

**Rethinking viewpoints of investigation on global higher  
education development: using the case of China to propose an  
alternative perspective to understand world higher education**

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December 2022

This thesis is submitted for the degree of Doctor of Philosophy

## **Preface**

This thesis is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the preface and specified in the text. I further state that no substantial part of my thesis has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. It does not exceed the prescribed word limit for the relevant Degree Committee.

# Abstract

**Title:** Rethinking viewpoints of investigation on global higher education development: using the case of China to propose an alternative perspective to understand world higher education

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Although rankings, especially those measuring universities in the global sphere, are recent creations, their pervasive impact on policy making and universities' behaviours around the world seem to suggest the pursuit of becoming a world-class university has been a global trend in higher education development. However, the single-minded pursuit of world-class status in the rankings may lead to irrational strategies that could undermine the development of universities and limit the ways in which they contribute to society. Moreover, showing a preference for multiversity, the pervasive use of rankings may encourage the homogenous development of universities worldwide. To develop a few national universities into world-class universities has long been a goal for policy makers in China, where the first global ranking scheme was created. A hierarchy by design among higher education institutions under central planning governance seems to have been critical in the national strategy to develop the top universities in China. However, the newly implemented national initiative for world-class university development, i.e., Project DFC, seems to suggest an intention to reform such a governance regime. This research attempts to provide an updated account of the world-class university phenomenon against the background of governance reform in China by a case study in Shenzhen. By including both regional universities and regional government, which used to be excluded, in Project DFC, it seems that a slightly different understanding of a world-class university, the core of which is local engagement and contribution, has been advocated in Shenzhen. By bringing social relevance to the local region back in the discussion of world-class university development, it is considered that the case of Shenzhen may shed new light on the discourse of the world-class university and point to the possibility of a more sustainable path towards achieving world-class status.

## Keywords

World class university, global rankings, path dependency, case study, policy research, institutions and institutional change

## Acknowledgements

Firstly, I would like to express my deep and sincere gratitude to my supervisor, Prof. Geoff Hayward, who gives me support and encouragement until the very end of this journey. He inspires me not only with his wisdom but also with his dedication to knowledge and educating young researchers. He is and always will be the role model that I look up to.

Next, I would like to thank my parents, who have supported me with love and caring for thirty-one years. Without their spiritual and financial support, I would not have been able to study in Cambridge.

Also, I would also like to thank all the friends, colleagues and tutors from my college and Faculty of Education. I am grateful to all of those with whom I had the pleasure to work.

Lastly, to my partner Ziying, thank you for your patience and companionship. Having gone through this journey together, I believe we are ready for any challenges in life. Thank you for staying by my side.

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## **Chapter One Introduction**

In the last few decades, transformative changes have been witnessed in higher education. As a result of these changes, it has been argued that the very nature of higher education, which is believed to be the formal organisation with the longest history in our society (Drori et al., 2006), has been radically changed (Pring, 2005). The impacts of these changes are globally extensive and profound and have involved the higher education systems in a wide variety of nation states undergoing a series of structural reforms that share many similarities. The result, Marginson (2018a) argues, is increasing convergence in the landscape of global higher education and growing similarities in terms of provision, institutional form, and modes of governance in various national systems.

World-class university (WCU) and global rankings is one of these global trends of higher education development, which emerged around the early 2000s (Rider et al., 2020). However, compared to its short history, its impacts on policy making and the behaviours of higher education institutions around the world has been overwhelming (Cantwell et al., 2018; Marginson, 2017b). Proactive national strategies to develop WCUs are legitimated by the discourse associated with competition in the global market and, at the same time, reinforces the prevalence of such discourse around the globe. Emphasising the university-economy link, WCUs are presented as indispensably important contributors to national economic development and economic competitiveness (Liu, Wu & Wang, 2021; Mohrman et al., 2008). As a result, how to develop WCUs has become a prevalent theme on the political agendas of an increasing number of nation states regardless of their development status and the affordability of the massive investment needed to sustain competition (Altbach & Hazelkorn, 2018; Cantwell et al., 2018; Marginson, 2017a). As observed by Marginson (2017b), the desire to develop WCUs is almost universal, as it is difficult for both nation states and higher education institutions (HEI) to stay out of the WCU movement.

The global trend of WCU development is closely associated with the creation of global rankings (Marginson, 2012; Rider et al., 2020). The first global ranking, i.e. Academic Ranking of World Universities (ARWU), was created in China in 2003. ARWU was created as an assessment tool for Project 985, the second national WCU project initiated in 1998 in China, under the intention of Ministry of Education (MoE) to compare the performance of Chinese HEIs in the global market (Douglass, 2015; Shi, 2018). Thus, it seems that creating a group of WCUs through national initiatives has long been a policy goal of the Chinese government.

Project 985 and the first national WCU initiative, Project 211, which was announced in 1995 and then implemented in parallel with Project 985, enabled the strategic allocation of government funding (Marginson, 2012). Under these WCU initiatives, a hierarchy among HEIs, which enabled concentration of resources in the form of extra government grants on a few selected HEIs, was installed. The result was rapid improvement in performance, especially in research, of these HEIs. On the one hand, the number of Chinese HEIs in the league tables was increased. For example, the number of HEIs from the Chinese mainland in ARWU's top 500 increased from 9 in 2003 to 18 in 2010 (ARWU, 2003; 2010). On the other hand, the quantity of research outputs increased rapidly as well. The number of science and engineering papers produced by China increased from 9,061 in 1995 to 56,806 in 2007, exceeding that of the UK and Germany (Marginson, 2011b).

However, the idea to install a hierarchy by design as a strategy to rapidly improve the quality of a few HEIs and the desired outputs by them was not created under the pressure of global rankings. Rather it seems to have long been a design of the Chinese system, which can be traced back to the early 1950s. A bifurcated differentiation to single out six HEIs to prioritise their development and accelerate the cultivation of high-quality human capital for research institutes and HEIs was enforced firstly in 1954, when China was patterning itself on the central planning model of Soviet higher education (Yang, 2019). Although the mission of the top HEIs was changed to achieve world-class status in the WCU initiatives, the policies in the two

periods seem to share a similar rationale of concentrating resources on a few HEIs through the installation of a hierarchy by design.

Such a hierarchy seems to be critical for the rapid development of the top HEIs in China, especially against a background of higher education expansion. The expansion of higher education took place from 1999, around the same time as the WCU initiatives (Xiang & Yi, 2021). Since both the WCU initiatives and higher education expansion required large sums of government funding in China, without the stably maintained hierarchy, which enabled the strategic concentration of resources on the selected HEIs, the rapid improvement of top HEIs may have been impossible.

However, these WCU initiatives were replaced by a new national project, Project Double First-Class, which seems to show an intention to change the stable hierarchy among HEIs, by installing a performance-based competition mechanism, through which HEIs are compared against the standard defined by the state for entry (MoE, 2015b). This may suggest a transformative change in higher education governance and indicate that the Chinese system may converge to the global trend of performance-based financing reform under the impacts of New Public Management (Beerkens, 2022; Marginson, 2018b). How such a change in governance will transform the landscape of higher education in the Chinese system is the focus of the current research.

On the one hand, long-term concentration on a few HEIs through the hierarchy by design has created tensions in the Chinese system (Serger et al., 2015). The large gap that still exists between the globally prestigious HEIs dominating the rankings and the top HEIs in the Chinese system, along with the great gap between the top HEIs and the rest of the system due to long-term differentiation in allocation, have contributed to a dilemma of higher education development in the Chinese system (Hawkins, 2015). The introduction of competition by the new project may boost improvement in a wider range of HEIs and bring changes to the hierarchy and thus, may alleviate the tensions in the Chinese system.

On the other hand, the new policy may expand the influences of ranking schemes to a wider range of HEIs. Along with the global pervasiveness of the rankings, the pursuit of WCUs and global rankings has been an important topic in higher education research and concerns about their impacts have been shown (Altbach, 2009; 2012; Altbach & Hazelkorn, 2018; Marginson, 2017a; Marginson & ven der Wende, 2007a; Pusser & Marginson, 2013; Rider et al., 2020). In order to enter the league tables, HEIs may be encouraged to benchmark their performance against the standards set by the ranking schemes. However, studies suggest that the methodologies of most ranking schemes are problematic (Altbach, 2009; 2012; Altbach & Hazelkorn, 2018; Boulton, 2011; Pusser & Marginson, 2013). Assessing higher education performance using these proxies without thorough consideration may not lead to substantial improvement and may even undermine the quality of higher education. The preference that rankings give to internationally recognised basic research and natural sciences and engineering may change the priorities of HEI development, which may limit the social purposes of and the potential contributions by higher education to society (Altbach, 2015a; Altbach & Hazelkorn, 2018; Rider et al., 2020; Shin & Harman, 2009). Moreover, the tendency to favour the comprehensive research-intensive universities in rankings may contribute to homogenous higher education development and reduce the diversity among HEIs (Huisman, 2008; Boulton, 2011; Nixon, 2020; Pusser & Marginson, 2013; Rider et al., 2020). With the pressure to achieve world-class status being expanded to more HEIs, irrational strategies with a single-minded focus on performance in the rankings may be harmful to the long-term development of both Chinese HEIs and the Chinese system.

Regional HEIs are most likely to be motivated by Project DFC. However, the participation of regional HEIs requires the involvement of regional government, which may have a different focus from national government to provide extra funding for higher education development. Regional government, which may prioritise local engagement rather than performance improvement in global rankings for the value of their investment, is likely to be involved in

the making of HEIs' strategies. The result under the change of governance of Project DFC may play out differently depending on the role and rationale of policy makers at the regional level.

This research focused on the single case of Shenzhen. It seems that due to the critical role played by policy makers in Shenzhen government, a strong emphasis has been placed on the connections between HEIs and the local region in the WCU development plan in Shenzhen. By perceiving local relevance as the core of WCU development, it seems that the case of Shenzhen has important implications by offering a more sustainable way towards WCU development.

The remainder of this thesis is formed of six chapters. In chapter two, a review of the literature on WCU and global rankings and then a more detailed discussion of the history of WCU development using path-dependence theory in the Chinese system is given. Chapter three explains the development of the research questions and the research designed to answer the questions. Chapters four and five in combination answer the first research question. Chapter six, using the case of Shenzhen, answers the remaining research questions. The last chapter reflects on the implications from the case of Shenzhen.

## **Chapter Two Literature Review**

This chapter is separated into two parts. In the first part, it will review the literature of the meaning on WCUs and the impacts of global rankings. In the second part, two theories, which are commonly used to understand globally convergent trends of higher education development, will be used to understand the phenomenon of WCU development in the Chinese system. However, since both theories seem to fail to include the influences of the Soviet model of governance, which this thesis argues is of critical importance to the development of the top HEIs in China, this chapter proposes an alternative theoretical proposition of using the path-dependency theory to understand the case of China. In the last section, a different account of the formation of the Chinese higher education system through the lens of path-dependency will be presented.

### **2.1 The WCU movement and the case of China**

#### **2.1.1 The fluidity of the notion of a WCU**

The phenomenon of WCUs, as a recent global trend of higher education development, has been an important topic in the research on higher education (Benner, 2020; Cheng et al., 2014; Nixon, 2020). Although enormous attention and efforts have been paid to this topic, it seems that an agreement on what it means to be a WCU has not yet been reached (Deem et al., 2008; Jian & Xue, 2021). The notion of a WCU remains an open discussion.

In the existing literature, there are considerable differences on the notion of a WCU (Alsawaha et al., 2021; Jian & Xue, 2021). For example, Wang et al. (2013) place a strong emphasis on research and define WCUs as prestigious research universities that are essential to a nation's competitiveness in the global knowledge economy. Salmi (2009) stresses the importance of

international recognition as the basis of achieving world-class status. Aside from these features, Salmi and Altbach (2012) suggest a WCU should have a high concentration of talented faculty and students, abundant resources and governance that enables flexibility in decision-making and management. Different from the examples above, Rhee (2011, p. 100) emphasises the importance of 'history' in the notion of WCUs and indicates that 'a relatively long modern university history, a nurturing environment of abundant resources, and entrenched academic freedom' are critical for world-class status. Douglass (2015) includes the element of 'a culture of excellence', which refers to a set of values that are developed internally and drive self-improvement, in the notion of a WCU.

Thus, it seems that a consensus on the notion of a WCU is lacking. This makes answering the question of what the necessary conditions are that formulate a WCU highly difficult. The lack of a clear formula of WCUs provides little guidance and reference in relation to the most pressing issue that concerns policy makers, which is how to develop or create a WCU and how to know when you have achieved that goal. This takes us to the creation of global rankings, which provides a convenient, but not necessarily sensible, solution to this problem. The concept of a WCU constructed by rankings may not be able to capture exactly what a WCU really is and does.

### **2.1.2 Rankings and their dominance in the discourse of WCU**

As Altbach (2012) suggests, the creation of rankings is inevitable. They were first created as informative guidance for choosing universities for students and their families in a massified system in the U.S. (Beerkens, 2022; Douglass, 2015; Shin & Harman, 2009). The development and application of rankings in the global sphere, however, was started to serve the needs of national government to manage the performance of domestic universities in relation to their peer universities globally (Beerkens, 2022; Lynch, 2015; Rider et al., 2020). The Academic Ranking of World Universities was the first global ranking created by Shanghai Jiao Tong University in 2003 under the mission granted by the national government in China to compare

and improve Chinese universities in the global system (Douglass, 2015; Shi, 2018). Since then, other ranking schemes have been created and they have been widely used as an important instrument to inform policy making in the pursuit of WCUs (Benner, 2020; David & Motala, 2017; Margison, 2012). Table 2.1 shows the year of creation of four global rankings that are commonly used.

Ranking scheme	Year of creation
ARWU	2003
QS (Quacquarelli Symonds)	2004
Times Higher Education	2004
U.S.News	Published domestic rankings in the U.S. since 1983 Published world rankings since 2014

Table 2.1 Year of creation of four commonly used global rankings. Source: individual websites.

Although the rankings were recent creations, they have been extensively adopted because they become a handy tool for governance in the pursuit of world-class status. Firstly, they seem to uncover the myth of WCUs. They reduce the complexity and ambiguity behind the notion of a WCU by transforming it into a matrix of quantifiable indicators. The judgement of whether world-class status has been achieved or not can be easily distinguished through placement in the rankings. The way to climb up the hierarchy seems quite simple as well because it is all written in the methodologies. What is needed to obtain world-class status is reduced to simply boost performance against the indicators. Secondly, global rankings provide a convenient tool for performance comparison under the requirement of accountability inherent in ideas of new public management (NPM) (Salamon, 2002). Improvement, at least in terms of the dimensions measured by the various ranking systems, of HEIs can be monitored through the changes of the indicators or their placement in the ranking compared to a previous time. Differentiation between the HEIs in terms of which deserve investment of resources and which do not can be easily achieved. Thus, in this view, using global rankings to inform policy decisions about distribution of resources and their potential concentration in, say, HEIs construed as being excellent (usually in terms of research

outputs) under regimes of NPM contributes to better management and control of the behaviour of HEIs to meet the demands of accountability (Beerkens, 2022; Lynch, 2015). Thus, along with their pervasive utilisation, global rankings have dominated the discourse of WCUs with a concept constructed by them (Deem, 2008; Douglass, 2015; Nixon, 2020). With performance in these league tables as the goal of a growing number of HEIs and national governments, it seems that the notion of a WCU has been simplified as being a top-ranking university in global rankings (Altbach, 2015a; Marginson, 2012).

However, as suggested by the large amount of research that focuses on the growing impacts of rankings, the pervasive use of rankings as tools of HE governance may be problematic (Altbach, 2009; 2012; Huisman, 2008; Marginson & ven der Wende, 2007a; Pusser & Marginson, 2013; Rider et al., 2020). Firstly, by transforming the activities of universities into quantifiable indicators, the idea of a WCU is excessively simplified by rankings within which many of the important roles played by a university, particularly their social roles, are largely ignored (Boulton, 2011; Deem et al., 2008; Lynch, 2015; Rider et al., 2020). Modern universities, especially in the systems that have gone through massification, are usually multifunctional entities, that bear a set of complex but valuable roles including, but not limited to, knowledge creation, widening participation, professional education, citizenship education and knowledge transfer (Boulton, 2011; Fu, 2015; Huisman, 2008; Marginson, 2011a). However, rankings tend to prioritise research activities (Altbach & Hazelkorn, 2018). The evaluation of other activities, probably due to the difficulty of capturing their value in a few easy-to-understand indicators, is often inadequate or even absent in most rankings (Altbach, 2012; Benner, 2020). For example, evaluation of teaching and learning, which should be a fundamental role played by universities as educational establishments, tend to be largely neglected or reduced to the proportion of teaching faculty that have some measure of research excellence, such as Nobel prizes or Field medals, associated with their name (Lynch, 2015; Marginson, 2017a). This seems contrary to the idea of a WCU given by Amy Guttmann, a previous president of the University of Pennsylvania. Guttmann suggests that the fundamental value of the University of Pennsylvania lies in the education of the youth, for

social engagement and creation of social goods (Gutmann, 2014). Such a significant difference in values seems to suggest that the concept of WCUs captured by most rankings may be different from what a WCU does in reality. Taking the concept by rankings as an ideal and working towards it may lead to misleading and even harmful changes in HEIs with their other important missions being neglected.

Furthermore, even though disproportionate attention has been placed on research, the method of assessing research productivity remains problematic. Rankings tend to skew towards natural sciences without thorough considerations of disciplinary differences in research activities (Lynch, 2015). Douglass (2015, p14) summarises the formula to evaluate research productivity in rankings, which is ‘citation indexes heavily weighted to STEM fields + research income + Nobel or other internationally recognised research awards + reputational surveys’. Rankings like the ARWU, which is one of the most influential schemes, have raised concerns about the imbalance among disciplines and putting the development of humanities and social sciences into a further disadvantaged position by paying too much attention to Nobel Prizes (Marginson, 2017a). Publication in the form of journal articles is usually recognised as the main, if not the only, format of research outputs, while other formats that are important to report research outcomes in other disciplines are largely excluded (Nixon, 2020). Books, the intellectual impacts and influence of which are difficult to quantify, remain an important way to communicate and disseminate research outcomes in humanities and social sciences, yet they tend to be excluded from rankings (Lynch, 2015). The problem with using funding as a valid indicator for research activities is similar because the available and necessary amount of funding tends to vary among different disciplines. In fields like humanities and social sciences, the available funding tends to be much more limited compared to some STEM disciplines, whose research is highly laboratory-based, and large sums of money are no guarantee of high quality of research (Altbach, 2015a). Taking rankings as a valid means of research evaluation may, then, accelerate the imbalanced development among disciplines and put the development of certain disciplines at risk, including ones likely to have an impact on the ‘social good’ for example development studies.

Thus, employing global rankings as the key means of providing accountability in HE governance regimes runs the risk of failing to accurately capture the nature of most of the activities of a university, which means that they are likely to be highly deficient in providing valid evaluation for higher education performance. If they are used unconsciously in higher education governance and management, rankings may lead to a misleading or even distorted understanding of what a WCU is and does because what is being presented as the norm of a WCU is a highly simplified yet inaccurate idea of a university. The ideal of a WCU in different global rankings seems highly similar, despite the differences in methodologies. They all point to a particular type of university, which is the comprehensive research-intensive multiversity in the UK and the US (Altbach, 2012; Huisman, 2008). As Benner (2020) suggests, the ARWU favours the large-scale research universities in the US, whereas THE and QS favour Anglo-Saxon universities. It seems that these rankings take the prestigious universities of the US and the UK as the ideal. This may be the reason why rankings tend to represent a similar group of universities in the top tier (Marginson & Wende, 2007a; 2007b). With their increasing impacts, the global rankings may then reproduce a global hierarchy of universities, within which there is little room for change (Douglass; 2015; Pusser & Marginson, 2013). Outlining the relevant indicators to become a top-ranking university, the rankings seem to provide a short-cut to obtain world-class status. By doing so, they further encourage wider participation by both HEIs and national governments to participate in a game that they stand little chance of winning.

More importantly, rankings seem to diminish the discussion of WCUs to one particular model by dominating the discourse about WCUs. This large-scale multiversity model, or more precisely speaking, a model that places disproportionate emphasis on research achievement in forms of highly refereed articles in prestigious journals or Nobel Prizes or Field medals, is not sustainable for the majority of HEIs and their national governments (Douglass, 2015; Nixon, 2020). Firstly, boosting research performance requires long-term investment. Resources, especially funding, may then be concentrated on a small number of HEIs while

being drained from other HEIs, for example, those fulfilling the majority of educational needs in a massified system (Pusser & Marginson, 2013). Secondly, most national governments that pursue the goal of WCUs are urged on by the belief that WCUs can enhance the competitiveness of national economies (Rider, 2020). In order to climb up the rankings, it is necessary that HEIs enhance research productivity according to the various instruments in the matrix of priorities, thereby leading to a focus on research that can lead to journal articles acceptable for publication in a narrow range of 'prestigious' journals in a particular field. In economics, for example, there are just five journals, that in turn lead to international recognition and awards (American Economic Association, 2020). Research activities may then be driven away from local and national significance and relevance (Deem et al., 2008; Boulton, 2011; Rider et al., 2020). The extent to which additional indicators of research relevance, such as those employed in the UK's Research Excellence Framework, act to counteract such a focus remain open to question. The result may be chasing for global impacts at the expense of local relevance and engagement, which, this thesis argues, should be the fundamental purpose of a university.

With this single model dominating the discourse of WCUs, it is highly possible that higher education development around the globe will become increasingly homogeneous and the diversity of HEIs will be reduced (Benner, 2020; Boulton, 2011; Huisman, 2008;). With the comprehensive multiversity model being set as the ideal, the HEIs that pursue world-class status are likely to converge on conformity by trying to emulate the practices of current elite universities and to play by the rules embedded within the ranking instruments' matrices of indicators. This may trap research activities within a narrowly defined framework. In order to increase publications in prestigious journals, the breadth of research may be limited because researchers are urged to chase after what are deemed to be 'hot issues' by the editors while other research interests may be reduced (Nixon, 2020). The result may be increasing homogeneity in the directions of the research agenda. The pattern of knowledge production may become increasingly similar as well. The audience of the prestigious journals tends to be highly limited. Prioritising publication in these journals means the knowledge being created

is likely to be circulated and communicated within a narrow range of academia (Douglass, 2015). It is likely that knowledge creation becomes trapped in a singular pattern.

However, such a traditional mode of knowledge production is challenged due to the expanded demands for knowledge in social production and social life (Guile, 2022). A new mode of knowledge production, i.e. transdisciplinary research, which is produced for application and includes not only academia but also other non-academic stakeholders, is emerging (Hoffmann et al., 2017; Lawrence et al., 2021; Nurius et al., 2017). The WCU ideal by the rankings, which tends to be limited to research activities in the traditional mode of knowledge creation, may constrain the development of higher education itself. Thus, a new model of WCUs, which incorporates transdisciplinary research, is needed.

The pervasiveness of global rankings and the risk of using them have been presented in numerous studies (Altbach, 2009; 2012; Altbach & Hazelkorn, 2018; Boulton, 2011; Lynch, 2015; Marginson, 2011a; 2017a; Pusser & Marginson, 2013; Rider et al., 2020). Most of them, as a conclusion, call for a stop in the meaningless chase for status and over-reliance on these rankings as a means to evaluate performance. However, the global enthusiasm for WCU development does not seem to be diminished by these critiques, and rankings continue to dominate the discourse on WCUs. Maybe it is time to think the other way around and advocate a more sustainable way towards of achieving world class status. As David and Motala (2017) suggest, a new meaning of the notion of WCU may be found in emerging economies such as Brazil, Russia, India, China and South Africa. This study intends to use the case of China to further explore the possibility of proposing a new idea of what it means to be a WCU.

