends on this kind of universities, which is also main force of future education popularization stage. Education quality of this kind of universities directly determines overall level of China's higher education. However, nowadays these young universities’ education condition and maturity are not satisfactory. If you do not take care of the withdrawal and merger of universities during this period, more than 92% of universities were found in nearly 60 years. Calculated from history, about 30% of university’s age is less than 10 years, and more than 59% of university’s age is less than 15 years in, more than 73% of university’s age less than 35 years, more than 84% of university’s age less than 40 years. Youth means a lot of room for development, but it is often accompanied by immaturity. Especially in china, the new built universities at the beginning is often roughing, from aspect of teachers, teaching instruments, structure, management, governance system of disciplines and culture requires a larger construction of very heavy and hard task. There is also a problem closely related to higher education quality, that is, the scale of universities in China increases rapidly and greatly. In 1998, average size of universities in China owned 3,335 students, which increased to 10,342 in 2016. Among them, the average number of undergraduate universities was 14,532, and the average number of vocational

universities was 6,528. In 2016, the total average size of universities increased by 2.1 times compared with 1998. Higher educational development and changes was accompanied by a change of idea in focus from quantity increase through in education in the pre-1999 period, to an elevated emphasis on quality post-1999.[43]On the one hand, a large number of new universities are set up, and on the other hand, the number of universities has increased sharply. Both of these situations are a major taboo to improve quality of higher education. Higher education should be timely transformation of development mode by quality improvement and connotative development.

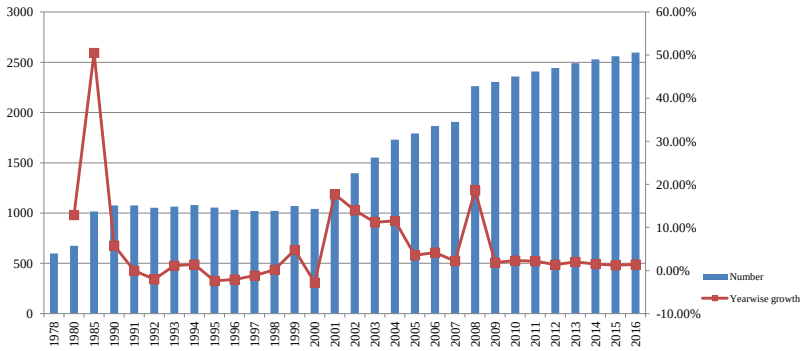

Chart 2: Number of universities and its Yearwise growth from 1978 to 2015

Data sources: China Statistical Yearbook

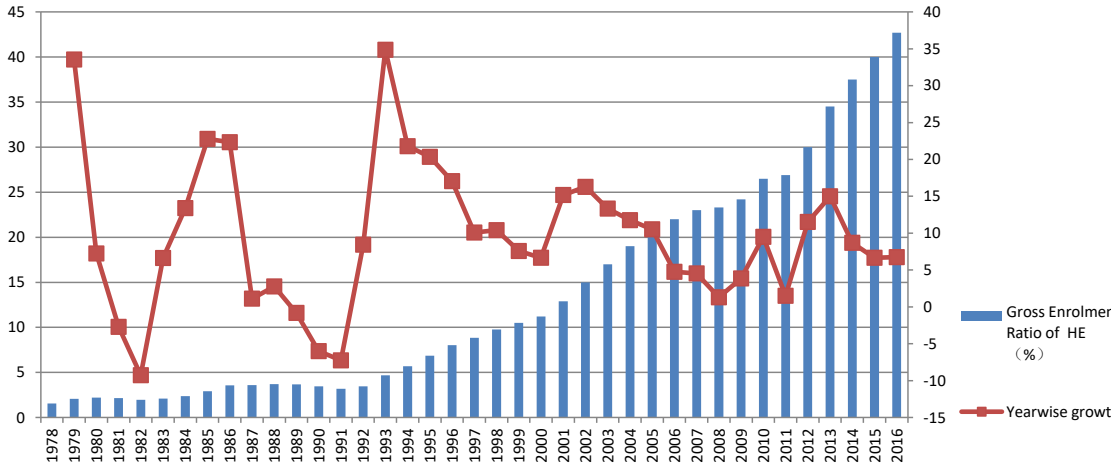

Chart 3: Gross Enrolment Ratio of Chinese Higher Education from 1978 to 2016

Data sources: China Statistical Yearbook

On aspect of research intensity, higher education R&D expenditure on the whole increased year by year, although the ratio of higher education R&D to GDP were a few years of decline maybe some factors such as GDP growth, which showed that higher education research intensity is improved especially in background of enhance national comprehensive competitiveness by means of higher education. Besides, the

number of Doctoral Degree Awarded from 2003 to 2016 are increased year by year on the whole, while the yearwise growth dropped especially after the year of 2006, and it maintained a steady and even slowing growth year by year. In the massification era of higher education, it is of great significance to control the number of doctoral students and improve doctoral cultivating quality to play the great role of higher education in the national innovation system.