In the current literature, global trends of higher education development, such as the above-mentioned WCU movement, are mainly explained from two theoretical perspectives, namely, the neo-institutional perspective and the cultural political economy perspective (Marginson, 2017b; Schofer & Meyer, 2005). In order to understand WCU development in China, both theories are applied. However, it seems that a stably maintained HEI hierarchy as an important

attribute of the Chinese system is missing. This thesis argues that such a hierarchy, which was generated by design, has been important for the rapid development of the top universities in China. In the next section, both theories will be presented.

## 2.2 The neo-institutionalist account of global convergence in higher education

The application of neo-institutionalism in international higher education research has important implications for understanding the mechanism of change behind the globally integrated trends of higher education development. Central to the neo-institutionalist account is the formation of global institutions in the sphere of international higher education development (Schofer & Meyer, 2005). Pointing out the compelling forces of institutional changes of the globalised environment on national higher education development, the neo-institutionalist account has had a critical contribution to theory building in the landscape of comparative and international higher education research.

### 2.2.1 Globalisation as driving force of global convergent higher education development

In the neo-institutionalist account, the institutional changes in the international environment are driven by the process of globalisation (Drori et al., 2006; Schofer & Meyer, 2005) where, it is argued, increasing levels of interdependence and cooperation, as globalisation deepens, facilitate cross-border interaction and communication (Schofer & Meyer, 2005). In such an increasingly closely connected world, the institutions of the external environment, which national systems and HEIs are embedded in and interact with, are undergoing change. Hence, higher education itself is also subjected to structural reforms (Drori et al., 2006). In the perspective of neo-institutionalism, these institutional changes are both cultural and political, and so is the nature of the process of globalisation (Schofer & Meyer, 2005).

Firstly, as Schofer and Meyer (2005) argue, globalisation is a cultural process which creates the ground for cultural exchange and circulation. On the one hand, this enables, they suggest, the formation of a global community with a shared ‘world culture’, the core of which is more progressive ideas and advanced practices of social development. Then, they argue, such a world culture will be taken as the norm of social development and drives ideological changes and imitation through its global diffusion in different parts of the world, including that of higher education. On the other hand, the neo-institutionalist account argues that HEIs are turning into ‘organisational actors’, which are increasingly autonomous and responsible for their actions (Krücken & Meier, 2006). Being exposed to such a global cultural institution, it is suggested that progressive ideas and advanced practices of social development will be accepted and imitated automatically in HEIs for rationalised and scientific development of the HEI itself (Drori et al., 2006). Thus, as explained by the neo-institutionalist account, the institutionalisation of a world culture and its diffusion and imitation is the major mechanism of change that triggers the phenomenon of global integration and convergence in higher education.

Secondly, the process of globalisation is seen as a political process within neo-institutionalist theorisation (Schofer & Meyer, 2005). Increased global interdependence and cooperation are manifested by the creation of a ‘world polity’, which is represented by the foundation of international organisations. The explosive foundation of international organisations after the World War II suggests increasing cross-border connectivity and cooperation. In the neo-institutionalist account, this political change in global institutions, on the one hand, contributes to the further promotion of a common world culture and the acceleration of cultural convergence. On the other hand, increasingly active participation of nation states and local organisations in these global organisations also suggests strengthened connection between the local and the global. Thus, domestic affairs are increasingly influenced by global organisations. The constraints on local and domestic activities by international standards or regulations, which are informed by the normalisation of the world culture, it is suggested, also tend to increase as well. So, under the institutionalisation of a world polity, cultures or

practices that diverge from the norms in the world culture are then deemed as unscientific and irrational, urging conformity to the universal rules of actions thereby ensuring that global convergence in development is further reinforced by the changes in political institutions in the global sphere.

Thus, the formation of a cultural institution in the global sphere is central to the neo-institutionalist account of global convergence in higher education development. Such a global institution of culture functions as both a formal and informal institution in the neo-institutionalist account (Schofer & Meyer, 2005). It is a formal institution, which urges conformity of national systems and HEIs through the power of international organisations. It is also an informal institution, which facilitates automatic acceptance of progressive ideas and practices as the norms of higher education development in HEIs through cultural and ideological reform. However, the progressive ideas upon which a world culture is institutionalised mainly refer to the liberal and rationalist ideas that are derived from the more developed western countries. As Schofer and Meyer (2005) suggests, it is rife with Anglo-American values and influence. Thus, the neo-institutionalist account in fact argues that the globally integrated trends of higher education development are driven by an identical mechanism of change, which can be summarised as the global acceptance and imitation of the Anglo-American pattern of higher education development. Following neo-institutional reasoning, the mechanism of change behind the global trend of WCU movement is explained in the following section.

### **2.2.2 The WCU movement and the prevalence of the multiversity model**

Following the arguments of neo-institutionalism, the power of decision-making is decentralised to organisations, along with their quantitative expansion, while the power of the nation state is weakened in the increasingly globalised world (Drori et al., 2006; Schofer & Meyer, 2005). The increased autonomy HEIs, as one type of organisation, enables their decision makers to seek better development of individual HEIs. (Drori et al., 2006). Such self-

betterment, it is suggested, comes through the imitation of good practices either from counterparts within the sector or from organisations from other domains. Under this view, in the globalised environment, HEIs tend to imitate the forms and practices of HEIs in other countries. Due to the prevalence of the WCU movement and the introduction of global rankings, which place HEIs in an environment of constant comparison and reference, such within-sector imitation is likely to be reinforced, not only for better organisational development but also for global reputation. The Anglo-American forms of institution, especially the American ones, are assumed to be the models of imitation.

Although the neo-institutionalist account admits the possibility of deviation from or rejection of progressive ideas and practices, it also argues that there tends to be negative inertia that punishes for doing so. Such negative inertia, representing a corrective effect on those whose actions or performances are not aligned with the normative world culture, in fact suggests little tolerance of deviation in the globalised environment (Drori et al., 2006). Seeing from the neo-institutional perspective, it seems that the globally pervasive international rankings function as an institution that punishes HEIs that deviate from the multiversity. The HEIs that deviate from the standardised form of multiversity thus tend to be under-represented in the rankings and such deviation is likely to be corrected if upward mobility in the league table is to be achieved, thus reinforcing the dominance of the Anglo-American form of HEI. The result, as the neo-institutionalist account indicates, is the increasing global prevalence of multiversity (Kerr, 1963).

As can be seen, stressing the importance of the impacts of global institutions, neo-institutionalism offers an insightful analysis of the institutional changes of the structure in the global environment. Under the neo-institutionalist perspective, the dominance of the Anglo-American ideas and practices of higher education in the global environment and its powerful forces in shaping and constraining the development of higher education in various countries around the globe are articulated clearly. However, it also shows a tendency to over-emphasise the force of institutional changes of the global environment. Focusing primarily on

the changes in the external environment and attributing these changes as the major force of global reform, the neo-institutionalist account adopts a top-down perspective to explain global development from above. Such a top-down perspective seems, however, to overlook the actual processes of change in national setting and therefore lacks the capability to capture and explain the various manifestations of the seemingly convergent phenomena of higher education development. Failure to scrutinise how the changes happened at micro-level reduces the analytical ability of the neo-institutionalist account to provide a comprehensive understanding and leads to a conclusion which stresses isomorphism of global higher education development.

Such an isomorphic account provides only one possible scenario of change and reduces the process of how the global trends of higher education transformation happened in various countries to the acceptance and imitation by national HEIs of the diffusion of certain globally dominant models. Adopting such an explanation as the single possible model of change, the neo-institutionalist account seems to suggest that there is little room for variations in the processes that embed the global trends of development in different countries. Thus, the forces of national institutions and the critical roles of some important players that shape the possibilities of higher education development in the process of change are missing. On the one hand, the role of HEIs is weakened. Although it claims that HEIs are organisational actors, which are entities with increasing level of autonomy to make rational decisions for self-development, HEIs are reduced to passive receptors of dominant ideas and practices with little agency under the neo-institutionalist account (Schofer & Meyer, 2005). Considering the far-reaching impacts of global phenomena, a wide variety of HEIs with cultural, financial, institutional and ideological differences may be involved. It is highly likely that dominant ideas and practices imported from a context they share few similarities with may be interpreted differently and absorbed selectively.

On the other hand, the role of the nation state is missing. The neo-institutionalist account suggests a stateless world, within which development planning, decision-making and

regulation are decentralised to the level of organisations (Drori et al., 2006). It is hypothesised that the authoritarian control of the nation state has been weakened in the process of globalisation. The nation state is painted as powerless in the face of compelling global forces and pressures from the spreading and diffusion of the progressive world culture, which is generated from other countries. This account seems to underestimate the role of the nation state in influencing and managing changes in higher education. The rising transition towards anti-globalism in many countries in recent years reject the assumption of such a stateless world (Xiong & Mok, 2020). The limitations on the enrolment and employment of international students in many countries, including the U.S.A. as the country hosting the largest number of international students, is thought to be a manifestation of the resurgence of nationalism and shows the power of the nation state in shaping and changing national higher education systems directly (Douglass, 2021; Tange & Jæger, 2021). Thus, neglecting the role played by the nation state further compromises the ability of the neo-institutionalism in accounting for global higher education development.

### 2.3 The cultural political economy perspective and the post-Confucian model

Given these shortcomings, another group of researchers propose adopting an alternative cultural political economy perspective which suggests that the national context is also important in the analysis of global higher education development (Carnoy et al., 2013; Dale & Robertson, 2002; Marginson & Ordorika, 2011; Skocpol, 2010). Emphasising the importance of contextual variations, the cultural political economic perspective has critical implications for theory building in comparative and international higher education research.

Firstly, it remedies the overly simplified theoretical framework of neo-institutionalism and provides a more comprehensive one, which includes national institutions in the analysis of higher education development. This account argues that nation states should be brought back into the discussion since they remain powerful in shaping national systems of higher

education (Skocpol, 2010). Under the influence of global institutions, the nation state has the discretion to make decisions and respond to global institutional changes (Marginson & Ordorika, 2011). Thus, depending on how the nation state responds to global institutions, the seemingly convergent global phenomenon of higher education development may be embedded and manifested differently in various countries. Thus, the mechanism behind the globally integrated trends of higher education development should be seen as the complex interaction between the global institutions and the national institutions constructed by nation states (Carnoy et al., 2013).

Secondly, it argues that national institutions are shaped not only by the nation state but also by the cultural, economic, and political histories of the country. As Carnoy et al. (2013) suggest, what happened in an earlier period can have profound impacts on what happens at present, since institutional inertia is also important in framing the possibility of change and the possible shape of the current system. The response of the nation state to the international institutions thus is conditioned by cultural, political, economic histories and traditions of the national context (Carnoy et al., 2013; Marginson, 2017b). Thus, the transformation of higher education should be understood with reference to national contextual differences. Under the critical political economy perspective, a more comprehensive understanding of the global phenomenon of higher education development can, therefore, be provided and more insightful observations about higher education development with national variations being recognised can be achieved.

From this theoretical perspective, the differences, mentioned in the first chapter, in terms of the pathways of higher education development between East Asian countries, including China, and that of the dominant Anglo-American model are recognised. Marginson (2011b; 2013; 2017b), for example, points out that some countries and regions in this part of the world, including Japan, Korea, China, Hong Kong, Taiwan, Singapore and Vietnam, commonly show four features in terms of higher education development. These are strong nation-state control and shaping of the higher education system; massified towards universal participation; a one-

chance national examination for higher education admission; and massive public funding on WCUs and research. Such a distinctive model of higher education development, which is termed as a post-Confucian model (or Confucian model in the 2011 paper), it is argued, can be explained by the interaction of the dominant Anglo-American ideas and practices and the traditional culture of Confucianism which is commonly shared by these countries and regions (Marginson, 2011b; 2013; 2017b).

Under this perspective, the formation of the Chinese system should be explained by two forces. On the one hand, it is influenced by the international institution which is characterised by the domination of Anglo-American ideas and practices. On the other hand, it is shaped by the national institutions of traditional of Confucian ideas of education and the political culture of centralised control.

However, the cultural political economic account seems to show a tendency towards historical determinism by taking the influence of a certain historical event on the current system for granted. By questioning the validity of this account, the purpose here is not to deny history as an important force that shapes the current system or veto the inclusion of history in the analysis of higher education development. Rather, the purpose is to question the way in which history should be used in the analysis. The impacts of a past event or tradition on the current system of higher education should be seen as contingent. Thus, in order to argue that a past event or tradition shapes higher education developments in the current system, substantial evidence which can show the causal relation between the past and contemporary developments of higher education should be provided. In what follows the case of the Chinese system, which is categorised as part of the post-Confucian model of higher education development, will be used to illustrate that, without more substantial evidence, the force of history remains a tentative hypothesis, which may obscure some important features and nuances of individual countries.

By suggesting the formation of the post-Confucian model arises from the traditional culture of Confucianism (Marginson, 2011b; 2013; 2017b), this account argues that ancient cultural histories, which can be dated back more than 2000 years in China, remain decisive in shaping the current systems of higher education. Firstly, the post-Confucian model argues that household investment in tuition fees by students and their families is the key dynamic of this model, and the willingness to pay for higher education can be attributed to the respect for education, and education as a responsibility for the family in traditional Confucianism (Marginson, 2011b). To support this assertion, evidence should be provided to show that the majority of parents today perceive higher education as a means of self-formation and fulfilling family responsibility, and that such a mindset drives the act of payment. However, studies in China suggest that the majority of parents perceive higher education as an investment for better future personal development for their children (e.g. Xiao, 2020; Xu, 2010). Xu (2010) investigated the reasons for household investment in higher education through surveys in 30 provinces. The results show that nearly 90% of parents considered that higher education can bring higher returns in the form of economic returns and opportunities in the labour market for their children, and the author suggests this was the prime reason for their willingness to pay for higher education. This indicates that parental payment for higher education owes more to the influences of human capital theory rather than to traditional Confucianism.

Secondly, the post-Confucian model attributes the close state control model of governance at present to the political culture of centralised state control in ancient China (Marginson, 2011b). This seems to indicate that the influence of such a political culture, which was from Qin dynasty around 4 B.C.E in ancient China, is permanent. However, the history of the Chinese system suggests that this may not be the case. There was a time when centralised nation state control on higher education in China seems absent. This was the Nationalist Government period, when HEIs were established and administered by different forces, and the Nationalist Government in fact had little power in higher education governance, as will be illustrated in the next section (Hayhoe, 1996; Pepper, 2000; 2004). This period of time shows that higher education governance without strong state control is possible in the Chinese

system and that the influence of the so-called political culture on higher education governance should not be taken for granted. It seems that in order to argue that a past event or tradition shapes higher education developments in the current system, substantial evidence which can show the causal relation between the past and contemporary developments of higher education should be provided.

More importantly, the post-Confucian model seems inadequate in explaining the formation of the current Chinese higher education system. Categorising the Chinese system with other Asian countries in the same post-Confucian model seems to suggest that all these higher education systems share a highly similar trajectory of formation. By doing this, this account may have the same problem as neo-institutionalism of using a top-down perspective in the analysis of similar phenomena in various contexts. A possible result may be that some national specific elements that shape the current system may be overlooked. This thesis argues, the influence of the history of learning from the Soviet model of higher education back in the 1950s on the current Chinese system is neglected. Failing to include the influences of the Soviet model seems to suggest that the explaining ability to be used to explain changes in various systems of the cultural political economy perspective may be impaired.

In the next section, an alternative perspective to understand global higher education developments in different national contexts is proposed. The case of Chinese higher education will be used as an illustration. Through the proposed perspective, an account about the formation of the Chinese system, which is different from the post-Confucian model, is presented and the influence of the Soviet model of governance on Chinese system will be presented.

## 2.4 Proposition of a historical institutional perspective and the case of China

Building on the theoretical framework of both neo-institutionalism and cultural political economy, this thesis proposes a new perspective for comparative and international higher education research. It proposes to use North's (1990) idea of institution as a conceptual tool to analyse the forces that shape higher education development. According to North (1990; 1991) institutions are 'humanly devised constraints' on people's interactions. Institutions in the current thesis refer to the rules that are designed to constrain the possibility of higher education development. This thesis agrees with the cultural political economy account that higher education systems are shaped by both international institutions and national institutions and that national institutions are historically conditioned. Yet different from the cultural political economy, this thesis argues that the impacts of history or traditions should be seen as contingent and that the impacts of history should be confirmed by tracing back the historical formation process of the current system. To outline the process of formation that gave form to the current institutions, path dependence theory from the literature of institutional change provides a suitable analytical framework.

In path dependence theory, the future possible state of being is historically conditioned in that the possibility of future decisions may be limited by certain historical events (Béland, 2010; Campbell, 2012; Hogan, 2019; Mahoney, 2000; Pierson, 1993; 2000; Schreyogg & Sydow, 2011; Sydow & Schreyogg, 2015). Under the path dependence perspective, a contingent decision or a historical event in the past, through a self-reinforcing mechanism, may show persistency in the future long term (Mahoney, 2000; Sydow & Schreyogg, 2015). Two types of self-reinforcing mechanisms are proposed. Firstly, similar decisions may be repeatedly taken because of increasing returns, which refers to the beneficial outcomes that will be continuously produced through the adoption of the same decision (Pierson, 1993; 2000). The continuous repetitions of the decision with increasing returns forms an institutional pattern, which makes taking other options increasingly difficult as time goes by. The second type of self-reinforcing mechanism takes place through the sequential occurrences of a chain of

causally connected events (Mahoney, 2000). The sequential occurrence of these events in a specific pattern of timing eventually triggers the current state of being. Through this self-reinforcing mechanism, the historical events or decisions show a lock-in effect, which make it difficult to reverse, and therefore show institutional persistency.

One critical feature of analysis using path dependence theory is that it gives great credit to the process of change and focuses on how the persistent pattern of institutions is formed historically. As suggested by Pierson (2000), static analysis of the causes of the current situation provides only a 'snapshot' from which only a partial truth about the 'moving picture' can be seen, if the phenomenon in focus indeed shows the tendency of persistency. Although the critical political economy account recognises that the pathways for higher education development in different countries may be rather different, and that such differences are heavily influenced by history, research in this tradition seldom follows the historical trajectory and asks how these pathways with distinct differences are formed. It is by tracing the pathway that the elements that have causal effects on the current system can be identified clearly. Thus, the current research proposes a third way of understanding global higher education development by adopting a historical institutional perspective. It argues that by following the trajectory of higher education development to understand the process of change from an earlier period to now, a more comprehensive understanding may be yielded.

Using a historical perspective, an account of the formation of the Chinese system, which is different from the post-Confucian model, is presented. In this new account, the feature of economic nationalism from the Soviet model, which is invisible in the post-Confucian model, is an important element in the formation process of the contemporary Chinese system of higher education. 'Economic nationalism' (Halsey et al., 1997) is an ideology that values state planning over market mechanisms in resource distribution. As used here, it refers to a belief, which considers state planning and design as the more efficient way of organising higher education for the development of the nation state. Such a mindset, this thesis argues, has shaped the Chinese system, and its influence is still evident in the current system. Such

influence can be seen in the continuous adoption of the five-year planning mechanism to make future arrangements in the higher education sector. To organise and direct economic and social development in accordance to strategically made plans on five-year intervals was a creation of the Soviet Union (Froumin & Kouzminov, 2018). Along with each five-year plan, there was a sub-session of 'Forthcoming Improvements in Higher Education and Science', which was used as a directive to plan the annual development of higher education (Kuraev, 2016). Emulating the Soviet model, the five-year planning mechanism was introduced in China in the early 1950s and was used as directives for higher education development as well (Hu et al., 2022; Wang & Gong, 2021). The five-year planning mechanism remains an important tool to coordinate and organise national development today and China has now entered its 14th five-year plan. Changes apply to the mechanism of five-year planning. In the beginning of its introduction, each HEI was required to achieve the commands of the central government in accordance with the five-year planning as their goals of annual development (Zhang et al., 2021). Now local government and HEIs have greater discretion. Although there remain mandatory requirements that are delivered in a top-down manner, local government and HEIs can develop their own five-year plans with both their practical needs and directives from above being considered (Hu, 2011; Zhang et al., 2021). Although changes apply, it is hard to deny that such a mindset of using advanced planning to organise higher education has informed the Chinese system and persists even today.

The next section will firstly illustrate the configuration of the Soviet system under central planning and then how it has informed and shaped the Chinese system will be presented in further detail.

#### **2.4.1 The configuration of the Soviet higher education system and central planning**

It seems that there is a consensus in the literature that a distinctive model of higher education was created in the Soviet Union, which had features that made it drastically different (Azimbayeva, 2017; Chankseliani, 2022; Froumin & Cao, 2020; Froumin et al., 2014; Huisman

et al., 2018; Johnson, 2008; Kuraev, 2016;). As Kuraev (2016) suggests, the Soviet model is an ‘antithesis’ to the widespread notion of higher education, which is, in his words, a western model that was informed by traditional European ideas of a university with characteristics of academic freedom, self-governance and a combination of research and teaching (Shaw, 2013). The fundamental difference is that the Soviet system was a creation of the Soviet government (Kuraev, 2016). As Froumin and Kouzminov (2018) suggest, it was an attempt to materialise a utopian socialist ideal almost from scratch following the design and planning of the central authorities.

The core to this ideal was to build a system that served economic and social development pragmatically (Smolentseva et al., 2018). Following the goal of rapid industrialisation of the economy since the first five-year plan in 1928, training a large number of engineers had been the major task of higher education (Azimbayeva, 2017). The reforms starting in the late 1920s were to reorganise the higher education system into a manpower-producing machine that was subordinated to the planned economy, corresponding to Lenin’s ideal of the socialist economy as a ‘single common factory’ (Froumin & Kouzminov, 2018).

With the training of a workforce of highly professional specialists as the major task, a set of institutions were devised to restructure the higher education system. The enforcement of these institutions formed the infrastructure that linked the supply of the higher education system to the practical demands of the economy. One important institution was separation of the research function from HEIs (Chankseliani, 2022). Among the universities inherited by the Soviet Union from the previous era, some were established under the influence of the Humboldtian model, which advocates the notion of a university as a nexus of research and teaching (Gille-Belova & Titarenko, 2018). These universities were integrated as part of the manpower-producing machine with the Humboldtian orientation being removed to a great extent (Froumin et al., 2014). The share of research activities that were performed in HEIs was significantly limited, with the majority being transferred to research academies, institutes and

industries (Smolentseva et al., 2018). This institution effectively limited HEIs' involvement in research activities and ensured that manpower training was the dominant role of the system.

To ensure that the machine produced a workforce that contained a wide-range of different types of specialists that were tailored to the needs of the planned economy, a higher education system with rationally designed horizontal differentiation was considered necessary. The following set of institutions were devised to reinforce such horizontal differentiation by design.

The first institution was to separate the comprehensive fields of study or disciplines into narrow specialisations. This institution related to the mechanical functioning of the manpower-producing machine and its coherence with the economy. In this horizontally differentiated system, HEIs were differentiated by their end products, with each of them being assigned the task of training particular types of specialists necessary for the economy (Gille-Belova & Titarenko, 2018). After this systematic reorganisation, HEIs in the Soviet system could be differentiated into two types: comprehensive universities and specialised HEIs (Chankseliani, 2022). Comprehensive universities, which were to train staff for other HEIs, research institutes or local management cadres, were the minority. The main body of the Soviet system was made up of specialised HEIs (Froumin et al., 2014; Froumin & Kouzminov, 2018). By the end of the 1980s, there were only 69 comprehensive universities and 904 specialised HEIs (Chankseliani, 2022). Each specialised HEI was assigned the task of training particular types of specialists in a specific sector of the economy. The training programmes in these HEIs were highly specialised, corresponding to the staffing needs of the narrowly defined occupations in an industry or even in a factory. There were over 900 different specialisations in total in the Stalinist era (Froumin & Kouzminov, 2018). Such an institution of narrow specialisation ensured the mechanical functioning of each specialised HEI by limiting their training activities within the task that was assigned to them. With the end products of each HEI being predictable, the production of a workforce that contained the types of professionals necessary for the economy as planned was therefore considered possible.