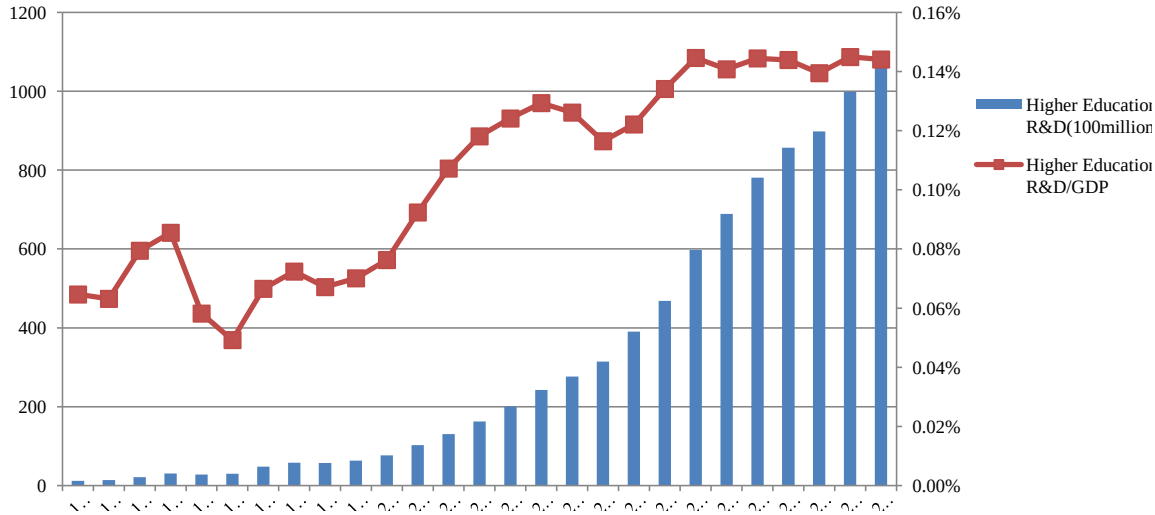

Chart 4: Higher Education R&D/GDP from 1990to 2016

Data sources: China Statistical Yearbook

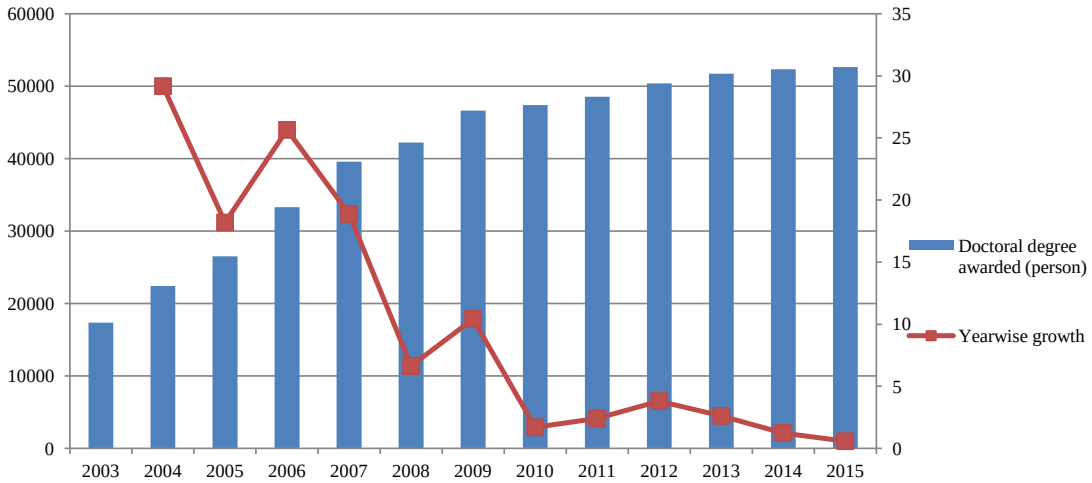

Chart 5: Higher Education Doctoral Degree Awarded from 2003 to 2016

b. International competitiveness of HE has been greatly improved.