The second institution, which was also devised for the coherence between supply and demand, was the advanced planning of admission numbers (Froumin & Kouzminov, 2018). Similar to the economic sector, the output of the higher education system was also determined through advanced planning by the nation state in accordance to the anticipated needs of the economy (Froumin et al., 2014). Each HEI executed the task of providing training to a required number of students according to the annual quota of enrolment, dropout and graduates that they received (Kuraev, 2016).

Uniformity was the third institution that was devised to ensure the standardisation of the training process. A set of unified rules were applied identically to all HEIs (Froumin & Kouzminov, 2018). These included using Russian as the academic language, following an identical admissions procedure, issuing unified state diplomas upon graduation and, most importantly, using the centrally developed curricula and the unified textbooks (Froumin et al., 2014; Kuraev, 2016). These rules put various aspects of teaching and student life under the regulation of the unified standards by the central authorities, thus contributing to the standardisation of the training process (Shaw, 2013).

The fourth institution was mandatory job placement. The final step to complete the design of a higher education that served the economy was to accommodate the trained human capital as planned. Thus, it was mandatory that graduates conformed to the job appointments assigned by the nation state according to industrial needs (Chankseliani, 2022; Froumin & Cao, 2020). This institution was important because it connected the output of the manpower-producing machine to the demands of the economy.

Thus, there was a strong orientation to transform the higher education system into an instrument for economic and social development and organising higher education through advanced planning was perceived to be an efficient way to do so (Froumin & Kouzminov, 2018). Such a mindset was fundamental to the distinctive Soviet model. As Froumin and his

colleagues (Froumin et al., 2014; Froumin & Kouzminov, 2018) suggest, what defines the Soviet system was that the nation state performed both the role of manpower producer and the role of employer. This means that the state played a central role in decision-making on both the supply and the demand sides. Learning from the Soviet model, such a mindset once underpinned the Chinese system and drove transformative changes, the influence of which may inform practices today.

Such influence may be seen in the structure of the system. Intentional differentiation of HEIs was an important element of the Soviet model. As Froumin & Kouzminov (2018) suggest, unlike the usual pattern of differentiation, which accelerates after massification, the Soviet system was intentionally horizontally differentiated by state planning. The purposeful differentiation of HEIs is an important indicator of advanced planning because it implies that the output of each HEI is predetermined. Similarly, following the Soviet model, differentiation among HEIs also emerged in the Chinese system long before massification due to purposeful design by the state. Slightly different from the Soviet system, the Chinese system was not only horizontally differentiated but also vertically differentiated on purpose. This explains the early emergence of the phenomenon of vertical stratification in the Chinese system, which distinctively diverges from Marginson and Cantwell's (2018) observation derived from other massified systems. This thesis argues that state-initiated vertical stratification is an institutional pattern that reflects the economic nationalism regime in China. In the following sections, the historical trajectory of the formation of the hierarchy under the historical institution perspective will be illustrated.

#### **2.4.2 Historical formation of the vertically stratified higher education system in China: the attribute of economic nationalism in governance**

Different from neo-institutionalism, which indicates high-level isomorphism for higher education development, the critical political economy account points out the tendency towards diversification among HEIs and suggests that diversification is a critical point for

comparative studies of massified higher education systems since national systems tend to vary in terms of the scope and extent of diversification (Cantwell et al., 2018). During the process of expansion, higher education systems are usually subjected to structural changes and HEIs tend to be increasingly diversified since educational needs tend to become diversified as they multiply (Cantwell et al., 2018). Horizontal diversification refers to the differences among HEIs in terms of mission, type and form. In a horizontally diversified system, HEIs are perceived as equally important components that together compose a well-functioning system. In a vertically diversified system, HEIs are ranked in a hierarchy and the educational and research outcomes of different HEIs tend to be of different social value. As empirical observations derived from numerous massified systems show, a vertically stratified higher education system may be turned into a device of social stratification which reproduces the patterns of existing inequality, and therefore raise concerns about social justice (e.g. Boliver & Wakeling, 2017; Britton et al., 2019; Crawford et al., 2016). Thus, the mechanism of the formation of vertical stratification has been a focus of research. As Cantwell et al. (2018) suggest, stratification is a natural tendency that usually happens along with HE expansion. As the number of HEIs increases to accommodate expanded participation demands, competition among HEIs intensifies and drives the system to bifurcate into elite and non-elite groups. Similarly, competition over the scarce positions in the elite HEIs tends to differentiate the student body. Thus, higher education expansion has a causal power over stratification. As the system expands, stratification occurs gradually in most systems.

However, the formation of the stratified Chinese system seems to diverge from this pattern. The stratification phenomenon in the Chinese system started more like a deliberately designed outcome under the impacts of state policies and developed under the forces of both state policies and competition rather than a naturally formed process after expansion took place, as Cantwell et al. (2018) indicate. It is important to perceive the formation of the Chinese system from a historical perspective, since the adoption of the vital attribute of economic nationalism from the Soviet model can clearly be seen.

The beginning of modern higher education in China dates back to 1898, when the first national university was established (Zhang, 2017). The university, which was the predecessor of the current Peking University, was founded in Beijing by the feudal Qing government (1636–1911). After continuous defeats in wars with western countries, it was realised that there was an urgent need for modernisation and industrial development (Wang, 1998). The university was constructed then with the main task to cultivate human capital for social reform and future development (Wang, 1998; Zhou & Zhang ,2007). It replaced the previous highest education institution, the *guozijian*, which functioned mainly to cultivate the offspring of noble families or government officers to serve the feudal polity (Zhou, 2013). Unlike its original objectives, the university in fact became a simple replacement of the *guozijian* while remaining as a bureaucratic cultivation institution since its graduates became officers with certain political power and served the feudal government (Hayhoe, 1996). Therefore, higher education at this time remained a kind of elite education that served the needs of the ruling class.

In the Nationalist Government period (1911–1949), the higher education system expanded, with 59 HEIs being established by 1931 (Pepper, 2000), most of which followed western ideas about higher education (Xiong, 2003). Among the 59 HEIs in 1931, half were public HEIs administered by national or provincial government and half were run by private holders (Pepper, 2004). Of the private HEIs, many were run by foreign missionary organisations, especially those from America, and some were run by Chinese intellectuals (Hayhoe, 1996). For example, Tsinghua University was founded under the impact of the American Government in 1911. The university was designated as a preparation institution for students to study in the United States using the indemnity in the Boxer Protocol<sup>1</sup> paid by the feudal government to the U.S. (Tang, 1989; Zhou, 2011). Due to complexity in governance, HEIs at this time had great freedom in terms of operation. This resulted in a system with diversified HEIs without

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<sup>1</sup> The Boxer Protocol was signed between the Qing government and the Eight-Nation Alliance, including America, France, Germany, Italy, Russia, Britain Austria-Hungary and Japan, over the armed suppression of the anti-colonial, anti-foreign Boxer Rebellion in China. The Qing government was requested to pay for the loss and cost of the suppression as indemnity for the eight nations. The U.S. government returned the excess payment and this fund was used as a scholarship programme for Chinese students to study in the U.S.. The HEI established for this purpose was the predecessor of Tsinghua University.

an obvious hierarchy. Thus, higher education during this period appeared to be a flat system with horizontal diversity among HEIs but not vertical stratification (Cantwell et al., 2018).

Although the number of HEIs had increased, higher education remained an elite education available to the minority. However, the composition of students changed compared to the Qing period, when those in higher education were mainly restricted to the feudal ruling class with power. Despite an increase in provision, the places in higher education remained scarce and students were mainly from wealthy families in large cities (Pepper, 2000). Admission to HEIs was highly exclusive and usually a threshold of secondary education was required (Gao, 1997). However, secondary education was not universally provided at that time and the majority of the population could not afford it. Some universities even required foreign language abilities for admission, which was not included in ordinary secondary education. Thus, only those who could afford expensive private schools or some highly selective public schools were able to pass the entrance examination. Thus, higher education at this time remained a highly exclusive elite form of education enjoyed by the wealthy minority with economic capital.

In 1949, the People's Republic of China was founded under the control of the Communist Party. The previously flat system was soon subjected to transformative reforms that initiated vertical stratification while remaining small in scale. Thus, in China, vertical stratification was not initially aligned with high participation (Cantwell et al., 2018); rather it was a product of central planning, as will be demonstrated in the following section.

After the establishment of the People's Republic of China, the new government conducted reforms in many policy areas, including education. Politically, China needed to establish a socialist identity under the international environment of the Cold War, where the socialist forces represented by the Soviet Union and the capitalist forces represented by the U.S. became two polarised powers (Wu & Yu, 2011). Economically, China still faced an urgent need for modernisation and industrial development. Consequently, China decided to follow the

Soviet economic development model, which prioritised heavy industry. Education was also reformed to serve the economy (Yang, 2008). Patterned after the Soviet model, a strong orientation of reforms in this period was to develop a higher education system that conformed to state planning. The power of the state and its bureaucratic organisations were seen as the best way to distribute resources and deliver efficiencies for mass production and education development. Thus, in HE, the legacy from the Nationalist period, which was strongly influenced by the European and American style, was changed into a Soviet model. Under the principle of state planning, a highly centralised higher education system was established in China to produce human capital to support economic needs and statecraft with three major changes (Hayhoe, 1996).

The first change was nationalisation of the higher education sector. HEIs that were inherited from the Nationalist period, when they were under multiple governing bodies, were put under the direct governance of the central government, and the power of the market was eliminated (Hu, 2011). After being nationalised, private HEIs were either closed or subsumed into the public universities. A set of reforms that were mentioned above in the Soviet experience were applied, including mandatory placement of graduates, unifying curricula, textbooks and admissions procedures (Zhang, 2012). As a result, resource distribution, discipline coverage, and the operation of each HEI, including student admissions and graduate employment, conformed to the state's assignment (Zhang, 2012).

Secondly, HEIs were differentiated horizontally and the system was subjected to transformative reorganisation. On the one hand, to ensure that higher education functioned to fulfil the needs of industrialisation in economic development, the Chinese system went through similar changes as the Soviet model. HEIs became teaching-focused and research activities were concentrated at the Chinese Academy of Sciences and other associated research centres (Hayhoe, 1996; Hu, 2011). The mission of each HEI and the subjects to be taught were determined by the state. For example, due to the emphasis placed on science

and engineering, Tsinghua University was assigned as a science-specialised university and other faculties, such as arts and law, were moved to Peking University (Su, 1989).

On the other hand, in order to support the economic development in every region, higher education resources were redistributed to reduce the disparity between regions. In 1949, the majority of the 205 universities were located in the coastal Eastern region (Ouyang, 2022; Yang, 2008). Existing HEIs were either moved entirely or subjected to discipline adjustment, which moved certain faculties from some HEIs to others, mainly from the resource-abundant Eastern region to the inland region. Meanwhile, new HEIs were established in the inland region. For example, in 1952, among the 59 HEIs in mid-Eastern China, 51 were subjected to redistribution and only 8 remained the same (Su, 1989). At the end of the redistribution in the mid-1950s, the number of HEIs was reduced to 181 (Hayhoe, 1996).

Thirdly, along with the reduction in HEIs, a hierarchy was created within the system and HEIs were positioned differently in the hierarchy (see Figure 2.1). The People's University, founded in 1949, was positioned as the apex of the system with the main task to provide political cadres for the state (Hayhoe, 1996). As part of the reform, the central government announced six universities as 'key universities' in 1954<sup>2</sup> (Tan & Wang, 2016). These universities were targeted as pioneers to develop a high standard of higher education with the main task of cultivating high-quality human capital for research institutes and HEIs (Yang, 2019). The number of key universities gradually increased and reached 68 in 1963. In terms of position in the system, they were differentiated from the other HEIs and placed at a higher status in the hierarchy. A set of particularised institutions, the rules of which were different depending on the subjects they imposed on, were devised to maintain this vertical differentiation (Ogilvie & Carus, 2014; Ogilvie, 2019). Against the background of insufficient teaching staff and lack of teaching devices nationwide due to financial difficulty, the staffing needs and the needs for teaching facilities of these key universities were prioritised by the central government (Chen & Li, 2019). There were also institutions to ensure their privilege in student admissions and

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<sup>2</sup> The six key universities were Peking University, Tsinghua University, People's University, Peking Medical College, Peking Agricultural University and Harbin Institute of Technology.

graduate employment allocation. Since their admissions processes were conducted after the *Gaokao* in advance of other non-key HEIs, they were able to enrol the best-performing students. What is more, graduates from the key universities were usually assigned to the core positions that led to professional career paths (Hu, 2011). Unlike the institutions designed for horizontal differentiation, which were applied generally to all HEIs, these institutions were applied to this small group of key universities only (Ogilvie & Carus, 2014; Ogilvie, 2019). The purpose was to grant them privileges in resource distribution to increase their share of the necessary facilities, staff and good students against the rest of the system.

At this point, the Chinese higher education system, which used to be mostly elite education, was then separated into an elite sector of key universities, and the non-elite sector, made up of the other HEIs. A tendency of vertical stratification thus emerged. Such a vertical differentiation of HEIs by design, on the one hand, enabled resources to be concentrated on these universities so as to rapidly enhance the quality of their education. On the other hand, it enabled control of fiscal funding on higher education to a manageable level against a background of financial difficulty. The urgent need for professionally trained staff for research institutes and higher education was solved efficiently. Thus, such a purposefully designed hierarchy among HEIs was considered to be beneficial for the nation state and has been maintained persistently in the Chinese system.

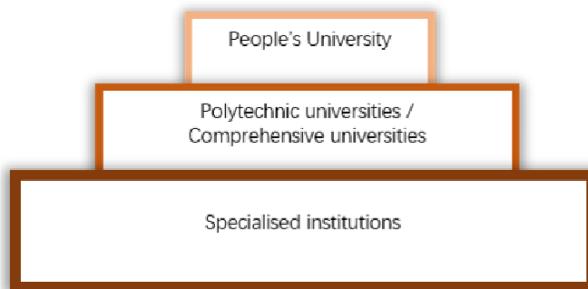


Figure 2.1 The institutional hierarchy in the Chinese system after reform in 1950s. Source: Hayhoe, 1996

Thus, vertical stratification in China happened in the pre-expansion phase. Rather than being triggered by position competition as the number of HEIs increased, vertical stratification in

China seems to have been initiated intentionally by state design. Under the state policy, the previously ‘flat’ system with only horizontal differentiation was deliberately transformed into a binary hierarchy through the selection of an elite group of HEIs. Rather than emerging as an outcome of competition among HEIs, as suggested in Cantwell et al. (2018) through analysis of other massified systems, the vertically stratified higher education system in China appears to be the outcome of deliberately designed state policies.

In 1966, the ten-year Cultural Revolution started throughout the country. The higher education system ceased to function normally due to unprecedented damage during this period (Hayhoe, 1996). The late 1970s, after the ten-year period of chaos came to an end, was a critical time for Chinese higher education, when the reconstruction of higher education started and the options for reconstruction opened up. This period should be seen as a critical juncture for governance reform because governance choices were opened up to multiple possibilities along with the rebuilding of the system.

On the one hand, the Cultural Revolution, as an exogenous shock, destroyed the previous system following the Soviet model. Hundreds of HEIs stopped operating or even underwent destruction during the Cultural Revolution, including many of the key universities (Cheng, 2012). For example, People’s University, which was at the apex of the hierarchy, was abolished during the Revolution (Li, 2013). Formal education and research activities were interrupted or even stopped in Tsinghua University (Tsinghua University, 2009). Thus, most HEIs after the Revolution required serious reorganisation and reconstruction to function normally.<sup>3</sup> On the other hand, a series of reforms under the impacts of the worldwide diffusion of neo-liberalism have been carried out in the Chinese higher education system since the 1980s, suggesting the possibility of endorsing the market mechanism for higher education governance.

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<sup>3</sup> Admission was stopped since 1966 along with the abolition of the *Gaokao*. Although admission in Tsinghua was restored since 1970, the student body was soldiers, peasants and factory workers, who were only required to have middle school education experience.

Since 1978, the proposal to reform the planned economy of the Soviet model through the adoption of the market economy approach was put forward (Mok, 2005). Consequently, reforms to change the higher education system under the Soviet model in order to comply with the market reform in the economy were put on the political agenda (Yang, 2008). The previous Soviet model was considered inefficient (Yang, 2008). It was agreed that HEIs produced human capital according to the commands of state planning and failed to accommodate actual social needs. Also, human capital training was highly specialised under the Soviet model. After highly specialised professional training, graduates showed low flexibility in actual occupations and were capable of a limited scope of work. In order to increase the responsibility to the economy, the Chinese higher education system was subjected to a series of marketisation reforms during the 1980s and 90s (Fan, 2018). These reforms led to structural changes in higher education and laid the foundation of the current system.

Reforms were mainly implemented in three dimensions, representing a trend of marketisation of higher education. Firstly, HEIs were granted greater autonomy. HEIs in this period became increasingly self-managed and were granted more freedom in course provision, curriculum development and research activities (MoE, 1985). HEIs were encouraged to transform from being teaching-centred into teaching-research ones, which meant that now the missions of more HEIs involved not only teaching but also research activities. Secondly, multiple funding sources were allowed. Private HEIs, which had been eliminated from the 1950s, were allowed under permission from the government (MoE, 1998). Public HEIs, which previously relied on government grants, were encouraged to source funding from tuition fees, social donations and setting up enterprises etc. (State Council, 1992). Thirdly, graduates, who needed to conform to the state assignment, were granted freedom in employment according to market provision and self-interest (MoE, 1998). This at the same time the responsibility of graduate employment was transferred to HEIs and individuals themselves.

Thus, elements of the market such as privatisation emerged alongside the reforms in the Chinese system. As Marginson (2013) suggests, a quasi-market along the standard neo-

liberal form of modernisation was formed. Under such circumstances, reforming the governance of higher education in a market-oriented regime was a possible option. However, it seems that the influence of the Soviet mindset, which prefers to use state planning to organise higher education remained. Such a mindset can be seen in the restoration of the key universities. Due to the destructive damages to both the economy and higher education, the Chinese government again faced the dilemma of financial difficulty and the urgent need for high-quality higher education development for the economy (Bao, 2018; Tan & Wang, 2016). Rather than using the market mechanism through encouraging performance-based competition, the solution was to restore the key universities, which were picked by the state before the Revolution<sup>4</sup>. With 28 HEIs being newly added, the number of key universities increased to 88 in 1978 (Tan & Wang, 2016). The *Gaokao* was also restored as the only criterion for admission. To ensure their rapid improvement, restoring these key universities seemed to suggest that resources distribution was to be tilted towards these hand-picked universities. This can be reflected in the increase of particularised institutions, which were devised to grant a few universities privilege, against the background that many institutions that were devised under the influence of the Soviet model were abandoned through the marketisation reform. In addition to privilege in staffing and admission, they were prioritised in the distribution of fiscal funding (Hu, 2012). Some of them even received large sums of government grant from the central government. For example, the development of seven key universities<sup>5</sup> were involved in the seventh five-year plan of the state and 50 million RMB was granted to them (Hu, 2012). Thus, the vertical differentiation by design in the Chinese system was further strengthened. This indicates that a mindset that considers distributing resources in higher education by state planning as more efficient remained after the marketisation reform against the background of global impacts of neo-liberal policies (Marginson, 2018b).

It seems that a vertical differentiation design was rebuilt because it was considered to create increasing returns for the nation state. It enhanced the quality of the outputs by the selected

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<sup>4</sup> Only 60 elite universities remained after the Revolution and all were included in the 1978 elite university policy (China University of Petroleum, 2022).

<sup>5</sup> These were Peking University, Tsinghua University, Fudan University, Xi'an Jiaotong University, Shanghai Jiao Tong University, University of Science and Technology of China and Beijing Medical University.

HEIs for the urgent needs of the nation state while restraining the public spending on higher education in a comparatively small budget. Such increasing returns were considered critical for the long-term development of the nation state, especially facing the enormous needs for fiscal funding in the late 1990s, when massive expansion and WCU projects were initiated simultaneously. Since then, this hierarchy by design has been locked into the Chinese system and shown path dependence, as will be illustrated below.

Another important reform of decentralisation, a two-tier governance system was implemented following the marketisation reform in China (MoE, 1993). Previously, the whole national higher education system was under the direct administration of central government and its subordinate ministries. The governance of the majority of HEIs was decentralised to provincial government through the reform, however, with only a small number of national HEIs remaining administered by the central government and its ministries. This reform has important implications for the structure of funding, with the funding responsibility for the majority of HEIs being decentralised to provincial and lower-level government. As Dong (2011) suggests, by the end of the 1990s, nearly 94% of HEIs were under the administration of provincial government and only 5% were administered by central government. This means that after decentralisation reform, central government provided funding for only 5% of HEIs. This reform greatly reduced the financial burden on central government, especially after the implementation of expansion.

The sequential reforms of marketisation and decentralisation paved the way for two critical developments of the WCU projects and higher education expansion. The WCU projects and the decision on higher education expansion were implemented around the same time in the Chinese system. Project 211, the first WCU project, was announced in 1995, and Project 985, starting in 1998, was implemented in parallel with Project 211. The decision on higher education expansion was announced in 1999. The simultaneous implementation of this policy agenda meant great challenges for the national finances. Both marketisation and decentralisation contributed to solve the financial obstacles by creating a cost-sharing

financial system and provided the possibility of the simultaneous implementation of the WCU projects and expansion. However, the dynamism for the rapid expansion in China, this research argues, owes more to the formation of a decentralised system rather than to the private investment by households, as argued in the post-Confucian model (Marginson, 2011b).

The observation that the introduction of a cost-sharing financial system, in which most students need to pay for at least part of the tuition fees, contributed to the rapid expansion in China is correct (Marginson, 2011b). However, the assertion that attributes the key dynamism for expansion to household investment and suggests public investment is not essential for expansion (Marginson, 2011b; Yang, 2010) neglects the role played by provincial and lower-level government after decentralisation. In a decentralised system, the role played by lower-level government in the process of expansion in China was indispensable because the massive financial burden of expansion lay mostly on the provincial and lower-level government. Firstly, the majority of increased access in the process of expansion was absorbed by regional HEIs, which were administered by provincial government. In order to accommodate the rapidly increased participation due to expansion, existing HEIs were subjected to admission expansion and new HEIs were established. Along with the reform of decentralisation, which greatly reduced the number of national universities, the 'demand-absorbing' mission was mainly assigned to regional HEIs, including both the newly established or decentralised HEIs. Figure 2.2 shows the composition of enrolment in different HEIs in 1998, the year before expansion, and 2002, the year when the gross enrolment rate reached 15%. In 2002, regional HEIs absorbed over 80% of the new enrolment. Although enrolment in national universities also increased slightly, the majority of enrolment growth was absorbed by regional HEIs.