Higher education and its international competitiveness and contribution to national development have been significantly enhanced in recent years. In aspect of university ranking, a number of universities and disciplines have risen markedly in the world's four famous rankings and the place in ranking is increasing year by year. In ARWU (2017) ranking, 45 universities are in the list of global top 500 universities, and 9 universities are in the list of global top 200 with 2 universities in world's top 100 universities. In TIMES (2017) ranking, 6 universities entered world top 200 universities and 2 of which entered top world 100 universities. In QS (2017) ranking, 15 universities entered global top 400 universities and 7 universities entered global top 200 universities with 4 universities entered global top 100 universities. In USNEWS (2017) ranking, 30 universities are in world's top 500 universities and 7 universities ranked world's top 200 with 2 universities listed in world's top 100.

Table 5: China's university in Global Ranking

Ranking	1-100	101-200	201-300	301-400	401-500
Academic Ranking Of World Universities, ARWU（2017）	2	7	9	15	12
Times Higher Education Ranking （2017）	2	4			
Quacquarelli Symonds World University Rankings, QS（2017）	4	3	4	4	
USNEWS-GLOBAL（2017）	2	5	3	9	11

Data sources: the data are collected from the ranking's organizational website.

In aspect of high level discipline's development, the latest issue of ESI data (data update node is May 10, 2018, data coverage time from January 1, 2008 to February 28, 2018) shows that 8 disciplines are one over ten thousand subject in the ESI, accounting for 4.1% of global ESI one over ten thousand subjects, and the eight disciplines respectively are Tsinghua University's engineering and material science, University of Chinese Academy of Sciences' chemistry and materials science, Shanghai Jiaotong University's engineering, Zhejiang University's engineering, Harbin Industrial University's engineering and China Agricultural University's agricultural science. In field of engineering, Chinese universities have excellent performance, with four disciplines entering the world one over ten thousand, with three of them entering top 10 in the world. Overall, a smaller number of discipline in mainland China came into ESI one over ten thousand subjects, which focuses on engineering, materials and chemicals. In one thousandth disciplines, universities in Chinese mainland accounts for 5.3% of world's academic discipline. In particular,

Beijing University has eight disciplines including chemistry, clinical medicine, materials science and physics, ranking the first in China. Zhejiang University has seven disciplines, including agricultural science, chemistry, computer science, botany and zoology, ranking second in China. Shanghai Jiaotong University has five disciplines entrants to ESI global one thousandth disciplines, ranking third. Tsinghua University, Fudan University, China University of Science and Technology and South China University of Science and Technology have four disciplines entrants to ESI global one thousandth disciplines, ranking fourth.[44]

According to Thomson Reuters Global Online "Highly Cited Scientists (2017 Highly Cited Researchers)", the total number of global highly cited scientists announced is 3538, including 249 scientists from Chinese universities and research institutions, [45]which is the third largest in the world after United States and the United Kingdom, with Tsinghua University and Peking University topped in the list.

Besides, china has become the largest international study destination country in Asia. In 2016, the number of students studying abroad was 545,000, and the number of returnees was 433 thousand. The number of students studying in China increased by 36.2%, 58.6% and 35.1%, respectively, compared to 2012.China has become the world's largest exporter of international students, and a large number of outstanding overseas returnees have worked in science and technology, education, economy, culture and other fields to build an innovation-oriented country. China has also become the largest destination for overseas students in Asia, and the international students have played an active role in promoting friendship and cooperation between China and other countries. Give full play to education in fundamental, pioneering role in cultural exchanges, by the end of 2016, with 188 countries and regions in china has established education cooperation and exchange relations, with 46 important international organizations to carry out education cooperation and exchange, and 47 countries and regions signed a mutual recognition agreement degree.[46]

c. HE regional balanced development needs to be solved.