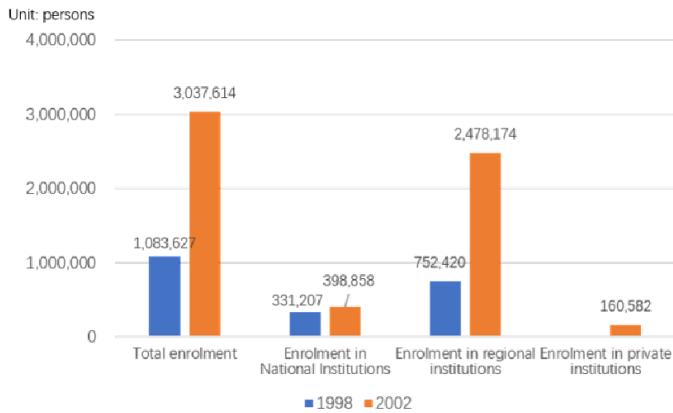


Figure 2.2 Composition of enrolment in different institutions in 1999 and 2002. Source: MoE, 2002; 2005

Secondly, the pattern of growth was not constant and the expansion was a process of fluctuating rates of growth in China, as can be seen in Figure 2.3. The process can be roughly divided into two time periods, which show different trends of increase. The period from 1999 to 2006 was the radical expansion period with a high-speed increase of participation. The growth rate of enrolment in 1999 exceeded 47%. In the next seven years, enrolment continuously showed double-digit growth, although there was a decreasing tendency in growth rate. The gross enrolment rate exceeded 15% from less than 10% in 1998 in only four years (MoE, 2005a). These figures all suggest that participation was increasing at hyper-speed in this period. Under such hyper-speed expansion, the dependence of HEIs' income on tuition fees increased, especially the regional HEIs. Studies that focus on the changes of the funding structure of HEIs after expansion suggest the percentage of tuition fees showed an ascending tendency in the funding structure of all public HEIs (Bai et al., 2007; Dong, 2011; Luo & Ma, 2013; Ni & Yao, 2015; Sun, 2009). For regional HEIs, the proportion of tuition fees rose from less than 20% in 1998 to 40% in 2006, and it became the second major source of income for these HEIs (Bai et al., 2007; Sun, 2009). These studies support the argument that household investment was important for the rapid expansion of higher education in China. However, it should also be noted that the role of government, especially the provincial and lower-level government, remained central throughout the process of expansion in terms of creating access and providing necessary funding. During the hyper-expansion period from 1999 to 2006, research shows that the funding from provincial and lower-level government had also been increasing. According to Bai et al. (2007), the total fiscal funding for regional HEIs from

provincial government showed a continuous ascending tendency during 1998–2003. The 2003 figure was more than triple that in 1998. It should also be noted that fiscal funding from provincial and lower-level government remained the prime source of income for regional HEIs. Thus, this thesis argues the role of provincial and lower-level government remained indispensable in higher education provision and public investment was the main source of funding for expansion in China.

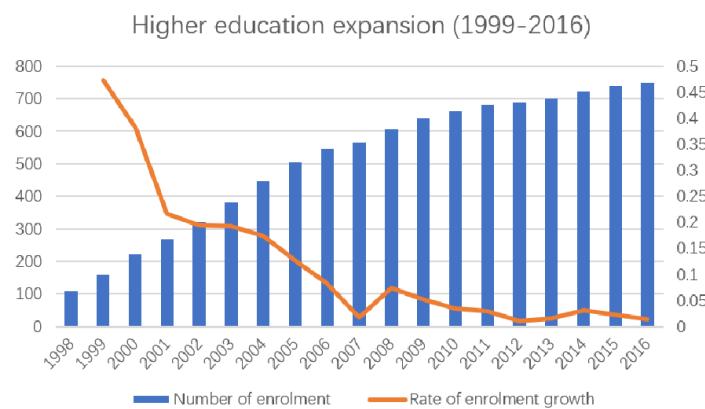


Figure 2.3 Annual growth of participation during higher education expansion in China 1999–2016. Source: MoE, 2015–2017

What is more, the role of public funding showed increasing importance in the latter half of the expansion. In 2007, the MoE announced the slowdown of the expansion process (Xiang & Yi, 2021). As can be seen in Figure 2.3, there was a significant decrease in the growth rate of expansion after 2007. The growth rate of expansion remained under 5% from 2008 to 2017. At the same time, the proportion of fiscal funding in all public HEIs' income structure had shown a tendency of continuous increase. As a result, the proportion of tuition fees greatly decreased. Although tuition fees remained the second source of income for most public HEIs, they decreased to 11% for national HEIs and less than 25% for regional HEIs in 2011 (Luo & Ma, 2013). Thus, it should be considered that the role of government, especially lower-level government, was indispensable throughout the expansion process, which suggests the dynamism of higher education expansion in China owes more to the formation of a decentralised system. Decentralisation reform greatly reduced the financial burden on central

government due to the massive expansion, with the enormous budgetary cost of expansion being decentralised to lower-level government. This enabled further control over national public investment by central government and concentration of it in other areas that were seen as more important for national development, i.e. the WCU projects and research.

Maintenance of a stable hierarchy of HEIs was the key dynamic of the rapid enhancement of the leading universities in China. Notably, the majority of the national universities after decentralisation were the elite universities in 1978 and they also constituted the majority of HEIs in the WCU projects. This indicates the HEIs in the top tier of the hierarchy from 1978 tended to be the same group of HEIs, with the number of HEIs being involved in the top tier gradually increasing from 88 in 1978 to 112 in Project 211. It seems that a purposefully designed HEI hierarchy has been stably maintained with the number of top-tier HEIs being gradually expanded. The continuous concentration of national investment in the same group of HEIs enabled them to have abundant resources for rapid development. This was increasingly important in a massified system, where the competition over funding tends to be more intense after expansion. The maintenance of a similar institutional hierarchy with the implementation of the WCU projects provided a tactical solution to ensure the concentration of national fiscal funding on a small group of HEIs. Also, since the majority of the HEIs in WCU projects were national universities, which were under the direct administration of central government and its subordinate ministries, the accountability of national funding was enhanced as well. Thus, after the implementation of the WCU projects, which showed a strong intention to improve research performance with enormous national funding, the improvement of these HEIs was further accelerated.

Concentration of national public investment in the same group of HEIs further reinforced the persistency of the hierarchy. The implementation of massification and the WCU projects exacerbated the disparity of funding between national HEIs and regional HEIs. Especially after the expansion, when the competition over funding for regional HEIs intensified because the fiscal funding by provincial and lower-level government as the major source of income faced

competition from a rapidly increasing number of regional HEIs to accommodate expanded educational needs, the disparity between national and regional HEIs in funding greatly extended. According to Luo and Ma (2013), the funding spent per student in national HEIs was raised to 46,000 RMB (5600 GBP equivalent) in 2011, which was more than twice that in regional HEIs.

What is more, the disparity in research performance further exacerbated the gap in income. Sufficient funding, which was the foundation for research activities, enlarged the disparity of research levels between national HEIs and the other HEIs. With the permission of multiple funding sources, universities with a background of strong research performance turned research outcomes into enterprises for enormous extra funding, which further enlarged the income disparity (State Council, 1992). For example, the enterprise income of Tsinghua University was estimated to reach over 10 billion RMB (1.2 billion GBP equivalent) in 2019, twice its fiscal support from government. Its enterprise income alone was higher than the total annual income of most HEIs, including national HEIs. Only six national HEIs had a total annual income higher than this in 2019. Their enormous advantage in funding enabled the HEIs in the WCU projects to dominate the positional goods in the vertical hierarchy and further enlarged the gap between these elite universities and non-elite HEIs.

Thus, after the implementation of the expansion and WCU projects, the Chinese system was reshaped into a highly stratified mass system with the steepness of the already existing hierarchy being further extended. As a result, the designed hierarchy was further locked into the Chinese system and made it even more difficult to be reversed, i.e. the operation of path dependency. But maintenance of a stable hierarchy in a decentralised system, although it provided great dynamism for the rapid achievement of both massification and WCU development, raised concerns about the quality of the non-WCU HEIs, which involved the majority of young people in higher education. Such a highly stratified mass higher education system may be turned into a device that replicates or even exacerbates the existing patterns

of social inequality. In the next section, a fuller picture of the vertically stratified system after the rapid expansion and WCU projects will be illustrated.

## 2.5 Vertical stratification of the current Chinese system

Vertical stratification of the Chinese system is manifested in four dimensions: 1) governance body that is responsible for administrating and funding individual HEIs, 2) resources, 3) composition of student body and 4) students' outcomes in the labour market (Altbach, 2009; Hu et al., 2018; Hu & Hibel, 2015; Hu & Vargas, 2015; Jia & Ericson, 2017; Kong, 2017; Wu, 2017; Yang, 2010; Yue, 2015; Yue & Bai, 2018; Yue & Zhou, 2017).

### 2.5.1 Stratification in terms of governance body

Governance is the fundamental factor that may have a decisive effect on HEI's position in the hierarchy to a great extent because the available sources of funding are closely related to governance. Chinese HEIs can be mainly classified into three categories in terms of governance body: 1) national universities, 2) regional HEIs and 3) private HEIs (Hu et al., 2018).

There are currently 118 national universities and they tend to occupy the top tier of the system. These HEIs, such as Peking University and Tsinghua University, two leading universities in China, are administered by the MoE or other national ministries<sup>6</sup> under the central government. These universities are directly funded by the central government. Most of them are research-intensive universities, which, while prioritising research activities, also provide teaching that is seen as being of high quality (Ma, 2007). Regional HEIs are administered and

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<sup>6</sup> Other national ministries include the Ministry of Industry and Information Technology, Ministry of Transport, Overseas Chinese Affairs Office, Ministry of National Defense, National Ethnic Affairs Commission, Chinese Academy of Sciences, Chinese Academy of Social Sciences, Ministry of Foreign Affairs, Ministry of Public Security, National Immigration Administration, General Administration of Sport, Ministry of Justice etc.

mainly funded by provincial and lower-level government<sup>7</sup> and they constitute the main body of HEIs in China. According to statistics from 2020 (MoE, 2021a), 1849, accounting for over 67%, are regional HEIs, including degree-granting universities and vocational/technical training HEIs. They tend to be seen as being in the middle to the bottom of the system (Altbach, 2009; Yang, 2010). Private HEIs are usually considered to form the bottom tier of the hierarchy (Altbach, 2009). Currently, there are over 700 private HEIs. They are administered and funded mainly by non-government bodies, such as private enterprises, social groups and individuals, with few government grants (MoE, 2021b).

## **2.5.2 Stratification in terms of funding**

Hierarchy in terms of resources is similar to that of governance. Public funding from the state or local<sup>8</sup> government is an important source of funding for HEIs in China, and most public funding is spent on public HEIs. Public funding is mainly of two types: fiscal funding and specific funding projects for WCUs. National universities receive funding from both the central government and provincial government while regional HEIs are mostly funded by provincial and lower-level government (Altbach, 2009; Hu et al., 2018).

Private HEIs, in contrast, have restricted sources of funding, which greatly limits their development. They receive little funding from the government while their access to bank loans and other sources of capital funds is restricted (Su, 2012). Financial organisations prefer to lend to public HEIs since they are government-administered, which means they are a lower investment risk. Thus, for most private HEIs, over 80% of funding comes from tuition fees (Hu et al., 2018). Consequently, students in private HEIs have to pay higher tuition fees for higher education without government subsidies. However, expensive tuition fees do not ensure quality of education. Difficulty in sourcing funding results in deficiencies in other resources,

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<sup>7</sup> The administrative division in HE in China: under central government there are 33 provincial level governments and under provincial government there are governments of municipal cities. Most regional HEIs are administered and funded by municipal government, and provincial government has the power and responsibility to oversee and manage all HEIs under its jurisdiction.

<sup>8</sup> Local government refers to both provincial government and lower-level government.

such as teaching faculty. In many private HEIs, the main body of teachers and faculty staff are part-time or retired teachers from the public HEIs (Bao, 2009). Thus, the shortage of funding has hindered private HEIs' further development. Due to deficiencies in resources, they tend to be disadvantaged in the fierce competition within the mass system. As a result, they are situated at the bottom of the hierarchy in the public sector's support of higher education expansion (Hu et al., 2018). Such demand-absorbing private HEIs raise concerns about quality (Altbach, 2009; Chien et al., 2017).

In recent years, various types of private HEIs have emerged and the quality of education in the private sector seems to have been improved with the emergence of the Chinese–foreign cooperative universities, such as the New York University Shanghai, which was cooperatively established by the New York University and the East China Normal University. However, access to these HEIs may be highly restricted because of expensive tuition fees.<sup>9</sup> Also, there are concerns about the quality of these HEIs. As Altbach (2015a) suggests, they can be just a new way to generate revenue for the original HEIs and the quality may not be maintained to the level of that in the original country.

Another important form of government grant is funding for the WCU projects. Project 985 and Project 211 were the first WCU projects, which were implemented in parallel from the 1990s to the mid-2010s. HEIs involved in Project 985 and Project 211 received enormous additional fiscal support. Project 211 was announced in 1995 and aimed to improve the research level of about 100 universities for the development needs of the state in the 21<sup>st</sup> century (MoE, 2008b). 112 HEIs were involved and shared over 25 billion RMB (3 billion GBP equivalent) in the form of government grants from both the central government and local government (MoE, 2008a). Project 985 was announced in 1998 with an intention to develop a handful of HEIs into WCUs that were competitive internationally (MoE, 2011a). It selected 39 top universities from Project 211 with a total spending of over 70 billion RMB<sup>10</sup> (8.6 billion

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<sup>9</sup> For example, the tuition fees of the New York University Shanghai in 2019 are 120,000 RMB (14,000 GBP equivalent) which is 24 times the tuition fees of most public universities in China (5,000 RMB).

<sup>10</sup> Since the amount of government grants in the form of special funds for Project 211 or Project 985 for each HEI are not available in the literature or online, here the total amount is shown.

GBP equivalent) (People.cn, 2012). Figure 2.4 illustrates the stratification of the Chinese system in 2012 under the implementation of both Project 985 and Project 211.

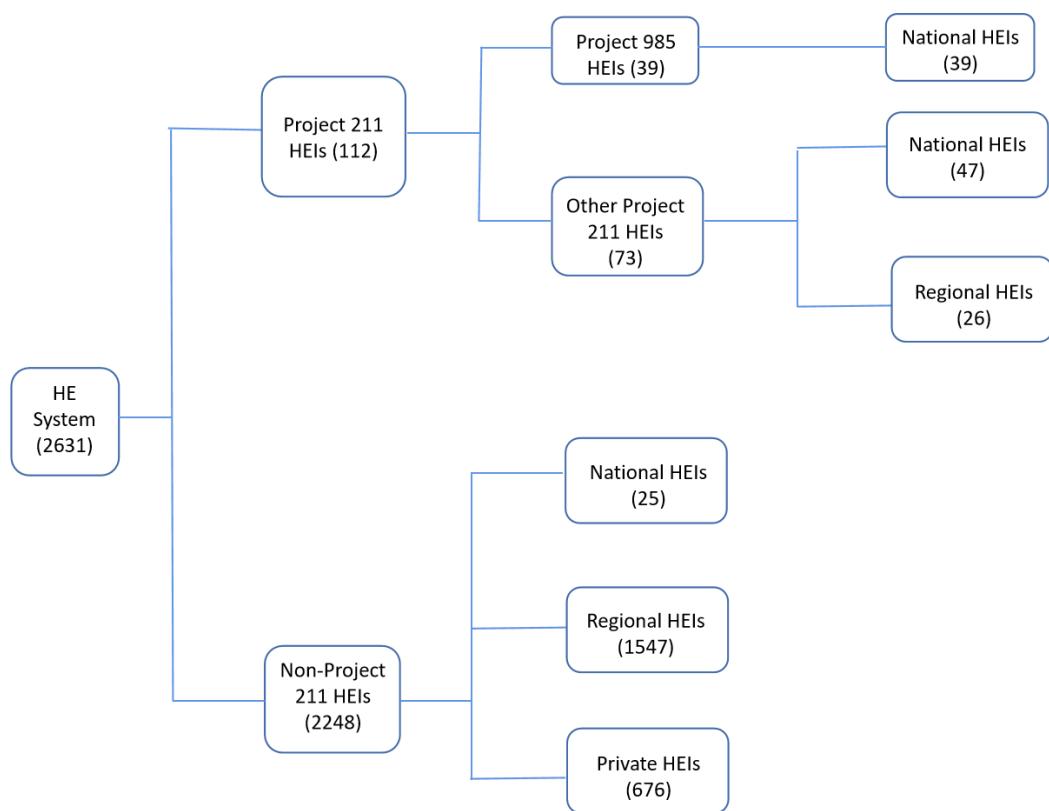


Figure 2.4. The hierarchy of the Chinese system in 2012. Source: Zong & Zhang (2012).

As can be seen from Figure 2.4, only public HEIs were involved in the WCU projects and the private HEIs were excluded. What is more, national universities dominated most places in these projects compared to regional HEIs. Within the 112 universities in Project 211, over 76% were national universities and all HEIs in Project 985 were national universities. HEIs involved in these projects received enormous financial support. For example, government grants for Peking University and Tsinghua University in 2019 were estimated to reach over 500 million RMB (62 million GBP equivalent) respectively, which is higher than the annual income of most regional and private HEIs<sup>11</sup>. Huge financial support has enabled great improvement in infrastructure construction, for example the construction of new research centres and the

<sup>11</sup> Since the government grants for each HEI during the implementation of Project 211 and Project 985 are not publicly available, this paper uses the figures from DFR to illustrate the scale of government grants at HEI level.

purchase of new facilities for research and teaching activities (Altbach, 2009). Sufficient fiscal support has also made recruitment of top researchers and better faculty possible (Altbach, 2009). With support from these projects, this group of universities dominate the top of the higher education system.

### **2.5.3 Stratification in terms of students' labour market outcomes**

Following the expansion, due to the growth in the number of HEIs and student enrolment, which has provided increasingly diversified human resources, stratification of the higher education system extended to the outcomes of the labour market. HEIs in a vertically stratified system are linked with differentiated labour market outcomes (Cantwell et al., 2018). Attendance in different HEIs is significantly related to career opportunities and earnings, and graduating from elite HEIs may have a higher probability to be transferred into economic and social advantages (Boliver & Wakeling, 2017; Crawford et al., 2016). In China, higher education graduates' labour market outcomes have also become increasingly heterogeneous (Hu & Hibel, 2015). Students' employment is closely related to the HEIs they attend (Yue & Bai, 2018; Zhong, 2011). Graduates holding elite university degrees, especially from Project 985 universities, have comparatively strong bargaining power in the labour market and are usually favoured by employers (Wu, 2017). Graduates from these elite universities tend to monopolise the highly sought-after positions, such as positions in government, public sector organisations and state-owned enterprises (Liu & Lu, 2015). Also, they are more likely to find jobs with higher earnings and better career development (Hu & Vargas, 2015; Kong, 2017). Private HEI graduates, in contrast, tend to be much less competitive in the labour market. They tend to find jobs with less stability and lower earnings, for example jobs in private companies in small cities, counties or even rural areas (Bao, 2007).

Impacts of family background may persist beyond higher education participation and attainment (Britton et al., 2019; Crawford et al., 2016). Studies in China also suggest that graduates' labour market outcomes are mediated by their family backgrounds in terms of

socio-economic level and residence. Graduates from urban cities with higher-income and parents with higher educational attainment tend to be more advantaged in career opportunities and receive higher earnings (Jiang & Zeng, 2012; Yue & Bai, 2018; Yue & Zhang, 2014). However, these studies fail to reveal the impacts of the interplay of attendance at different HEIs and family background on labour market outcomes. The reason that students from more advantaged backgrounds tend to have better outcomes in the labour market, whether mainly because of occupation of the positional goods in higher education system or the impacts of family background that may exceed HE, is not clear. Little research has investigated the further impacts of family background on labour market outcomes beyond the stratified higher education system, through which the extent of the impacts of attending different HEIs can be revealed.

#### **2.5.4 Stratification in terms of composition of student body**

In China the *Gaokao* (the Chinese college entrance examination) is claimed to be an important mechanism to ensure equality of access to HE because the outcome of this test is seen as objectively differentiating students by 'ability', which is deemed to be correlated with the test scores (MoE, 2011b). Thus, it is perceived as an important mechanism for high-level human capital selection to differentiate students according to their intellectual abilities (State Council, 2014a; 2014b). Students' performance in the *Gaokao* determines their opportunities to access different HEIs. Students with the highest scores enter the prestigious research universities. Students with lower levels of performance normally enter regional HEIs, while students with the lowest scores usually go to private HEIs, especially those who enter private vocational HEIs (Yang, 2010).

However, previous studies suggest higher education admissions in China are following a tendency that converges with the research findings from other countries (for example, see Barret & Cantwell, 2018; Boliver & Wakeling, 2017; Crawford et al., 2016; Marginson, 2016): Chinese students' socio-economic background is increasingly related to their higher

education opportunities. Since in a vertically stratified system enrolment in different HEIs may result in different outcomes, students from more advantaged families are willing to utilise their economic, social and cultural resources to secure one of the scarce places from the prestigious HEIs (Boliver & Wakeling, 2017; Cantwell et al., 2018). Given that the *Gaokao* is the single criterion for higher education admission, wealthier families can invest economic capital in the belief that this will raise the *Gaokao* scores, for example by providing additional learning opportunities via the shadow education system (Jia & Ericson, 2017; Yue, 2015). Students with parents who can afford expensive long-term private tutoring and devote time and effort to strategically adjust tutoring in accordance with children's educational progress tend to be more advantaged in the *Gaokao* performance and therefore in college admission (Zhang & Bray, 2015; Liu & Bray, 2018). Furthermore, the new reform in admission policy for elite HEIs may favour students from affluent social backgrounds even more. Since 2003, a number of the research universities, e.g. Peking University, have been allowed to arrange their own admission examinations to recruit 5% of their annual enrolment quota before the *Gaokao* (MoE, 2012a). These examinations take flexible forms, for example interviews, and rely less on regular secondary school curricula, but they tend to provide more space to insert the influence of social and cultural capital. Thus, students from more affluent backgrounds with higher levels of economic, cultural and social capital may be more likely to join elite universities.

As a result, the composition of students in different HEIs seems to be increasingly stratified by social origins rather than, as is assumed in policy, by individual abilities as communicated by *Gaokao* scores (Altbach, 2009; Chen, 2012; Du, 2018; Yang, 2010). Students from a higher SES background have a higher probability of entering the first-tier universities (Jia & Ericson, 2017; Wu, 2017; Yue, 2015). For instance, Wu (2017) using data on students in higher education in Beijing discovered over 80% of students in the elite universities (985/211 HEIs in first tier) were from middle-class or above families.

In addition, the stratification of students in China shows a very special feature due to the geographically imbalanced distribution of HEIs. Student residence, which is rarely mentioned

in the existing literature in other countries, is an important factor that influences individual access to HE in the Chinese context. Such influence is increasingly persistent. The probability of entering elite universities for students in different regions<sup>12</sup> is increasingly unequal (Yue, 2015). The implementation of the WCU projects has enlarged the disparity of higher education resources among different provinces. The top-tier HEIs tend to be concentrated in certain areas and this tendency is extremely prominent in Project 985 (see Figure 2.5 and Figure 2.6). Among the 137 HEIs in Project Double First-Class, over 30% are in Beijing and Shanghai (MoE, 2017a). Due to the disparity of HEIs allocation and the current admission policy,<sup>13</sup> students from certain regions may have greater opportunities to access HE, especially elite HEIs. According to Wan and Jin (2017), students in Beijing had the highest opportunities to access Project 211 universities in 2015 and were 4 times more likely to enter Project 211 universities than those from some other provinces, such as Guangdong. In terms of access to Peking University and Tsinghua University, the disparity was even greater. The likelihood of entering these two elite universities for students in Beijing was more than 20 times higher than those in certain provinces, where there is a large population of people who participate in *Gaokao*, such as Guangdong, Henan. In 2018, over 600 places in these two universities were distributed to Beijing, where there were approximately 60,000 students, while over 750,000 students in Guangdong had to compete for fewer than 300 places (Xu et al., 2018).

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<sup>12</sup> Mainland China is usually separated into western, central and eastern China in national development policies.

<sup>13</sup> The current admission policy allows HEIs, including national HEIs, to allocate more places for students from the province in which the HEI is located. For example, Peking University, which is located in Beijing, allocates most places for students in Beijing every year.

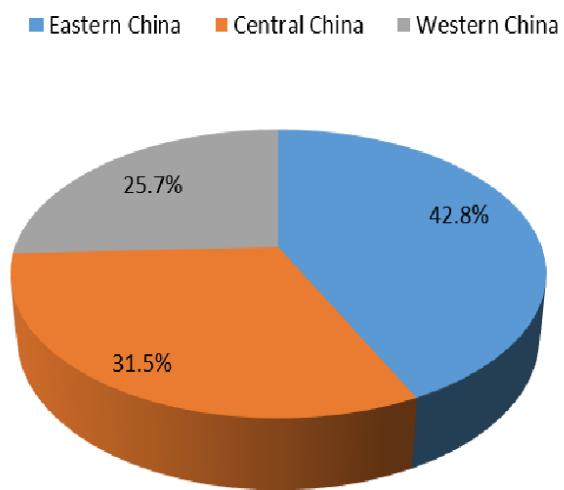


Figure 2.5 Share of higher education in eastern, central and western China. Source: MoE, 2017

What is more, students are stratified in terms of urban and rural residence. Students from urban cities have a higher probability of entering elite universities (Jia & Ericson, 2017). Students from rural areas, where the development of primary and secondary education lags behind compared to the more affluent urban areas, can be disadvantaged in the *Gaokao* (Wu, 2017). Thus, they tend to be distributed in the middle and lower tiers of HEIs, and this tendency is increasing (Yang, 2010).

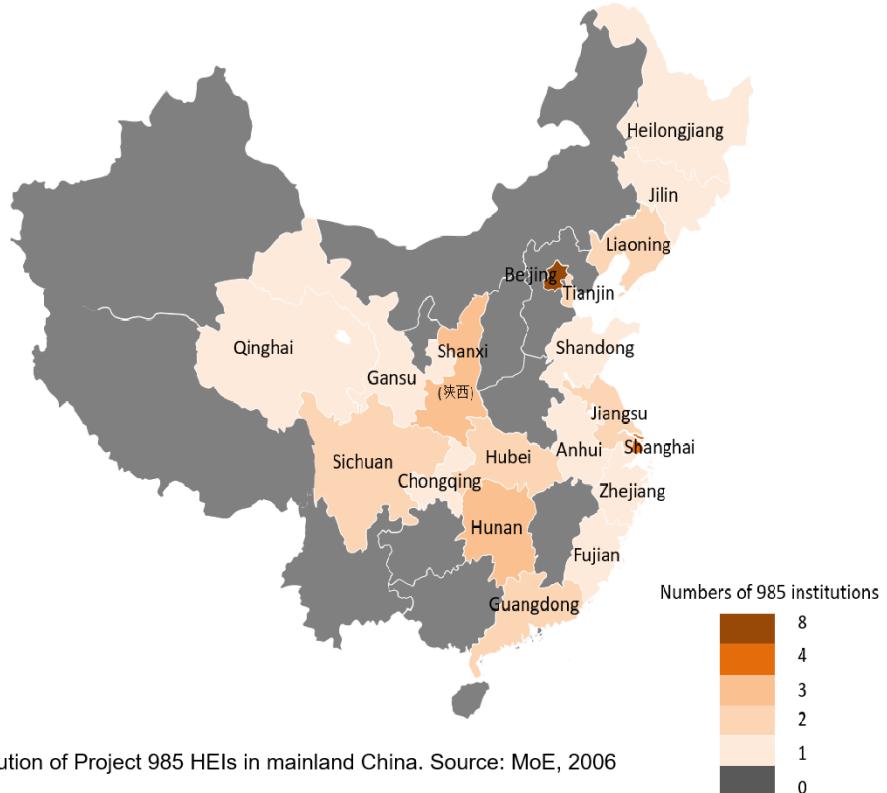


Figure 2.6 Distribution of Project 985 HEIs in mainland China. Source: MoE, 2006

Thus, educational opportunities in the stratified Chinese system are not equally distributed. Students from more privileged backgrounds increasingly dominate places in the top-tier HEIs and convert such participation into occupational and economic advantages to maintain their privileged social status. In contrast, students from less advantaged backgrounds are increasingly positioned at the lower strata of HEIs, paying tuition fees while attaining less-valued educational outcomes. Although access to higher education has been increased, a massified system with a vertical stratification may become a social stratification device, which reinforces and exacerbates the existing patterns of social inequality.

## 2.6 Conclusion

This chapter firstly reviews the literature on WCUs and global rankings and points out that global rankings have dominated the discourse on WCUs. With the risks and problems due to

the narrowly defined concept of a WCU by global rankings, it seems that an idea of WCUs with more expansive social purposes and values should be proposed for the sustainable development of both global HEIs and higher education itself. In order to explore the possibility of a new meaning of WCUs, this study intends to turn to China, an emerging force in both the economy and higher education development.

Focusing on the Chinese system, two commonly used theories that are used to understand global trends of higher education development, namely the neo-institutional theory and cultural political economy, are used to understand WCU development in the Chinese system. However, an important attribute of the Chinese system, a purposefully devised HEI hierarchy, which has been critical to the rapid development of the top universities, is missing in both theories. After reviewing both theories, this chapter proposes an alternative theoretical perspective to use path dependence theory, which focuses on the process of change by following the trajectory of higher education development from an earlier period to now.

From the perspective proposed in this chapter, it seems clear that the maintenance of an institutional hierarchy under the economic nationalism regime of governance has been critical for the formation of the current Chinese system. With a hierarchy among HEIs being established, the massified Chinese system is vertically stratified and raises concerns about social stratification. However, this hierarchy is considered to be changed under the implementation of a new national WCU policy recently. In the next chapter, information about this new WCU project, the rationale of using China as a case and the design of the research will be presented.

## **Chapter Three Project Double First-Class and the research design**

The previous chapter argued that a hierarchy among HEIs, which is designed as a national institution for coordination driven by economic nationalism, persists in the Chinese higher education system due to path dependence. However, the implementation of a new national WCU policy of Project Double First-Class seems to show an intention to make transformative changes to the previous WCU development. Thus, the current research is devised to explore, firstly, the meaning of WCUs in the Chinese context, and secondly, changes to governance under this new policy.

Since this research adopts an emergent design, to understand the logic of the research design, this chapter will illustrate the gradual process of how the research questions and the methodological choice to answer these questions were developed and elaborated. The first section gives information about Project Double First-Class (DFC) and explains how the main research problem was developed from it. The second section explains the choice of the policy trajectory approach and case study approach and the elaboration of the research questions giving consideration to the case chosen. The third section explains the details of the research design including the choices of data collection and analysis methods. Lastly, the ethical considerations of the current research are presented.

### **3.1 The replacement of Project 211 and 985 with Project DFC and the rationale of investigating China**

It can be seen in the previous chapter from the history of the Chinese system that the gradual reinforcement of the particularised institutions that contributed to maintenance of an HEI hierarchy by design seems to indicate that central planning governance remains an important

part of the governance regime of the Chinese system. Such a governance, this thesis argues, has been critical to the formation and rapid development of the Chinese system. However, a recently implemented new WCU project seems to indicate the intention to not only change the hierarchy by design but also transform the central planning governance.

Project DFC, which was announced in 2016, replaced the previous Project 211 and 985 as a new national policy for WCU development. It was announced that Project DFC would involve 137 universities in its first-round implementation from 2017 to 2021. These HEIs are classified into two tiers. HEIs in the first tier, similar to Project 985, are targeted to become world-class universities, which will be competitive in a wide range of subjects to become top universities with world-class rankings, while those in the second tier will focus only on developing one or several subjects to a world-class level (e.g. Beijing University of Technology focuses only on the development of civil engineering). Figure 3.1 illustrates the stratification of the Chinese HE system in 2017 after the implementation of Project DFC.

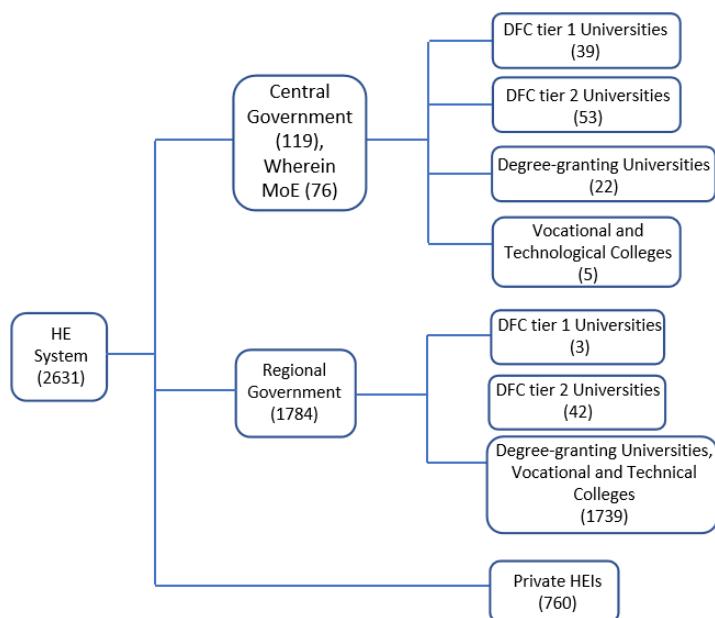


Figure 3.1. The structure of HE system in China under the DFC. Source: MoE, 2019.

The implementation of a new policy may indicate significant changes to the practices of WCU development in China. Firstly, Project DFC seems to show an intention to change the hierarchy

among HEIs in the current system. Different from previous projects, this new project claimed to ‘change the pre-determined unchanging positions of the HEIs in the previous projects’ (MoE, 2015a).<sup>14</sup> In the previous WCU projects, the HEIs involved were not changed or dropped once they were selected. Unlike the previous projects, the new project is claimed to be an improved strategy to develop WCUs by using a flexible mechanism for HEI selection. The selection of HEIs is claimed to be a ‘fair competition’, which is based on their actual performance in multiple dimensions, such as human capital cultivation, research performance, and contribution to the domains that are critical for state development (MoE, 2015b). In contrast to Projects 211 and 985, HEIs in Project DFC will be re-assessed every five years, i.e. supposedly, their status is always under review to reduce the ‘coasting’ problem to ensure the selected HEIs’ continued high-quality performance that is targeted by the policy. Those HEIs that fail to keep pace with the competition will therefore be dropped and replaced.

Thus, the core of the new project’s intention seems to be a competitive mechanism that pits HEIs against each other. This can be interpreted as a means to enhance the effectiveness and efficiency of the previous WCU projects by ensuring that the HEIs involved maintain or increase their performance against the desired standard compared to other HEIs. Initiating this competition between HEIs will, it is assumed, increase the likelihood that the investment in HEIs will produce high returns and desirable behaviour. If this interpretation is correct, the new policy could be a transformative reform that makes significant changes to HEI hierarchy.

Most importantly, a changing mechanism for HEI selection may indicate a transformation in governance from the old central planning mode to NPM with a fundamental change in the perception of ‘good’ governance. As explained in the previous chapter, against the global roll-out impacts of neo-liberal policies in higher education governance reform, it seems that central planning governance remained important in the Chinese system. Such a governance regime enabled the nation state to play a dominant role in resource allocation and the adoption of the approach to concentrate resources on a few HEIs in accordance to state

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<sup>14</sup> Since the policy document in use here is an online short document with no page numbers specified on the website, it is cited without page number. This applies to all citation of policy documents in this thesis.

planning for the goal of WCUs development. However, compared to the large sums of public funding that had been concentrated on the top HEIs, the still existing large gap in terms of research between these most funded HEIs and those WCUs that dominated the league tables seemed to suggest low efficiency (Douglass, 2015; Huang, 2015; Marginson, 2013). Although the number of Chinese HEIs that entered the top 500 in ARWU increased greatly from 8 in 2004 to 20 in 2013, there were no Chinese universities in the top 100 by 2013 (Huang 2015). Such a gap can also be seen in the quality of research. Despite the rapid increase in research outputs, only 3.6% of the top 1% cited papers were produced by Chinese universities, compared to 48.9% by the U.S in 2010 (Marginson, 2013). The implementation of Project DFC seemed to spell out the necessity of changing the governance regime for a more efficient way of achieving world class status.

Under such circumstances, the introduction of a performance-based competition mechanism thus may suggest a fundamental change in the perception of governance, which considers intensifying competition and rewarding the winners as a more efficient way to achieve state priorities rather than state planning (Salamon, 2002). The hierarchical order of HEIs, which relates to resource allocation, may no longer be a decision of state order but rather the outcome of competition among HEIs. If this is the case, the implementation of Project DFC may indicate a convergence to the global trend of performance-based financing reform related to NPM in China (Cantwell et al., 2018; Marginson, 2018b).

Apart from the issue of efficiency, the strategic allocation of resources may give rise to other concerns in the Chinese system. Firstly, it seemed to undermine the ecology of the Chinese system (Douglass, 2015; Serger et al., 2015). With the majority of national funding going to the top HEIs, the capacity of the rest of the system, which contains the majority of HEIs, to respond to the diversified demands for knowledge and education by the society after massification may be hampered. The continuous concentration of resources seemed to contribute to a great gap, especially in research, between the top HEIs and the rest of the system in China. Around 80% of internationally recognised research was produced by HEIs in

Project 985 and Project 211 (Hawkins, 2015). With the top HEIs being targeted as research-focused, the task of fulfilling the expanded needs for higher education was left to the rest of the system yet with the concern of unsatisfactory quality, especially for the HEIs in the lower strata (Serger et al., 2015; Marginson, 2011b). Secondly, such a radical division among HEIs may raise concerns about social equality. The positional goods in these few HEIs, which received the most national funding, were strictly limited to an extremely small population. As explained in the previous chapter, with such a radical differentiation among HEIs, the higher education system may pattern on or even exacerbate existing social stratification (Barret & Cantwell, 2018; Boliver & Wakeling, 2017; Crawford et al., 2016; Marginson, 2016). With increasing difficulties to access the limited positional goods in these top HEIs for students from more disadvantaged backgrounds, such a hierarchy among HEIs maintained by concentration of resources may reduce the opportunities for social mobility through higher education (Serger et al., 2015).

Thus, it is considered that the implementation of Project DFC may remedy or at least mitigate these problems. Since the new policy seems to provide an opportunity for upward mobility within the system for HEIs that were excluded from the elite group, it is likely that policy makers in these HEIs, especially the regional HEIs, may respond to the policy, if it is taken proactively by their regional government. In this case, it is possible that the great gap between them and the top-tier national HEIs may be reduced. Also with the extra funding from their regional government, the quality of research and education in these regional HEIs may also be improved.

However, with the impacts of Project DFC being expanded to a wider range of HEIs, there is concern that the diversity among HEIs may be reduced. It is considered that Project DFC, by adopting a performance-based competition mechanism, seems to show a tendency to converge with the global trend of performance-based financing reform, which seeks to enhance the efficiency and accountability of HEIs through the installation of a funding-related output-based assessment system (Beerkens, 2022; Marginson, 2018b). The excellent

initiatives that have been increasingly adopted in many countries, which usually involve a competition among eligible HEIs for the large sums of additional funding for the achievement of world-class status, follow a similar rationale (Salmi, 2016). Although the nation state seems to play a more subtle role compared to the central planning mode, such a financing reform shows an intention of increased state control on HEIs' behaviours towards the priorities of the nation state by using a standard of comparison, which is defined by state priorities (Lynch, 2015; Watermeyer & Olszen, 2016). With such a standard being applied to all HEIs uniformly, HEIs tend to conform to the common goals defined by the nation state (Marginson, 2018b). Similarly, with the introduction of a competition mechanism in Project DFC, it is highly possible that decision makers in HEIs, which seek for upward mobility for their universities, may concentrate on activities that maximises performance against the uniform selection criteria by the state. With the perceivable expanded impacts of Project DFC, the priorities of many regional HEIs, which used to be tightly connected with the local region, especially for higher education provision, may be changed and conform to national priorities, as those national HEIs in the top tier. One result therefore may be increased homogeneity among HEIs in the Chinese system.

What is more, with accelerating WCUs development as the major goal of Project DFC, the selection criteria may be heavily influenced by the global rankings, which place strong emphasis on internally high impact basic research (Nixon, 2020). Applied research, which tends to have a stronger connection with local region development, may not be the priority in research activities for regional HEIs since they are not likely to relate to excellence in performance (Boulton, 2011). A likely result therefore would be convergent in research directions with the scope of research being limited.

However, it is also possible from the Chinese system under Project DFC observations that is different from the assumption of increasing homogeneity may be acquired. On the one hand, the national documents also encourage the diversified development of HEIs. As articulated in the Implementation Measures for Coordinating and Promoting Project Double First-Class

(MoE, 2017a), 'guide and support HEIs with strong capabilities to rationally position themselves, search for their own characteristics...proactively explore the path towards first class for different types of HEIs'. On the other hand, regional government plays a critical role in the participation of regional HEIs. Regional government is one of the most important stakeholders of regional HEIs, not only because they are under the direct governance of regional government, but also because the fiscal funding from regional government is an important source of income for the majority of regional HEIs in China. Thus, without additional funding from regional government, improved performance of regional HEIs may be difficult. But increased fiscal funding is likely to result in requirement for accountability. HEIs may be required to enhance their correspondence to the priorities of regional development, which may be in a different direction to the global rankings. A tension between the need to focus on the internationally hot topics in basic research for global competitiveness and the need to strengthen local engagement may emerge. Thus, it is considered that the Chinese system under Project DFC may offer different insights on WCU development under the changes of governance. In order to explore the changes brought and the meaning of WCU under the implementation of the new policy, regional HEIs are the key.

### 3.2 The research design

#### 3.2.1 The policy trajectory approach

The current research adopted a policy trajectory approach to answer the research problem. In order to understand how Project DFC has impacted the upward mobility opportunity of regional HEIs, investigation should be focused on regional government and the HEI level to understand, firstly, how regional government and HEIs have responded to and, secondly, how their decisions over the course of action have been impacted by Project DFC. The policy trajectory approach, which traces the policy through multiple levels of actors from its origin to its various recipients (Ball, 1993), enables close examination of the policy process at both

regional government and HEI level. Thus, it is considered appropriate for the aim of the current research.

Firstly, taking a policy trajectory approach, policy in the current research is conceptualised as a dynamic process, which is 'always in the state of becoming' (Ball, 1993). This means when the policy is 'delivered' to HEIs, it may not be identical as it is set out at national level. Such a process is not a linear process of problem solving, which is simple execution of the plan by the targeted actors as articulated in the national policy documents. Rather it is a process that involves multiple policy actors and therefore incorporates conflicts of interests (Ball, 1993). Thus, when the policy is passed on to different policy actors, it may be subjected to change and such changes should be taken into consideration. Thus, the impacts of the national policy on regional HEIs cannot be examined simply through analysis of the textual representations in policy documents but through investigation of the struggle and relations embedded in the policy process. On the one hand, national policy is perceived as a discourse that sets limits to possibilities of thinking and actions (Bowe et al., 1992). The policy documents are the means through which the policymakers at national level initiate desired changes by certain actors. Thus, it is firstly an 'authoritative allocation of values', which defines certain ways of thinking as the 'regime of truth' of the policy problem in focus (Bowe et al., 1992). Secondly, it limits the possibilities of acting in the way that it specifies certain methods as the right thing to do in order to achieve the goals aligned with its values (Bowe et al., 1992). Under such a conceptualisation, the regime of truth about WCU development, including what WCUs are and how to develop them, is constructed and encoded in the national policy of Project DFC to ensure the outcomes of the policy align with the values and expectations of the policymakers at the national level.

On the other hand, despite such discursive efforts to reinforce control over the outcomes of the policy, there is room for lower-level policy actors to use discretion. The policy may be reframed when the locus of power is changed along the trajectory and such reframing can happen at any level (Schneider & Ingram, 1997). For regional HEIs, the decisions of regional

government may have a direct influence on them. The complex policy documents from upper-level government may be decoded and transformed into regional policies, during which the regime of truth may be reconstructed under the discretion of policymakers in regional government. The policy problem of what WCUs are may be constructed differently and therefore the means seen as necessary for their development may be different as well. The impacts on regional HEIs as a result may not be identical with the assertion of change articulated in the national document.

What is more, it seems that such reframing is highly possible in the implementation of Project DFC since there is a wide range of possibility to interpret the national policy documents. At the early planning stage of the current research, initial attempts were made to analyse national policy documents of Project DFC that were obtained online. The result of the analysis suggested that the national policy documents included little information about the instructions of how to develop WCUs. There was little information on what actions should be initiated in HEIs, the criteria to assess HEIs' performance, and the tools to be used for implementation in these documents. This seemed to suggest great possibility for regional policymakers to assert agency in determining the course of actions and therefore reframing of the policy was considered highly possible. Thus, tracing and illustrating the changes of the policy along its trajectory was necessary to examine its impacts in reality.

Further, the theory of policy design proposed by Schneider and Ingram (1997) provided a useful framework to efficiently identify the changes of the policy along the trajectory. The aim of Schneider and Ingram (1997) was to provide a comprehensive conceptual framework which could be used to describe and analyse various public policies empirically. In this framework, policy is seen as an artificial creation, the elements of which are intentionally designed and organised in a way that it can serve the allocation of certain values and fulfil the aims aligned with values. Thus, changes to the values on which regime of truth is constructed initiate changes to the design of the policy. Schneider and Ingram's (1997) framework proposes a set of elements that can be applied extensively to describe the design of a policy, namely goals

to be achieved, agents, target population, rules, tools, assumptions and rationales. Thus, using this framework, Project DFC under the power of different levels of policy actors can be presented as a set of common elements. The changes due to reframing of the policy along the trajectory are then clear through the comparison of each element. How this framework was used empirically in the current research will be further explained in the data analysis section.

Secondly, using the policy trajectory approach, the process of how the policy is made can be observed in detail. In order to understand the impacts of Project DFC on regional HEIs' upward mobility, examination of the decision-making process at regional level was critical. Path dependence suggests that the impacts of Project DFC are likely to be built on a set of national institutions that has been constructed through the implementation of the previous national policies of elite university and WCU development. Getting into the policy making process at regional level, whether such institutions persistently exist due to path dependence and how they constrain the outcome of policy making, can then be examined. It is considered that there may be two possible scenarios behind the enactment of Project DFC. One assumption is that Project DFC was enacted to change the regime of higher education governance by employing a competition mechanism to substitute the previous central planning model for better efficiency of WCU development. If this is the case, Project DFC should be designed to create conditions for free competition among HEIs and intervene in the accumulatively formed national institutions, which may protect the superior status of, mainly, the national HEIs by the previous policies. How such intended changes by Project DFC actually enable fair competition among HEIs in reality can then be reflected in the policymaking process at regional level.

A rival assumption was that Project DFC should be seen as the continuity of the previous policies, thus its aim was not to fundamentally change the national institutions. Although a competition mechanism has been introduced, the national HEIs remain advantaged while regional HEIs may find it difficult to compete with them and achieve upward mobility in

practice. If this is the case, the existing national institutions may not be revealed in the analysis of the policy documents but through the investigation of regional policymaking. Thus, the dynamic process of policymaking and implementation at regional level was of critical importance for the current research and the policy trajectory approach, which incorporates analysis at different levels and traces the transformation of the policy under different levels of actors, was adopted.

### **3.2.2 Case study design**

The current research adopted a single case study design and focused on one city, i.e., Shenzhen. Recognising the concerns about case selection bias and restrained representativeness (Robson, 2011; Stake, 2006; Thomas, 2010), a single case approach was adopted because only with cases where in-depth and rich information about the phenomenon of interest can be acquired can the advantage of the case study approach be realised. Shenzhen is the case from which I can learn the most about the process of policymaking and implementation at the regional level, for two main reasons. Firstly, this is because policy makers in HEIs and Shenzhen government are likely to respond proactively to WCUs development under Project DFC. Secondly, Shenzhen is a place, where access to the necessary data is possible.