In 1999, higher education scale was expanded, and in 2002, it entered into the mass development stage of higher education. However, there has been no effective improvement in equity. Hayhoe (1995) commented that issues of economic efficiency dominated discussions in the contemporary Chinese literature on reform, with little serious consideration of equity issues.[47] For example, admission opportunities of higher education are indeed increasing many, but students from different regions and SES have big drops and the drops continue to grow. In consideration of great variation across provinces according to available human, financial and material resources, a strategic plan commonly referred to as “efficiency claims precedence and fairness is to be taken into consideration also” (*xiaolü youxian jiangu gongping*). While, because of dual influence of decentralization and mercerization, higher education has been imbalanced and will develop far more vigorously in the thriving export-oriented coastal zones than that in the interior regions.[48]

The unbalanced regional development of HE policy is a prominent problem. In 2016, Jiangsu, Guangdong, Shandong, Henan, Hubei, Hunan, Hebei, Anhui, Liaoning,

Sichuan, Zhejiang and so on 11 provinces have the largest number of higher education institutions which are more than 100. While the largest average number of key construction universities are regional distribution in Beijing, Shanghai, Jiangsu, Hubei, Shanxi, Liaoning, Sichuan, etc. Beijing and Shanghai have the highest proportion of higher education institutions participating in national key construction projects, with 20% of universities in Beijing participating in national key construction and 12% of universities in Shanghai participating in national key construction. Higher education bigger scale provinces obtain national higher education key construction policy support's ratio is lower, such as Guangdong and Shandong respectively 2% of higher education institutions participate in state key construction, Henan only has 1% of higher education institutions participate in the national key construction.

If considering regional economic development level, GDP, total population, education investment of national finance and other factors, statistical analysis found that there is no significant correlation between number of key construction university and other four variables which are regional institutions of higher education, the total number of regional population, GDP and the quantity of state financial education funds. When took the total number of regional population, GDP and the quantity of state financial education funds as control variables, number of key construction university and regional institutions of higher learning has significant correlation, and the correlation is 0.57, that is, the more a region owns institutions of higher education, the more universities are likely to be supported by national higher education construction policy. The region distribution of universities supported by key construction policy is characterized by more universities in the east and less in the central and western regions. The government's policy orientation has promoted development of higher education in eastern region as a whole, which is unfair to the central and western regions with less resource. The imbalance status of resources distribution of high-quality higher education has restricted the improvement of competitiveness of higher education in some regions, thus affecting the sustainability of economic and social development. The geographical distribution of high quality education resources in China is more due to the needs of national macro-development and its policies, while local factors are secondary.

Policy is the most important factor affecting regional distribution of universities, and the current pattern is the result of many policy adjustments and long-term historical evolution. Policy supported universities' regional distribution imbalance is the result of government-led most by means of plan, and the market mechanism relatively lags behind the national reform and development of the overall process. In 2015, State Council promulgated "Push Forward the World First-class University and First-class Discipline Construction Overall Plan", requirement by 2020, a number of universities and a number of disciplines enter into world-class level, there is no doubt that government will give strong support through guidance of relevant special funds. Policy has a selective basis to support some good universities, which plays an important role in improving the higher education quality and strengthening higher education keeping up with world class. However, it must also admit that such policy will lead China's higher education to quality polarization over a considerable period of time, further aggravating education injustice.

In subsequent process of policy implementation, on the basis of history and status quo, appropriate change mainly based on previous way which can only continue and further strengthen the existing pattern of regional imbalance. Suggestion is from the national level to strengthen coordination and through legislation to guarantee implementation. According to China's future development goals, higher education should fully consider regional balance, resources stock, combined with local economic and social development to reasonable layout higher education policy. Suggested comprehensive consideration of factors such as economy, population, give full play to the role of market mechanism, combining with regional development and give poor level of development provinces to policy and funding support. Closely link the regional layout of universities and the regional economic and social development, and further optimize regional distribution. Fully arouse the enthusiasm of local, and central can give corresponding support according to the local economic development level, and build cooperation practice of central and local governments, the central main give policy support and local government increase capital spending.

Table 6: University Regional Distribution in National HE Strategy

Region	Key University	Project 211	Project 985	First-Class University	First-Class Discipline	NO. of HE in 2016
Beijing	16	26	8	8	23	91
Jiangsu	10	11	2	2	13	166
Shanghai	8	9	4	4	9	64
Hubei	7	7	2	2	5	128
Shanxi	6	7	3	3	4	93
Liaoning	5	4	2	2	2	116
Sichuan	4	5	2	2	6	109
Guangdong	4	4	2	2	3	147
Heilongjiang	4	4	1	1	3	82
Chongqing	4	2	1	1	1	65
Jilin	3	3	1	1	2	60
Hunan	3	3	2	2	1	123
Shandong	3	3	2	2	1	144
Tianjin	2	3	2	2	3	55
Anhui	2	3	1	1	2	119
Hebei	1	1	0	0	1	120
Zhejiang	1	1	1	1	2	107
Fujian	1	2	1	1	1	88
Neimenggu	1	1	0	0	1	53
Xinjiang	1	2	0	1	1	46
Gansu	1	1	1	1	0	49