The first criterion for case selection was the likelihood of policy makers in regional government responding proactively to Project DFC. This is because the role of the regional government is critical in the implementation of Project DFC, as the primary source of funding and the direct governing body of regional HEIs. The anticipated proactive participation in Project DFC by regional HEIs is only possible if it is taken up by policy makers in regional government. Policy makers in Shenzhen government were highly likely to take up the chance provided by Project DFC and invest in the development of the regional HEIs in Shenzhen, for the following reasons.

Firstly, there seemed to be great internal need for policymakers in Shenzhen to enhance the quality of its higher education system. Shenzhen is a city sitting at the ‘technological frontier’ (Aghion et al., 2005; 2009). According to Shenzhen (2022), the GDP of the high-tech industries in 2019 reached 923 billion RMB (equivalent to more than 113 billion GBP), accounting for around 34% of the overall GDP of the city. The total number of high-tech and new technology enterprises registered by the national government in 2019 exceeded 17, 000 in Shenzhen, ranking number two domestically. The number of patent applications and licensing in Shenzhen was the highest nationally as well, over 261 thousand. Many leading technology companies, such as Huawei, Zhongxing and Dajiang, which have received global attention in recent years, are based in Shenzhen.

However, the development of Shenzhen’s higher education seems to lag behind compared to the city’s prosperity in high-tech industries. As Aghion et al. (2005; 2009) suggest, the closer a city is to the technological frontier, the more important is its ‘highbrow’ education, which refers to research-focused education aiming for technological innovation. Unlike the other two economic-frontier cities, i.e. Beijing, Shanghai, which have comparatively abundant elite universities,<sup>15</sup> there were no elite universities in Shenzhen. And although Shenzhen government has been devoting resources to develop its regional HEIs, none of these HEIs has successfully entered the WCU projects by the time this research was conducted. Encountering such practicality and the rapid expansion of the high-tech industries in recent years, there seems to be a great urge for the policymakers in Shenzhen to develop ‘highbrow’ education and, in reality, great changes have been happening to the city’s higher education sector in recent years (Aghion et al., 2005; 2009).

On the one hand, Shenzhen has been devoted to attracting high-quality research universities both domestically and internationally. Domestically, Shenzhen has successfully attracted a handful of elite universities to set up their Shenzhen campuses. Some tend to focus on postgraduate education and research, e.g. Tsinghua and Peking University. Some, like Harbin

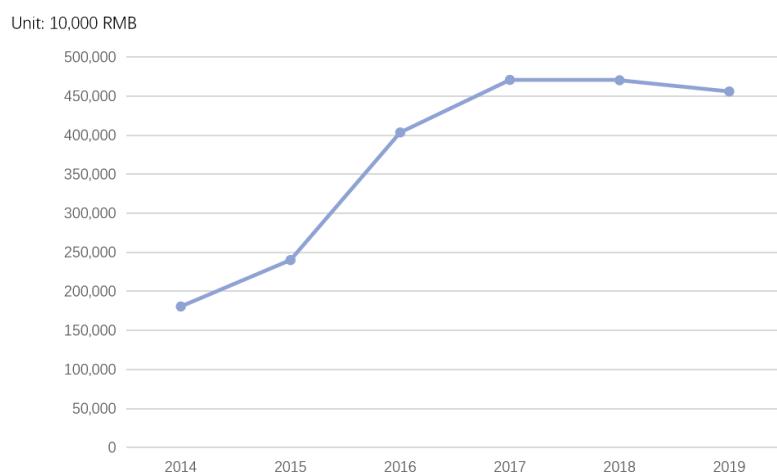
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<sup>15</sup> There are 34 DFC universities in Beijing, 14 in Shanghai, accounting for 25% and 10% of the total DFC HEIs respectively.

Institute of Technology and Sun Yat-sen University, provide undergraduate education as well. Research intensive universities from other regions or countries, for example the Chinese University of Hong Kong and Moscow State University, have set up either their own new campus or a hybrid HEI in partnership with some domestic elite universities. Furthermore, in recent years, Shenzhen has speeded up the development of these new high-brow universities. More than 1/3 of the total 14 HEIs in 2020 in Shenzhen were newly established within the last decade and Shenzhen is planning to establish another 6 new high-quality HEIs by 2025, which means at least one HEI will be established each year (Sznews, 2020). Most of these new HEIs are HEIs that are introduced from elsewhere.

On the other hand, policymakers in Shenzhen show great intention to enhance the quality of its regional HEIs with rapidly increasing investment in them. This relates to the second property of the case of Shenzhen, which is its strong financial position for educational investment. Shenzhen is an important economic centre of mainland China. In 2020, it had a GDP income of over 2,767 billion RMB (equivalent to more than 337.8 billion GBP), ranking the third highest domestically after Shanghai and Beijing (National Bureau of Statistics, 2021). Its investment in education has been growing rapidly along with the increase of its GDP. Thus, fiscal expenditure on education in Shenzhen increased from 28.8 billion RMB (3.5 billion GBP equivalent) in 2015 to 71.7 billion (8.8 billion GBP equivalent) in 2019 with an average growth rate of 25.6%, much higher than that of Shanghai and Beijing, whose average growth rates for the corresponding period were both around 7% (Government of Guangdong Province, 2021). Investment in higher education has been increasing as well. In 2020, investment in higher education was 19.9 billion RMB (2.4 billion GBP equivalent), exceeding both Beijing and Shanghai with fewer HEIs (SZnews, 2021a; 2021b). As a result, the fiscal support for its regional HEIs has been increasing rapidly, especially since 2016, the year when Project DFC was implemented. Figure 3.2 shows, for example, the government grants for one of the regional HEIs from 2014-2019 (Shenzhen University, 2015-2020). The government grants, which mainly come from Shenzhen government since the central government has no responsibility to support regional HEIs, in 2017 were triple those of 2014. All these statistics suggest that

Shenzhen has a strong financial basis and it is willing to spend on its regional HEIs. In other words, Shenzhen has the intention, needs and resources to take actions and take the opportunity offered by Project DFC to develop its regional HEIs. Under such circumstances, great improvements in regional HEIs can be anticipated. All these practical conditions of Shenzhen make the policy actors in Shenzhen government the most likely to have positive reactions to Project DFC and support the enhancement of its regional HEIs.

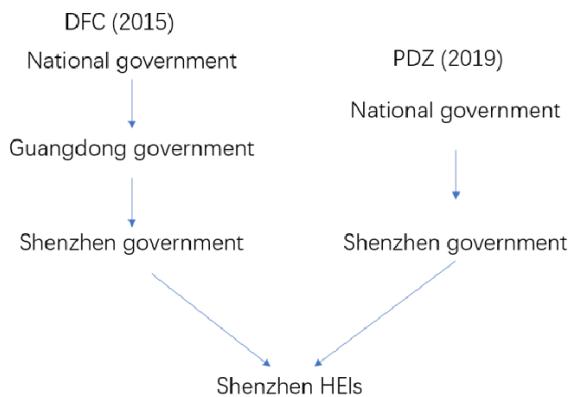


**Figure 3.2. Government grants for Shenzhen University from 2014-2019. Source: Shenzhen University (2015-2019).**

What is more, the enforcement of another national policy turns Shenzhen into an extreme case since it differentiates Shenzhen from other cities and ensures Shenzhen government's committed support to develop its regional HEIs into WCUs. In 2019, the national government announced a new policy which was targeted at Shenzhen only and aimed to develop the city into a 'Pioneering Demonstration Zone (PDZ) for Socialism with Chinese Characteristics' (State Council, 2019). The enforcement of the PDZ requires Shenzhen to develop WCUs, because to develop Shenzhen into a PDZ, it is considered that comprehensive reforms of Shenzhen society, including higher education, are necessary and that the goals to be achieved in various sectors by Shenzhen are articulated in the national policy documents. In terms of the higher education sector, the main task is to 'accelerate the development of first-class universities and disciplines' (State Council, 2019). Thus, this new policy shares the same goal with Project DFC in terms of WCU development, which has been a task that must be achieved by Shenzhen.

The enforcement of the PDZ also seems to suggest more support from central government will be given to Shenzhen because it distinguishes Shenzhen from other cities by claiming to develop it into a model city, whose experience of development is supposed to have demonstration effects for the whole country. Since the PDZ is a national policy with Shenzhen as the only target, its trajectory is slightly different from other policies that are implemented nationwide. It is transmitted from the central government directly to the Shenzhen government, which means that the provincial government (Guangdong) is not involved in the policy process. Thus, implementation of the PDZ is, to a great extent, in the hands of policymakers in Shenzhen government. Such a variation in the policy trajectory seems to suggest policymakers in Shenzhen government may be given a wider range of possibilities to exercise agency for the better development of the regional HEIs in Shenzhen. Thus, with the implementation of the PDZ, the committed support by Shenzhen government for the development of its regional HEIs can almost be certain, making it an ideal case to learn from.

Although the enforcement of the PDZ was not among the reasons why Shenzhen was selected since it was announced after the fieldwork in China was started, it indeed has further encouraged policymakers in Shenzhen government to participate proactively in the WCU development and turned Shenzhen into a promising case to study how regional HEIs can achieve upward mobility in the Chinese system compared to other cities. In 2022, when the current research was close to completion, one of the regional HEIs in Shenzhen successfully became one of the six new entrants of Project DFC in the second round, thus showing again the committed support by Shenzhen government for its regional HEIs and that taking Shenzhen as a case study, can yield abundant information of the implementation on Project DFC at regional level. Thus, the impacts of the PDZ should be taken into account and the trajectory of Project DFC policy can be demonstrated in Figure 3.3.



**Figure 3.3. The trajectory of the DFC and the PDZ to HEIs in Shenzhen**

The second and equally important reason for selecting Shenzhen concerned access to data. In the current research, the investigation of the policymaking process and outcomes at the regional level was critical. In order to generate these necessary data, I needed access to policy makers at the regional level and Shenzhen was the only place where such access was possible. This is because the making of higher education policies at the regional level in China tends to be a closed process, the detailed information of which is unlikely to be gained from open resources and public materials. Thus, interviews with regional policy actors seemed to be the only way to obtain in-depth data. Interviews with policy actors are one of the most frequently used methods for data collection in policy research because in the interviews the interviewees are ‘creating their own texts’ through which there is a chance to get inside the policy process (Philips, 1998). Thus, interviews with policy makers in regional level was necessary.

However, gaining to these policy actors can be rather challenging. On the one hand, access to individuals for interviews in general in China can be challenging without the awareness and utilisation of *guanxi* (social connections), as suggested by researchers with interview experience in China (e.g. Kriz et al., 2014; Torres de Oliveira & Figueira, 2018; Zhou & Nunes, 2013). Such *guanxi* is based upon social networks within the same relationship group, which indicates mutual trust and commitment of future benefits reciprocally (Torres de Oliveira & Figueira, 2018). *Guanxi* can be critical for reducing the difficulty of access to and building up

rapport with these interviewees due to the network-based sociocultural structure of Chinese society.

On the other hand, access to the targeted participants in the current research can be even more difficult because they are ‘policy elites’, that is key actors in the policy process either in Shenzhen government or regional HEIs (Walford, 2012). Due to the nature of their occupation and their social position as powerful public figures, they tend to be wary about accepting invitations for interview and this increases the difficulty in terms of access. Without *guanxi*, it is hardly possible to build up contacts with and invite these policy actors to participate in the interviews in other cities, whereas it was possible in Shenzhen. Thus, access to the policy actors was an important reason for choosing Shenzhen. Using my personal social connections, I managed to get an internship opportunity in a research institute, one of the functions of which is to serve educational policy making of Shenzhen government under its direct administration. This experience, on the one hand, enabled me to gain deeper understanding of the policy process through accessing more policy documents and other relevant materials, the contents of which will not be included in this thesis, unless the document itself is open to public or permission to use was acquired. On the other hand, it also enabled me to access the policy actors that were involved in the policy making process in Shenzhen government. Therefore, rather than investigating other cities from which little information about regional policymaking can be obtained, the current research focused on Shenzhen only since it was the city where rich empirical data and in-depth understanding were the most available.

With the case of Shenzhen being selected, the research questions of the current research can be elaborated as follows:

1. What is the policy design of Project DFC at national level?
2. What is the policy design of WCU development at Shenzhen government level?
3. How has the policy been reframed?
4. To what extent has a competition-based mechanism been established to inform the HEI hierarchy under the implementation of Project DFC?

### 3.3 Data collection

Following the trajectory of Project DFC from central government to regional HEIs in Shenzhen (as can be seen in Figure 3.3), data collection in the current research was separated into four phases chronologically. Such a chronological design and the data that have been collected at each phase will be explained in this section. However, there is no clear-cut distinction between phases in reality and the focus of data collection was always moving back and forth among actors at different levels. There were circumstances where new materials were provided or new themes emerged in the later phases of the field work and review of the previous phase was, therefore, necessary.

#### 3.3.1 Phase one and phase two

Phase one and two investigated the policy designs at national level and provincial level respectively using policy documents as the main source of data. The aim was to understand the policy designs at both national and provincial levels.

Phase one collected national policy documents of both Project DFC and the PDZ. All national policy documents were obtained online from official websites of corresponding ministries under central government. Other official documents and reports that were relevant to the policies available online were also collected. For example, since Project DFC is mainly implemented by the MoE, through searching by the keyword ‘DFC’ on the MoE’s official website, all relevant documents that are open to the public can be found. All of the public documents that were collected from phase one to phase four are shown in Table 3.1. In the case of Project DFC, although multiple policy documents and other types of official

documents have been issued, some information is not included. For example, the concrete criteria for HEI selection are not specified in any policy documents or online resources. Thus, an interview with a member of the national DFC committee was conducted to gain further information. Before moving on to the second phase, analysis of the data from phase one was conducted simultaneously along with data collection. Results of the analysis provided a more comprehensive understanding of the national policies and facilitated the subsequent investigation at the next level.

Policy	Title of the policy document	Website
DFC	Notice of the State Council on Issuing the Overall Plan for Coordinately Advancing the Construction of World First-class Universities and First-class Disciplines (2015)	MoE
	Notice of the State Council on Issuing the Overall Plan for Coordinately Advancing the Construction of World First-class Universities and First-class Disciplines (2017)	MoE
	Notice on Publicizing the List of Higher Education Institutions and disciplines in the Project Double First Class (2017)	MoE
	Guiding Opinions on Accelerating the Implementation of Project "Double First-Class" (2018)	MoE
	the Media Meeting on Promoting the Overall Plan for Double First Class by MoE Representatives (2015)	MoE
	the Media Meeting on Reporting the Implementation of Project Double First Class by Representatives from Three Ministries (2017)	MoE
	Notice on Issuing the Evaluation Plan for Double First Class (2020)	MoE
	Notice of the General Office of the People's Government of Guangdong Province on Publishing the List of Universities and Disciplines in Projects of High-Level Universities in Guangdong Province (2015)	Guangdong provincial government
	Notice of the General Office of the People's Government of Guangdong Province on Issuing the Implementation Plan (2018-2020) of the Improvement Plan for Higher Education (2018)	Guangdong provincial government
	Notice of the General Office of the People's Government of Guangdong Province on Issuing the Implementation Plan (2021-2025) of the Improvement Plan for Higher Education (2021)	Guangdong provincial government
PDZ	Development of the Evaluation System for Project High-Level Universities in Guangdong Province (2017)	Institute of Education Research of Guangdong Province
	Action Plan for Project High-level Universities	Southern University of Science and Technology
	Opinions of the State Council on Supporting Shenzhen in Building a Pioneering Demonstration Zone of Socialism with Chinese Characteristics (2019)	State Council
	List of the Authorized Items for Shenzhen Building a Pioneering Demonstration Zone of Socialism with Chinese Characteristics (2020)	State Council
	Implementation Plan for Shenzhen's Development into a Pioneering Demonstration Zone Chinese Characteristics (2020-2025)	Shenzhen government

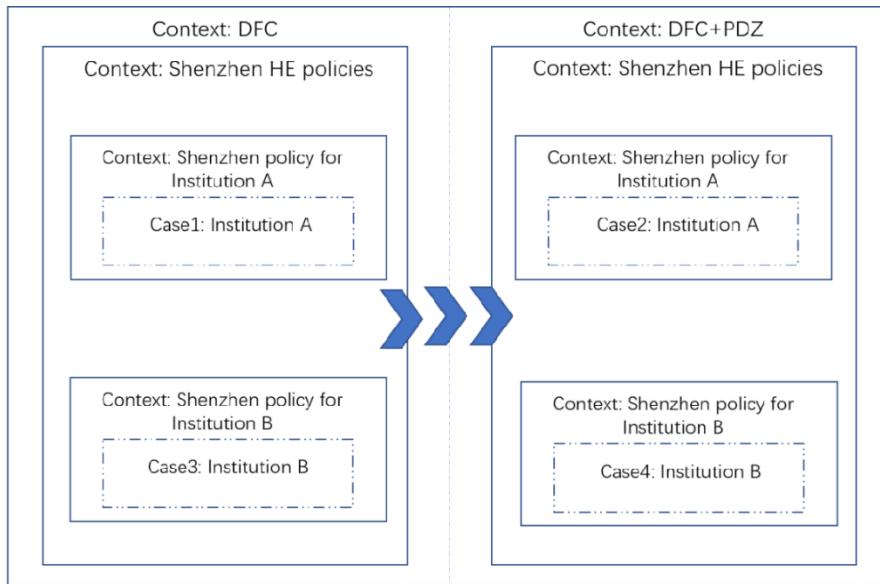
Table 3.1 Policy documents and other official documents obtained from phase one to phase four

Phase two collected policy documents and other supplementary documents about the provincial project that has been initiated by Project DFC, i.e. the High Level University project (HLU) by Guangdong government. Data collection at provincial level did not include the PDZ because the provincial government is not included. From phase two the policy documents

were obtained from two sources in the current research. These included documents that were open to the public and were obtained online and documents that were received from interviewees and were not available online. The majority of the policy documents collected in phase two were obtained online using a similar approach to that described above for national policy documents. Some provincial policy documents were provided by the participants during the interviews. Since most of these documents were not open to the public, they will not be used or mentioned in this thesis to preserve confidentiality. However, they contributed significantly to better understanding the implementation of the policy.

### **3.3.2 Phase three and phase four**

Based on the more comprehensive understanding of the policy designs by the upper-level government, investigation moved on to the Shenzhen case. The aims of investigation in Shenzhen were twofold. Firstly, it was to understand the policy designs for WCU development by policy actors in both Shenzhen government and HEIs in Shenzhen. Secondly, it aimed to understand the process of how the decisions were made. Phase three concentrated on investigation at Shenzhen government level to provide an in-depth understanding of how Project DFC and the PDZ were recontextualised into regional policies. Phase four was designated to investigate what and how strategies were made under the policies of Shenzhen government at HEI level. Two regional HEIs in Shenzhen, which entered tier one of the provincial Project HLU successfully, were selected by Shenzhen government as the key HEIs for WCU development because they were seen as the most likely to enter Project DFC. These two HEIs were included in the current research. Given that changes to both regional policies and institutional strategies were highly possible after the implementation of the PDZ, the Shenzhen case was further developed into a holistic multiple case study design as can be seen in Figure 3.4.



**Figure 3.4. A holistic multiple case study design of the current research**

For both phase three and four, mainly two types of data, i.e. policy documents and interview data, were collected from Shenzhen government and the two regional HEIs. Other materials, such as media resources, were collected as well mainly to provide more contextual information for better understanding of the cases. Different from the policy documents at national and provincial level, there were difficulties in collecting policy documents at both regional government and HEIs level. Since policies for WCU development at regional level tend to be concrete action plans and strategies of development for individual HEIs, they were not available to the public online. Here access to documents in Shenzhen was most commonly achieved via the interviewees or people who I got to know during my internship experience. Because most of these documents were confidential, they will not be used or mentioned as well in this thesis.

### 3.3.3 Interviews

Interviews were the main data that were collected at both Shenzhen government and HEIs level to get in-depth information about the policymaking process.

### 3.3.3.1 Sampling

The current research adopted a purposive sampling strategy since identifying the policy actors from whom the most can be learnt about the process of how the policy was made in Shenzhen is critical to the current research. The policymaking process at regional level may involve a wide range of actors. The making of regional policies by Shenzhen government, for example, included civil servants from multiple departments of the Shenzhen government, executive leaders of HEIs and lower-level schools, representatives from academia and enterprise, external experts from domestic elite universities and overseas universities. However, the decision-making process was restricted to a few key actors, which meant most of the above-mentioned actors, although involved, might not have been able to explain the considerations and rationale behind a decision. For example, a number of policy actors were commissioned to work as a working group for the development of an action plan in higher education for the PDZ. This group of people then are the key actors in Shenzhen government, through whom an understanding of the policy making process under the PDZ can be acquired. I learnt about this as my internship proceeded. In the beginning of my internship, I conducted a few interviews with some policy actors, who were the people I could learn the most information about policy making at that time. Since they were not key actors, they provided little information about the rationale behind why a certain choice was made rather than another. These interviews, which failed to provide in-depth data about the process of policy making were excluded from the data in use in the current thesis.

I was, however, able to identify one of the key actors from my colleagues later. Through the interview with this colleague and later participation in the meetings for policy making, I learnt about the procedures for, and who was involved in, implementing Project DFC and PDZ policy in Shenzhen. Thus, a sampling frame with all potential interviewees who could provide the most comprehensive information about the policy process and the rationale of the decision, was formed. I then purposively selected and accessed people in this sampling frame via the *guanxi* of the existing interviewees. In this way, the difficulties in accessing the potential

participants were greatly reduced. As a result, 2 to 4 key actors from Shenzhen government and each HEI were invited and 9 participants in total were interviewed. Table 3.1 provides some details about each interviewee, but it is considered that any further information might reveal the identities of the interviewees. Thus, for ethical considerations, further details are not provided. Interviews with interviewees A and B enabled in-depth information about the rationale, process, interactions with upper-level government in policy making at Shenzhen government level. Interviews with C and D provided further information about the policy process at this level, especially about the roles played by different policy actors. Interviews with them also triangulated with those with A and B. Similarly, interviews with E and G also triangulated with the interviews with policy actors from Shenzhen government. Interviews with them provided more substantial information about the actual conditions faced by HEIs in Shenzhen, which enabled better understanding of the policies by Shenzhen government. Moreover, interviews with them also provided rich information about their strategies and the rationale behind. Interviews with F, H and I enabled information about the policy process and how their strategies were enforced in each HEI. Their accounts also provided triangulation with those by E and G,

	Interviewee A	Interviewee B	Interviewee C	Interviewee D	Interviewee E	Interviewee F	Interviewee G	Interviewee H	Interviewee I
Institution	Shenzhen government	Shenzhen government	Shenzhen government	Shenzhen government	University A	University A	University B	University B	University B
Position	Senior officer of Education Bureau	Senior officer of Education Bureau	Policy advisor of Shenzhen Institute of Education Sciences	Policy advisor of Shenzhen Institute of Education Sciences	Senior administrator	Academic staff also works as policy advisor	Senior administrator	Staff of university planning office	Senior administrator of a faculty

Table 3.1 Information about the participants and their positions in the Shenzhen system

### 3.3.3.2 Building rapport and trust with the participants

Not only in terms of access, the interview process can also be challenging and therefore require extra caution and strategies in conducting interviews (Beamer, 2002; Ozga, 2011). As Ball (1994a; 1994b) suggests, interviews with the policy elites have a ‘game like’ feature. Since

the participants tend to be experienced in being interviewed and highly cautious about the information they share, they may skilfully take control of the interview to their own advantage so that only the information that they wish to disseminate will be discussed (Phillips, 1998; Walford, 2012). Thus, building rapport and trust with the participants was particularly important to reduce the wariness of the participants and make them relaxed to share their understanding voluntarily. A good relationship with the participants also enabled further access to associated documents. In some interviews, participants spontaneously offered the relevant documents, some of which could not be acquired elsewhere, when the trust was built up. The strategies that were taken in the current research to build rapport were as follows.

A good first impression was the first step to build up rapport. When meeting with the participants for the first time, whether face-to-face or virtually, expressing gratitude and appreciation for the opportunity to interview could show a humble position and leave a good impression. Appointments for the interviews were made through discussion with the participants or by letting the participants make the decision to show respect and also to ensure the interviews were conducted to the greatest comfort and convenience of the participants.

Before the agreed date for interview, a few preparations were made. One important preparation was background research about each participant's life, career and academic background, which was acquired from public information online. The aim was to get further understanding of the participants so that topics that were likely to raise each participant's interest could be used as an ice-breaker. This technique, in my experience, effectively reduced the wariness of the participants in most cases. For example, although it was not used in the beginning of the meeting, mentioning reading and appreciation for one of the books written by the interviewee seemed to turn the previous intense atmosphere into a more relaxed one in one of the interviews. The participant then showed more interests in our conversation and responded much longer to my questions.

Another important preparation to reduce their wariness was to send detailed information about the interviews to the participants in advance. This was to show an honest and open attitude to avoid misunderstanding or suspicion by the participants. An information sheet (Appendix A.), which explained the purpose of the research, usage of the data, the rights of the participants, and the main topics of the interview, was sent to the participants before the interviews. Also, this was also useful to get the participants familiar with the topics and avoid circumstances where trust was compromised by raising unexpected topics that the participants were reluctant to talk about. All information that the participants needed to know was explained again at the beginning of the interviews to ensure their full understanding of participation.

### 3.3.3.3 Conducting the interviews

The interviews were semi-structured and included three themes: what the regional policies/institutional strategies were in relation to the national policy, and how and why they were made. On the one hand, semi-structured interviews allowed flexibility to ask customised questions according to the answers of the participants. The structure of the interviews was changed according to the flow of the interview by asking additional questions or changing the order of questions. Especially when new topics or themes emerged during the interview, the semi-structured format allowed follow-up questions to learn more information. This is how one of the important themes, about a different meaning of WCU in China, was uncovered in the current research. On the other hand, semi-structured interviews with predetermined topics kept the interview on track with the objectives of the research to avoid loss of direction.

Each interview lasted 30 to 60 minutes. The duration of the interview was confirmed with each participant in advance. The first few interviews took more time because they tended to be more explorative to probe for details so that information about the policy process was as exhaustive as possible. As the investigation proceeded, the time for interviews tended to be

shorter because more concise questions were asked based on the previously gained information. In some cases, when it was realised that more information was needed after the interview was finished, a follow up interview was conducted.

In order to enhance accuracy, the interviews were audio-recorded for later transcription. Recording also allowed me to concentrate on conducting the interview, listening to and observing the participants. Participants' consent for recording was acquired in advance. Most participants agreed to be recorded except for one. In that case, I restored the interview at a quiet place once it was finished. I restored the conversation based on the notes, which were made during the interview, and recorded it to avoid information loss as much as possible. Also, member checking was carried out constantly during the interviews, for example by rephrasing, asking the question in a slightly different way or asking interviewees to elaborate to ensure what was interpreted was consistent with their accounts. Since the reaction and feedback from the interviewee was immediate, misinterpretation was corrected at once. Rephrasing and asking the interviewee to confirm was the most effective way to avoid misinterpretation based on my fieldwork experience. There were a few times when the interviewees corrected my rephrased accounts. Usually they then explained a lot more in detail and sometimes, even shared some additional information to avoid misunderstanding. For example, in an interview with a participant from HEIs, when asked about how resources were distributed among disciplines in their university under Project DFC, the interviewee corrected my rephrased interpretation at once by voluntarily offering examples and additional information to ensure that he was understood correctly.

The records of the interviews were then transcribed verbatim in Mandarin and analysis was conducted in Chinese. This was due to the concern for accuracy in order to capture the exact meaning of what the participants said. Translation into English prior to analysis might have resulted in information loss or limitations on analysis (van Nes et al., 2010). Policy actors tend to use some political idioms in China but with nuanced variations. Thus, the same words may have multiple meanings when used by different interviewees in a different context. Such

nuances were best understood in the original words and sentence intertextually to capture the real meanings.

### 3.3.3.4 Biases

Interview, as an important method for data collection in the current research, is understood as ‘an attempt to elicit information or expressions of opinion or belief from another person’ (Brinkmann, 2020, p.424). An important attribute about interview is that it generates texts through verbal interaction. On the one hand, different from quantitative methods, which are used as an instrument of measurement, data is generated through the construction of a place where the interviewee creates his/her own texts about the phenomenon of interest in an interview. On the other hand, texts are open for interpretation. The transfer of data from the interviewee to the interviewer is based on the latter’s interpretation. Thus, the validity of an interview depends on ‘how accurately the account represents the participant’s realities of the social phenomena’ (Creswell & Miller, 2000, p.125). Reducing the potential biases that are generated in the above-mentioned two processes should then be considered critical to enhance the validity of the interviews.

It is considered that there are three types of potential bias in the current research design for interviews. Firstly, there may be selection bias in the sampling. The purposive sampling strategy adopted in the current research, through which a sample is selected based on personal judgement, shows a higher tendency of selection bias. Given that the aim of the interviews was to understand the policy making processes in both Shenzhen government and HEIs, the majority of the interviewees were in administration posts in both Shenzhen government or individual HEIs. People, who may have a different perspective regarding the understanding of policies or the meaning of WCUs, such as staff in non-administrative posts, were underrepresented. Such a limitation is recognised and will be discussed further in the last chapter.

The second type is reactive bias, which means the bias between participants' accounts and their perceived realities of the phenomenon (Roulston & Shelton, 2015). Especially because the interviewees in the current research were policy elites, who were used to being interviewed, such bias is likely to emerge. Triangulation was adopted to increase the credibility of the data. On the one hand, multiple interviewees were involved in both Shenzhen government and each HEI. It is considered that the accounts of interviewees from the same organisation may be the source of verification. Since the major aim of the interviews was to ask the interviewee to present the policymaking process, which was identical, the credibility of data was enhanced through sorting out convergent and divergent information (Cresswell & Miller, 2000). On the other hand, it is also considered that the accounts of interviewees from HEIs and Shenzhen government may triangulate each other since they were accounts of the same process from different perspectives.

The third type of bias is confirmation bias, which is generated from the process of analysis and interpretation (Roulston & Shelton, 2015). In order to increase the coherence between the researcher's interpretation and the original accounts of the participants, member checking was adopted. It was carried out constantly during the interviews, for example by rephrasing, asking the question in a slightly different way or asking interviewees to elaborate to ensure what was interpreted was consistent with their accounts. Since the reaction and feedback from the interviewee was immediate, misinterpretation was corrected at once. Rephrasing and asking the interviewee to confirm was the most effective way to avoid misinterpretation based on my fieldwork experience. There were a few times when the interviewees corrected my rephrased accounts. Usually they then explained a lot more in detail and sometimes even shared some additional information to avoid misunderstanding. For example, in an interview with a participant from HEIs, when asked about how resources were distributed among disciplines in their university under Project DFC, the interviewee corrected my rephrased interpretation at once by voluntarily offering examples and additional information to ensure that he was understood correctly.

### **3.4 Data analysis**

There were mainly two kinds of data that were collected in the current research, i.e. policy documents and interview data. In order to compare the policy at different levels to see whether and how it has been reframed, the policy design framework by Schneider and Ingram (1997) was used as an overarching framework throughout data analysis. The result of policymaking at each level was analysed and presented using the policy design framework so that the policy among different levels could be effectively compared and the changes to the policy could be clearly identified. However, the policy design framework was slightly adjusted to fit the purpose of investigation at different levels as will be explained in this section.

#### **3.4.1 Analysis of policy documents**

Data analysis at national and provincial government levels was static analysis and mainly focused on policy documents, the aim of which was to identify the elements of the policy designs at both levels so that they could be compared with the policy designs by Shenzhen government and regional HEIs. The policy design framework by Schneider and Ingram (1997), which includes six elements, i.e. goals and problems, target populations, agents and implementation structures, policy tools, rules, rationale and assumptions, was slightly adjusted to be applied empirically. In the current research, five elements of the policy design were to be identified and the element of target populations was not included mainly because there is no specified target of HEIs in Project DFC and the decision to participate greatly depends on HEIs and their governing body.

The element of goals and values is about the construction of the regime of truth embedded in the policy. Goals referred to intended outcomes of the policy. Given considerations that

Project DFC is a policy of higher education development, its goals should be descriptions about future states of being or changes to the current problematic states of being in the higher education sector. As shown in the second paragraph in Figure 3.5, 'accelerate the development of a number of world first-class universities and disciplines, to enhance the comprehensive strength and international competitiveness of China's higher education' are labelled as goals since they are the desired outcomes to be achieved in higher education.

Values refer to the underlying beliefs that shape the goals. Values may restrain the possibilities of the goals because only goals that are in accordance with the values are expressed (Fairclough & Fairclough, 2012). They are proposed in the policy because they contribute to the better fulfilment of the values. Thus, as can be seen in Figure 3.5, in the first sentence of the policy document, 'improving China's educational development level' is labelled as a goal

**Policy document (translation):**

**Notice of the State Council on Issuing the Overall Plan for Co-ordinately Advancing the Construction of World First-class Universities and First-class Subjects (MoE, 2015)**

Building a world first-class university and first-class subjects is a major strategic decision made by the CPC Central Committee and the State Council. It is of great significance for improving China's educational development level, strengthening the state's core competitiveness, and laying the foundation for the state's long-term development. Over the years, through the implementation of the "211 Project", "985 Project" and "Innovative Platform for Advantageous Subjects" and "Special Key Subject Projects" and other projects, a number of key universities and key subjects have made significant progress, which has played a leading role in China's HE improvement. This improvement has made an important contribution to the sustained and healthy development of the economy and society. However, these projects also have problems such as institution identity solidification, lack of competition, and similarity and overlap in subject development. It is urgent to strengthen resource integration and improve implementation methods.

1. General requirements

(1) Guiding ideology.

Hold high the great banner of socialism with Chinese characteristics, take Deng Xiaoping Theory, the important thoughts of "Three Represents" and Scientific Outlook on Development as guidance, conscientiously implement the spirit of the 18th CPC National Congress and the spirit of the 2nd, 3rd and 4th Plenary Session of the 18th Central Committee, and carry out in depth the spirit of a series of important speeches of General Secretary Xi Jinping, according to the "Four-Pronged Comprehensive Strategy" and the decisions and arrangements of the CPC Central Committee and the State Council, adhere to the core of Chinese characteristics and world first-class, based on the foundation of cultivating moral ethics and educating people, orient to support innovation-driven development strategy and better serve economic and social development, accelerate the development of a number of world first-class universities and subjects to enhance the comprehensive strength and international competitiveness of China's HE, and provide strong support for striving to achieve the 'two centenary goals' and realizing the Chinese Dream of national rejuvenation.



Figure 3.5. An example of analysing goals and values in policy documents

while 'strengthening the state's core competitiveness and laying the foundation for the state's long-term development' are labelled as values. This is because 'improving educational development level' is a description of a future state of higher education to be brought about through the national policy and achievement of this goal contributes to the 'strengthening the state's core competitiveness and laying the foundation for the state's long-term development', rather than the other way round. The latter is what implementation of the policy is actually concerned with, hence the values.

Identification of the values was important in the current research because it related to the analysis of policymaking at regional level. Policy was conceptualised as discourse which may shape and constrain the beliefs and ideas of WCU policymakers at regional level, grounded on which the subsequent design of the regional policies was formulated. Thus, identification of the values was important for the later analysis to understand how the regional policies and institutional strategies were made under the impacts of Project DFC ideologically, and therefore the element of values was added.

Agents in the current research refer to the levels of government in the delivery of the policy to HEIs, while implementation structure refer to the power relationship between them and between government and regional HEIs in implementing Project DFC. To recap, as the initial analysis of national policy documents before the fieldwork showed, there may be great room for lower-level actors to assert discretion since little information about the actions needed to bring about the goals is provided in the policy documents. However, it was also likely that there should be boundaries of discretion for the lower-level government since it is unlikely that the policy implementation is a freewheeling trial without limitations. Thus, to what extent each level of government can exercise agency on policy implementation needs to be identified. For example, Figure 3.6 is extracted from the same policy document as Figure 3.5. The data chunk highlighted as agents and implementation specifies the funding responsibility of different levels of government is thus classified in this category.

The central government will provide the funding of Project DFC for national HEIs through annual budgetary funding and special fundings; encourage local government to provide support in multiple ways including funding, policies and resources for national HEIs. Participation in the project by regional HEIs should be based on considerations of local situations and the funding should be arranged by local government. The central government will provide guidance and support through the funding designated for the development of regional HEIs.

Agents and implementation structure  
Tools for national HEIs

Figure 3.6. An example of analysing agents and implementation structure and policy tools in policy documents

Tools refer to policy instruments since it is the means prescribed by the policymakers to initiate expected behavioural changes of the targeted actors as the solution to the policy problem. The literature on policy instruments (see Howlett et al., 2009; McDonnel & Grubb,

1991; Vedung, 2017) provides different ways of classifying policy tools. The current research used the taxonomies of Howlett et al. (2009), which classify policy instruments into four categories according to the resources involved, namely information, authority, treasure and organisation. The reason for using this resourced-based classification was that the differentiation of resources that are employed by different levels of government can be easily compared and clearly seen. If it is the case that the national institutions under economic nationalism with the hierarchy among HEIs is maintained, it is likely that the resources that available to different HEIs are differentiated and this classification can enable observation of the differentiation. Thus, analysis of policy tools referred to identification of the data relevant to resources in the policy documents, as the example in Figure 3.6, ‘funding, policy, resources’ is labelled as policy tools for national HEIs by central government.

Rules in the current research refer to eligibility rules that define which HEIs are to include in Project DFC. Thus, rules refer to the regulations about the criteria and procedure of selection for HEIs selection. As mentioned previously, the impacts of Project DFC are built on the existing institution constructed by the previous policies of elite university and WCU development. If Project DFC was enacted to change the existing institutions which maintain the designed hierarchy of HEIs, changes to the rules should be articulated in the policy documents so as to enable free competition among HEIs. On the contrary, if Project DFC was in effect a continuity to maintain the designed hierarchy, it may not include changes to the rules in its policy design or its changes may not be able to alter the existing rules of eligibility. Thus, analysis of rules is in search of descriptions of the criteria and procedure of HEIs selection. For example, Figure 3.7 shows an example of analysis of rules. The highlighted parts are description related to the selection criteria for the first-tier and second-tier DFC HEIs respectively thus separated in two categories.

7. First-class university should be universities that have been designated as key points of national higher education development for long-term, have advanced ideas of school-running and high social recognition. They must have a certain number of high-level disciplines that are in leading positions domestically and internationally. They should have achieved remarkable results in terms of the developing modernised institution for higher education.

Rules for first-tier HEIs selection

Rules for second-tier HEIs selection

First-class discipline universities should have high-level disciplines that are at the in the leading position domestically and internationally and have great performance in influential third-party evaluations. Or they should have disciplines that are either in great needs by the state or have significant influences on certain industry or region.

Figure 3.7. An example of analysing rules in policy documents

Assumptions and rationales referred to the explanations of the logic behind of the policy design. However, it seems that the assumptions behind the policy design of Project DFC are not stated in the policy documents. According to Schneider and Ingram (1997), it is common that the assumptions of the policy design are not obvious. In the current research, the assumptions of Project DFC were discovered through analysis of the interview data. This approach to the analysis of policy design was also applied to the regional level. Thus, comparison of each element of the policy designs at different levels can show the changes to the policy along the trajectory.

### **3.4.2 Analysis of interview data**

The aims of analysing interview data were twofold. Firstly, it was to identify the elements of the policy design by policy makers in Shenzhen government. Identification of the elements of policy design in Shenzhen were similar to that at national policy level. Schneider and Ingram's (1997) analytical framework was adopted again but it was considered that alteration was necessary. The elements of rules, agents and implementation structure were considered unsuitable. The element of rules was defined as regulations regarding HEIs selection criteria and procedure in Project DFC. Policy makers in Shenzhen were not allowed to change these rules since the power to change was in the hands of those in central government. Thus, the element of rules was removed. Agents and implementation structure was removed as well since the policy designed by Shenzhen government is delivered to HEIs directly. Thus, analysis of interview data was to identify three elements: goals and values, tools, and assumption and rationale primarily to answer the second research question of what is the policy design at Shenzhen government level.

Secondly, the aim of analysing interview data was to answer the third research question of how the policy design has been reframed. This is in fact investigating the forces and factors

in the policy making process in Shenzhen that triggered the policy design. Understanding of the policy making process is important because the existing national institutions in the Chinese system that have been constructed by the previous policies are likely to be reflected in regional policy making. The above-mentioned approach that is derived from the policy design literature provides a descriptive account of what the policy design is but little information on an explanatory account of how such a design was initiated. Thus, a different theoretical framework, which was derived from Ball (1990), was used to answer this research question. This theoretical framework, which was designed to analyse and illustrate how educational policy was made, provides a simple yet powerful framework, through which the factors that influence the process of policy making are captured and illuminated clearly. This fitted the purpose of the current research and thus was adopted.

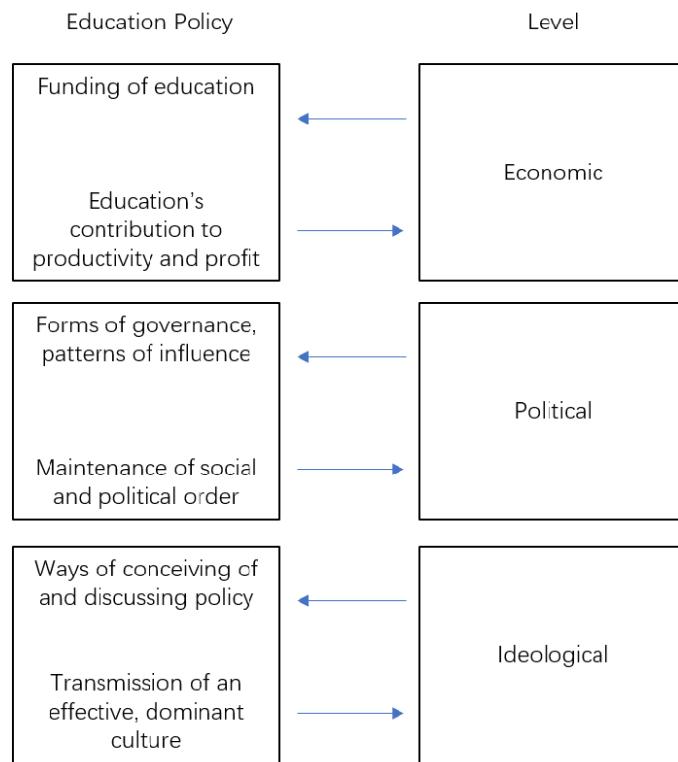
The analysis approach adopted at this stage was a hybrid approach. An a priori template approach proposed by Crabtree and Miller (1999) was used in conjunction with an inductive thematic analysis approach proposed by Braun and Clark (2006). The idea of combining an inductive and deductive approach was that the combination provides an effective way to organise data and identify patterns of meaning based on the theoretical framework while allowing the possibility of emerging patterns of meaning to be detected from the data (Boyatzis, 1998; Braun & Clark, 2006; Fereday & Muir-Cochrane, 2006; Guest et al., 2011). The reason behind the choice of analytic approach is outlined below.

Firstly, the deductive a priori template approach was used as the main approach for analysis. The idea of using a theory-guided approach was not to simplify the analysis process, rather it aimed to enhance the validity of the analysis by using developed theories to guide the process of segmentation. As Creswell and Creswell (2018) suggest, the aim of qualitative analysis is to ‘make sense out of’ the data, which is a process of deconstruction of the original data and reconstruction of the meaning based on the interpretation of the researcher (Gray, 2013; Schuetz, 1953). Segmentation, as the first step to divide the data into small bits as the units for meaning reconstruction, entails initial interpretation because by deciding where a

segment of data should begin and end, a unified meaning is given to the bit of the data (Guest et al., 2014). The key to strengthening the credibility of the analysis then is to enhance the fit between such interpretation and the 'first order construct', which is the meaning represented by the interviewees in the original data, by reducing the impacts of bias due to personal assumptions and perspectives of the analyst (Nowell et al., 2017). Using a theory-based coding template can segment the transcript systematically and enhance the coherence of initial analysis. The meaning denoted to the units can orient and regulate the interpretation and therefore reduce the impact of personal bias in segmentation. Thus, through the lens of the theory, data can be separated into small parts with clear boundaries of meaning for further abstraction and interpretation. The deductive approach proposed by Crabtree and Miller (2012), which allows application of theory to guide the process of segmentation that permits further interpretation based on the content of the data, was considered suitable for this research.

Secondly, the inductive approach was adopted to complement the deductive approach. The thematic analysis approach proposed by Braun and Clark (2006) aims for pattern recognition from texts, provides an effective way to examine the underlying ideas and beliefs in the data. This approach was used to analyse the data that fell out of the scope of the deductive approach.

The first step was to develop a codebook, which was used as a template to organise the data. The codebook was developed a priori, using the analytical framework from Ball (1990), the fit of which with the aim of analysis was explained above. Through the lens of this framework, policymaking is impacted by economic, political and ideological dimensions. The original framework is illustrated in Figure 3.8.



**Figure 3.8. Three dimensions of policy making. Source: Ball, 1990**

Since it was originally designed to analyse policymaking at national level, it was slightly modified with the characteristics of policymaking at regional level being considered. In Ball's original analytical framework, the ideological dimension referred to the values and beliefs of conceiving of education, which informed the making of national policies. In the current research, as the locus of power being transferred to Shenzhen government, the ideological dimension referred to the values and beliefs of higher education and WCUs held by policy makers in Shenzhen that informed regional policymaking. It is considered that their values and beliefs were shaped by two forces. On the one hand, their values and beliefs of higher education may be influenced by the national policy since policy is perceived as discourse in the current research. However, such influence may be mediated by the interpretation of the policy documents of policy makers in Shenzhen, which may not be identical to the values and beliefs of policy makers in central government. On the other hand, policy makers in Shenzhen may have a different set of values and beliefs of higher education and they may bring their

own values in regional policy making as well. Thus, the ideological dimension of policy making in Shenzhen should be seen as the result shaped by both the interpretation of the national policy and the policymakers' own ideas of higher education and WCUs in Shenzhen. The economic dimension referred to considerations of material conditions in regional policymaking, which included, firstly, the funding relationship between HEIs and Shenzhen government and, secondly, the perceived relationship between higher education and the local economy. The political dimension of policymaking in Shenzhen referred to considerations of governance structure on higher education, which included the existing institution from the previous policies, the possible changes brought by Project DFC and agency of the policymakers in Shenzhen to make changes to the governance institutions for better development of its regional HEIs. The policy design by Shenzhen government as the end product of policymaking then is understood as the result of the interplay of these three dimensions. The a priori template tailored to these considerations of policymaking in Shenzhen was developed and can be seen as Figure 3.9.