Yunnan	1	1	0	1	0	72
Guangxi	0	1	0	0	1	73
Guizhou	0	1	0	0	1	64
Hainan	0	1	0	0	1	18
Henan	0	1	0	1	1	129
Jiangxi	0	1	0	0	1	98
Ningxia	0	1	0	0	1	18
Qinghai	0	1	0	0	1	12
Shanxi	0	1	0	0	1	80
Xizang	0	1	0	0	1	7
Military		3	1	1	2	
TOTAL	88	112	39	42	95	2596

Data sources: collected according to each policy

Table 7: University Regional Distribution's Influence Factors Correlations Analysis

Control Variables			Total NO. of regional universities	Average NO. of key construction universities	Regional Population (ten thousand)	Regional GDP (100 million yuan)	National fiscal expenditure of education (100 million yuan)
-none-[a]	Total NO. of regional universities	Correlation	1.000	.270	.900	.850	.835
		Significance (2-tailed)	.	.142	.000	.000	.000
		df	0	29	29	29	29
	Average NO. of key construction universities	Correlation	.270	1.000	.018	.279	.264
		Significance (2-tailed)	.142	.	.924	.129	.152
		df	29	0	29	29	29
	Regional Population (ten thousand)	Correlation	.900	.018	1.000	.847	.887
		Significance (2-tailed)	.000	.924	.	.000	.000
		df	29	29	0	29	29
	Regional GDP (100 million yuan)	Correlation	.850	.279	.847	1.000	.941
		Significance (2-tailed)	.000	.129	.000	.	.000
		df	29	29	29	0	29
	National fiscal expenditure of education (100 million yuan)	Correlation	.835	.264	.887	.941	1.000
		Significance (2-tailed)	.000	.152	.000	.000	.
		df	29	29	29	29	0
Regional Population (ten thousand) & Regional GDP	Total NO. of regional universities	Correlation	1.000	.576			
		Significance (2-tailed)	.	.001			
		df	0	26			
	Average NO. of key construction universities	Correlation	.576	1.000			
		Significance (2-tailed)	.001	.			

(100 million yuan) & National fiscal expenditure of education (100 million yuan)		df	26	0

a. Cells contain zero-order (Pearson) correlations.

4. Conclusion

This research discusses the state mediation, policies and strategies in higher education in China from 1978 to 2017, and attempt to document its policy changes and its effectiveness including the scale, competitiveness and equity based on specific data. During the past 40 years' development, the function of higher education in China has been redefined. Higher education especial the elite university which at the top of high education pyramid is not only the teaching place, but also an important community of scientific research, technology innovation, and culture creation. To increase Chinese national identity and to develop Chinese characteristics higher education by means of talents cultivation and scientific innovation are the most important function of higher education in China nowadays. Kinds of policy changes display higher education transformation strategy in China, while higher educational transformation is of course mapping part of China's broader development strategy in place for a number of years designed to maintain economic growth and social prosperity and development.

By means of policies and strategies review, we found that higher education's historical development and changes following quite strong national logic in the process national forceful policies and strategies play a crucial effect. It goes without saying that strong national strategy would improve the policies' execution efficiency and promote higher education's leapfrog development in quite a short time which is rare to see in other countries and regions. While there exposed quite a lot of problems brought by fast scale expansion and giving priority to efficiency in the past decades of years, the most obvious is the problem of equity which referring to equal education chance and equal regional development, and quality referring to there is less international influential talents. It is increasingly clearly to see that for those with good social and economic status would own better educational resources and choice, and while for those with poor social and economic status it is more and more difficult to achieve upward mobility. For a socialist country there are many spaces for higher education to play greater role especial in high level talent cultivation and scientific and technology innovation with international competitiveness for most of national populations. To achieve more broad goals and serve for the country's wellbeing, higher education in china would strengthen connotation construction, and improve higher educational system and mechanisms construction, and no hesitation, no vacillation, going forward toward the objective of world class talents cultivation and world class university construction.

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