Dimension of policymaking	Code	Description
Economic	Funding	The funding relationship between HEIs and Shenzhen government
	HE/economy relationship	The perceived relationship between higher education and economy
Ideological	Interpretation	The interpretation of national policies of Project DFC and PDZ by policy makers in Shenzhen
	Values of HE	The ways of perceiving higher education and WCUs by policy makers in Shenzhen
Political	Institutions of governance	The existing institution constructed by previous elite university and WCU policies
	Changes	The changes brought by Project DFC
	Agency	The intention of regional policy makers to make differences to the institutions of governance

**Figure 3.9. The initial coding template derived from theory**

In the second step, the fit between the transcript data and this coding template was tested. The coding template was applied to two transcripts. One of the transcripts was an interview with a participant from Shenzhen government and the other was an interview with a

participant from HEIs. As a result, slight modification was needed as can be seen in Figure 3.10. Two changes were made to the political dimension. Firstly, as reflected in the transcripts, the relationship between higher education and local economy is seen as an important part of the values of higher education. Thus the code of 'HE/economy relationship' was integrated into the 'values of HE'. Secondly, except for the institutions of governance, the upper-level government may have a more direct way of influencing policymaking at regional level, namely coercion. The intended actions and changes by regional policymakers may be forbidden or coerced to change by the authoritative decision of the upper-level government.

Dimension of policymaking	Code	Description
Economic	Funding	The funding relationship between HEIs and Shenzhen government
Ideological	Interpretation	The interpretation of national policies of Project DFC and PDZ by policy makers in Shenzhen
	Values of HE	The ways of perceiving higher education and WCUs by policy makers in Shenzhen
Political	Existing institutions	The existing institution constructed by previous elite university and WCU policies
	Changes	The changes brought by Project DFC
	Agency	The intention of regional policy makers to make differences to the institutions of governance
	Power to coerce	The coercive power of upper-level government in influencing the outcome of policymaking in Shenzhen

Figure 3.10 The altered coding template

In the third step, this coding template was used as a guide for segmenting the transcripts. The transcripts were read through many times. The segments of text that were representing meaning related to the descriptions in Figure 3.10 were classified under the corresponding code. Figure 3.11 is an example of segmenting the data using the a priori template. This is extracted from the answer to the interview question of how the new policy PDZ is to be understood in terms of higher education development by one of the interviewees from Shenzhen government. The whole paragraph is a reflection of the position of Shenzhen government in making regional policies under the PDZ. Both segments of data that are

highlighted in Figure 3.11 are about the power relationship between Shenzhen government and the central government. The segment of data of 'higher education in China, you know, it is under the unified administration of the state, of the MoE' talks about higher education governance in the Chinese system in general. It suggests central government still plays a central role in higher education governance in the current decentralised Chinese system. The direct administration of HEIs by regional government, such as Shenzhen government, is constrained by the power of central authority. This is about the overall structure of governance in the higher education system, regardless of the policy PDZ. Thus, this segment of data is classified under the preliminary code of 'existing institutions'. The segment of data of 'what can be decentralised [to Shenzhen] is decided by the MoE' talks about the influence of the power relationship between Shenzhen government and central government on a specific incident, i.e. the implementation of the PDZ in Shenzhen, rather than higher education governance in general. It suggests the power to approve the policy design by Shenzhen government remains in the hands of central authority and they have the coercive power to change the outcome of policymaking directly. Thus, this segment is labelled under the code of 'power to coerce'. The rest of the data that did not seem to fit in any category at the end of this step formed a category of others for later inductive coding.

Well the first problem is, in terms of governance, in terms of substantiating autonomy of HEIs, what kinds of autonomy should be substantiated? What power and autonomy can be given to Shenzhen? Because higher education in China, you know, it is under the unified administration of the state, of the MoE. What can be decentralised [to Shenzhen], is decided by the MoE. So we are also studying and have not yet make a decision.

 existing institutions  
 power to coerce

Figure 3.11 Example of segmentation using the a priori template

In the fourth step, the segments that are under the same code are extracted and pulled together for further interpretation. Subcodes based on the meaning of the data were then generated. The aim of further interpretation based on the data was to get more in-depth understanding of the policy making process. Figure 3.12 shows some examples of subcodes under the preliminary code of 'existing institutions'.

Broad category	Subcodes examples	Examples
Existing institutions	control for quality	To establish a [new] university in our country, starts from undergraduate education... 8 years after being accredited for bachelor degree granting can [an HEI] have master's degree level education, and 8 years later to have PhD level education. It takes about 20 years to be upgraded to PhD education.
	differentiation in funding	The provincial HEIs, like Sun Yat-sen University etc., they [provincial government] gave great support in funding
	differentiation in postgraduate enrolment	The number of annual PhD enrolment is firstly distributed to the province [government], and then it is distributed within the province, to the national HEIs or provincial HEIs. When it comes to HEIs in Shenzhen, there is not much left, just like distributing a cake.
	bureaucratic recognition	<ul style="list-style-type: none"> <li>• with the recognition by the province [government], higher education in Shenzhen looks completely different</li> <li>• if you can't get in the provincial project, you can't get recognition in the province, you can't get into the national project of DFC</li> </ul>

Figure 3.12 Examples of subcodes under the category of 'existing institutions'

By pulling all the segments of data under the same category together, themes or patterns started to emerge. Subcodes that represented similar ideas were merged into themes. For example, when subcodes about differentiation of regional HEIs from the top-tier HEIs were pulled together, a recurring theme, which was about the existing institutions functioning as a mechanism of redistribution to differentiate resources distribution by design was identified. Thus, these subcodes were merged into a theme of 'redistribution mechanism'.

The fifth step was to code the category of data of others line by line using the inductive approach. This step was to avoid the possibility that important information in the data, which was not captured by the theoretical framework, was neglected. However, themes that capture important information about policymaking in Shenzhen were not found in this category of data.

In the last step, the previous procedure for theme development was scrutinized again and the themes were reviewed against the data set to ensure they accurately represented the data.

### **3.5 Ethics**

The first priority in terms of ethical considerations of the current research was to avoid harm, both substantially and potentially, to the participants and HEIs that were involved. Efforts were made to reduce the possibility of harm in the process of data collection, data storage, data analysis and data presentation as much as possible.

#### **3.5.1 Informed consent**

Informed consent from the participants was obtained before the interviews. An information form, which explained the purpose of the research, data usage and storage, the anonymous treatment, the risk of the research, the right to retreat and the main topics of the interview, was sent to the participants a few days before the date of interview. At the beginning of the interview, this information was explained again to ensure that participants agree to proceed based on full understanding of the research and their right to retreat. Oral consent to proceed and record was obtained before the interview began.

#### **3.5.2 Confidentiality and Anonymity**

The major concern of the current research was confidentiality. Since the current research was mainly conducted in a particular city and in-depth information was necessary, there is the possibility that the identities of the participants may be inferred by those who are familiar with

the HE system in Shenzhen. Efforts were made in data analysis, storage and presentation to preserve the anonymity of the participants as far as possible. After transcription, each piece of interview data was assigned a code to substitute the name of the participant as a file name for storage. The code was only identifiable by me. All the information which can reveal information about personal identity in the data was substituted for fictionalised names. All data was stored in a password protected computer which was only accessible to me. Data will be destroyed after the completion of the current project and its subsequent publications.

Although anonymity treatment was adopted, there is still concern about confidentiality. Given that the aim of the current research is to understand the practices of WCU development in Shenzhen, which is a publicly well-known issue and supported by the state, it is not a sensitive topic thus it is assumed not likely to cause potential harm to the participants. This issue was thoroughly explained to the participants and consent to proceed was obtained prior to the interview to ensure participants had full understanding of this issue.

### 3.6 Conclusion

This chapter explains the emergent research design that was devised to examine a hierarchy among HEIs by design due to the path dependency of central planning governance remains in the current Chinese higher education system, especially after the implementation of new national WCU policy of Project DFC. Examination of this hierarchy by design is to validate the assumption of the formation of the Chinese system which is derived through historical observation using the proposed theoretical perspective. This research used a policy trajectory approach to investigate the real impacts of the national policy Project DFC. Shenzhen, as an extreme case to investigate WCU development under Project DFC, was selected since it is considered that this is the case that I can learn the most from it. Policy documents and interviews with policy actors were considered the major sources of data that is necessary to understand the real impacts of Project DFC on regional HEIs. Based on considerations on the

nature of the data and the aim of research, the choices of methods for data collection and analysis are illustrated and explained. The ethical considerations are also discussed in this chapter. The limitations of this research design will be presented in Chapter Seven. In the upcoming three chapters, the findings derived through this research design will be presented.

## **Chapter Four A Chinese WCU model motivated by a conflict of forces**

Chapter four and chapter five together present the policy design of Project DFC at national level as the answer to the first research question. The policy design suggests that Project DFC is a skilfully devised policy, the aim of which is to make minor changes to the previous policies to develop WCUs more efficiently. Three minor changes are introduced in the rules of the policy design by Project DFC. These changes indicate that the concept of WCU in Project DFC is constructed via two seemingly contrasting ideas. On the one hand, it is considered that WCUs should be HEIs with global influence and competitiveness. Global rankings, which have a tendency to take the Anglo-American model of multiversity as the norm of a WCU, were introduced as the tool for international comparison by policy makers at national government. On the other hand, it is considered that WCUs should be HEIs that make the greatest contribution to the developmental needs of the nation state. It is hoped that Project DFC encourages Chinese HEIs to tactically learn from the globally prestigious HEIs according to the actual needs of the economic and social development of the nation state. Thus, this chapter argues that the policy design of Project DFC should be seen as an interplay between the force of global institutions advocated by the neo-institutionalist model, characterised by the dominance of the Anglo-American model of higher education development, and the force of the nation state, which, in the case of China, intends to reinforce the social service function of higher education. The main purpose of this chapter is to illustrate the changes initiated by Project DFC and these changes are reflected in two elements of its policy design, goals and values, and rules. In the first section, goals and values of Project DFC, with the two conflicting ideas of WCU, are illustrated. In the second section, rules along with the three changes brought about by the policy will be presented.

## 4.1 The goals and the values of the Project DFC: the two seemingly contradictory intentions

As the analysis of the national policy documents shows, a value that underpins the implementation of Project DFC is concerned with the utility of the WCUs to the development of the nation state. Figure 4.1. illustrates this using descriptions of the values of Project DFC in national policy documents.

Values	<b>The development of WCUs and first-class disciplines … is of great significance for improving the national educational level, improving the core competitiveness of the state, and laying the foundation for long-term development (MoE, 2015b)</b>
	Accelerate the development of a number of WCUs and first-class disciplines, enhance the comprehensive strength and international competitiveness of higher education to provide strong support for the realization of the "two centenary goals" and the Chinese dream of the great rejuvenation of the Chinese nation (MoE. 2015b; 2017a).
	Adhering to Chinese characteristics and world first-class standards is … to better serve socialist modernization and the people (MoE, 2015b).
	Guided by major national needs, enhance high-level scientific research capabilities to make important contributions to economic and social development and the implementation of national strategies (MoE, 2015b).

Figure 4.1. Examples of statements of data about values

As articulated in the national policy documents, the development of WCUs is important because of their perceived utility to the core competitiveness and the long-term development of the nation state through socialist modernization. Thus, the implementation of Project DFC concerns the development of the nation state rather just than the development of higher education itself. This means that what is being emphasised is the instrumental value rather than the intrinsic value of higher education. Driven by its utility value, maintenance of 'the Chinese characteristics' and achievement of 'world first-class standard' are two goals that should be achieved by Chinese HEIs through the implementation of Project DFC (MoE, 2015b;

2017a). As stated in the policy document, ‘adhere to the Chinese characteristics and world first-class standard’ are the cores of Project DFC (MoE, 2015b). This indicates the goals of the WCU project are twofold.

#### 4.2 The intention to accelerate achievement of world first-class status and the first reform by Project DFC

Firstly, one of the goals is to develop HEIs with globally advanced research performance and influence. ‘World first-class standard’ requires Chinese HEIs to achieve a high-level of competitiveness and excellence in performance in comparison to other HEIs in the global sphere. This is because the global competitiveness of HEIs is seen as closely connected to the ‘enhancement of the indigenous innovation competence and core competency of the nation state’ (MoE, 2017a). Such an idea, which perceives enhancement of the global competitiveness of HEIs as the critical means for the prosperous development of a knowledge economy of the nation state, is not rare. As Salmi and Altbach (2011) observe, the supposed positive contributions by research universities to economic development have been widely recognised by policy makers in various countries, irrespective of the income levels of the nation state. To ensure their research universities are positioned at the frontier of research and knowledge creation has become a pressing need not only in China but also in a large number of nation states globally, because the development of WCUs are seen as having the capability to produce both high-level human capital and technological innovations to the economy. Thus, compared to the previous WCU projects, Project DFC shows an increased intention to accelerate the achievement of world first-class status by Chinese HEIs. This can be seen in a strong emphasis placed on improving HEIs’ performance in the global competition in Project DFC and a three-staged development plan with a clear time-line that is presented in the policy document:

### 3. Overall Goals

- By 2020, several HEIs and a number of disciplines enter world first-class rankings.
- By 2030, more universities and disciplines will enter the world top rankings, several universities and disciplines will become the top-tier universities globally, the comprehensive competency of higher education will be significantly improved.
- By the middle of this century, the number of WCUs and first-class disciplines in China will enter the forefront of the world and basically achieve the goal of building a country strong in higher education (MoE, 2015b).

Driven by this increased intention to achieve world first-class status, the first change to the rules initiated by Project DFC is to include international rankings as part of the criteria for HEI's selection.

#### **4.2.1 The introduction of international indicators and the imitation of advanced practices taken from global experience.**

In order to accelerate the achievement of world first-class standards, the implementation of Project DFC requires indicators through which the performance of Chinese HEIs in the global sphere can be compared and traced. Thus, the first major reform by Project DFC is the introduction of global rankings in the system of evaluation through which HEIs are compared and selected to enter Project DFC. Such a change in the selection criteria in fact reflects the expanding influence of international rankings, as an established institution in the global sphere, on shaping higher education development in the Chinese system.

The criteria for HEI selection used in the first round of Project DFC in 2017 were a combination of both domestic indicators and international indicators. According to a participant from the Project DFC Committee, domestic indicators mainly included national academic awards (i.e. National Natural Science Award, State Technological Invention Award, National Science Progress Award) and the disciplinary ranking by the MoE in 2012. International indicators mainly referred to global university rankings (QS ranking, Times Higher Education ranking, U.S. News ranking and the Academic Ranking of World Universities were the most commonly

used in China) and Essential Science Indicators (ESI<sup>16</sup>). Unlike previous projects, Project DFC innovatively used the global university rankings as part of the criteria for selection.

Selection of HEIs in Project DFC was discipline based. The first step was to select HEIs with the best performance in each discipline. In this process, the disciplinary ranking by the MoE in 2012 was the major criterion and HEIs with the best performance in this ranking were selected. The other three indicators - achievement of the three national academic awards, ESI ranking and the global university rankings - were used as complementary to the disciplinary ranking by the MoE. HEIs which had received one of the national academic awards in the previous five years, were also included in Project DFC. HEIs which entered the top 0.1% of ESI ranking<sup>17</sup> or top 50 in the global rankings were also included. Thus, the result of the selected HEIs in each discipline was a combination of the top performing HEIs in all four indicators. Taking the discipline of chemistry as an example, the HEIs that were selected in chemistry can be seen in Figure 4.2.

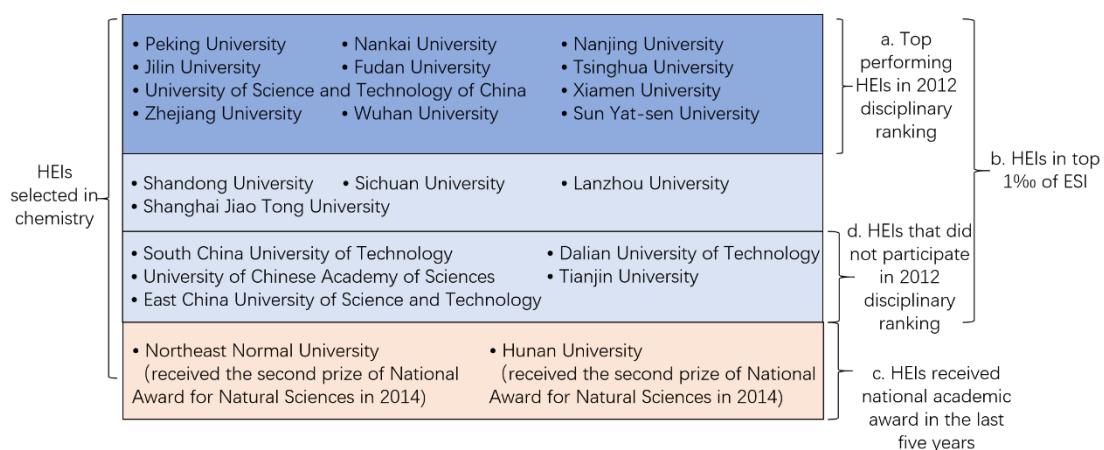


Figure 4.2 The composition of HEIs selected in the subject of chemistry.

<sup>16</sup> ESI provides citation-based research performance assessment. It uses data from Science Citation Index-Expanded (SCIE) and the Social Sciences Citation Index (SSCI) in Web of Science Core Collection to determine how well a paper, organization, etc. is performing in a certain discipline. ESI Ranking that was used in the Project DFC refers to the indicator of institutional performance. To be include in ESI ranking, the total number of citations to an HEI's research output in a certain discipline must be in the top 1% when compared to all other HEIs, who have published papers in this discipline in the last 10 years

<sup>17</sup> HEI in the top 1% of ESI ranking refers to HEI, whose total number of citations to its research output in a certain discipline is in the top 0.1% when compared to all other HEIs, who have published papers in this discipline in the last 10 years (clarivate.libguides.com, 2022)..

As can be seen, three groups of HEIs that were selected in the discipline of chemistry due to their excellent performance in three of the criteria. These were (a) the top ranking HEIs in chemistry in the 2012 disciplinary ranking by the MoE; (b) HEIs in the top 0.1% of ESI in chemistry; and (c) HEIs that have been rewarded with national academic awards in chemistry in the last five years. Firstly, the HEIs ranked from one to six in the MoE's disciplinary ranking were selected. Secondly, 20 HEIs entered the Project DFC due to their excellent performance on ESI. In late 2017, when the result of HEIs selection in the Project DFC was announced, 20 Chinese HEIs entered the top 0.1% in chemistry in ESI and all of the 20 HEIs were included in the Project DFC. For example, Beijing University of Chemical Technology was ranked seventh in the disciplinary ranking by the MoE (Appendix B), identical to Sichuan University. However, unlike Sichuan University, it was not included in the Project DFC mainly due to its comparatively weak performance in ESI. Using ESI performance as one of the selection criteria enabled a group of HEIs, which did not have the best performance in domestic indicators, to be included in Project DFC. This refers to HEIs in category (d) in Figure 4.2. HEIs in category (d) did not participate in the disciplinary ranking in 2012 and yet they were included in Project DFC mainly because they had outstanding performance in ESI. Thirdly, the two HEIs in category (c) were not the best performing HEIs in either disciplinary ranking or in ESI. But they were selected mainly because of their achievement of national academic awards. This suggest the three criteria, i.e., disciplinary ranking by the MoE, ESI ranking and achievement of the national academic awards were all used for selection.

The global rankings were used in the selection in a similar way. Taking the discipline of law as an example, five HEIs were selected in Project DFC due to their outstanding performance in the discipline of law. The HEIs that were selected and the top 10 HEIs in the 2012 disciplinary ranking in law are shown in Figure 4.3 and Figure 4.4 respectively.



Figure 4.3 Composition of HEIs in the subject of law

Four of the top performing HEIs in the disciplinary ranking by the MoE were included and the HEI ranked fifth was excluded in Project DFC. Tsinghua University, although it has a comparatively weak performance in the MoE's ranking and was ranked at sixth, was included mainly because it was ranked 33<sup>rd</sup> in the QS University Rankings in the discipline of law and legal studies. Thus, it can be seen that the international indicators and domestic indicators were used complementarily for HEIs selection of the Project DFC<sup>18</sup> in 2017.

The result of disciplinary ranking by MoE in law in 2012		
1	Renmin University of China	95
2	China University of Political Science and Law	92
3	Peking University	90
4	Wuhan University	86
5	East China University of Political Science and Law Southwest University of Political Science and Law	84
6	Tsinghua University	82
7	Jilin University Zhongnan University of Economics and Law	80
8	Xiamen University	79
9	Shanghai Jiao Tong University Nanjing University	77
10	Fudan University Nanjing Normal University Shandong University Sichuan University	76

Figure 4.4 The top 10 HEIs in the disciplinary ranking by MoE in law in 2012. Source: China Academic Degrees and Education Development Center

Introducing the international indicators as part of the criteria for HEI selection suggests a large change to the rules, according to which an HEI's eligibility to be included in the top tier is determined. This alters the composition of HEIs in the top tier. HEIs which used to be a member of the top-tier because they were one of the best performing HEIs according to the standard of excellence by the central authority in China are likely to be dropped from the elite group. For example, Beijing University of Chemical Technology should be considered as one of the best HEIs in the discipline of chemistry according to the standard by the MoE since it was ranked seventh domestically. However, it was excluded from performance-based

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<sup>18</sup> The majority of the HEIs in the Project DFC and the disciplines that each HEI should focus on developing were selected and confirmed according to the above-mentioned criteria by the national committee for the Project DFC, except for a small number of HEIs. These HEIs were included due to considerations of national development by central government, not by their outstanding performance in any of the indicators. After selection by the Project DFC committee, the potential list of HEIs was reviewed by policy makers in central government and they had the authority to make adjustment and final decisions on the selection. As a result, adjustments were made based on considerations of national development. These HEIs that were nominated by central government were allowed to select one or a few disciplines. For example, Xinjiang University was allowed to select three disciplines due to the consideration of supporting and accelerating the development of western China.

selection in the first round. HEIs which may not be considered as one of the elite universities according to the domestic standard may nonetheless manage to get into Project DFC. In the above example of chemistry, over one fifth of the limited positions in Project DFC were given to HEIs, which did not participate in the disciplinary ranking by the MoE. The introduction of the international indicators thus changes the composition of the elite group.

What is more, it also indicates that international rankings have been institutionalised as credible indicators for higher education excellence in the Chinese system. In order to enter the elite group in the Chinese system, HEIs are required to tailor their performance not only to the standard set by the MoE but also to that of the international rankings. Driven by the goal to accelerate Chinese HEIs' achievement of world class status, indicators which can provide relational comparison of the performance of Chinese HEIs and other HEIs in the global sphere are then necessary. The domestic indicators which were developed to measure and evaluate the performance of only Chinese HEIs fail to serve the purpose of global comparison. In this case, the international rankings are used as handy tools that serve the aim of Project DFC. They not only provided the policy makers with convenient instruments to compare the global competitiveness of Chinese HEIs against each other, but more importantly, they provided an easy tool to evaluate their progress in global rankings. The global university rankings, especially, provided easy identification of the best-performing HEIs and a convenient calculation of the improvement of each individual HEI. Achieving a certain numerical ranking or not can then be used as a clear-cut standard for selection. Apart from for their convenience as a standardised benchmark for selection, the global rankings also provide straightforward calculation of the gaps between the selected HEIs and the internationally prestigious universities. Chinese HEIs' progress in performance can then be easily judged by how much that gap has been narrowed.

Consequently, the introduction of international rankings in the selection criteria has driven the institutionalisation of these rankings in the Chinese system and the active participation in global rankings by a large number of HEIs in China. Especially for non-DFC HEIs, in order to

increase their opportunities to become involved in the national WCU project, pursuing better performance in the global university rankings has been an important part of their agendas for future development. During the fieldwork, achieving better performance in global university rankings was referred to as a standardised representation of quality enhancement. As interviewee G stated,

What counts as high quality higher education? The Project DFC... is a Chinese standard. We have not bad performance on global rankings. We hope to enter the top 100 by 2035.

Thus, substantial changes in the actions of individual HEIs have taken place along with the institutionalisation of global rankings in the Chinese system. Since these rankings tend to advocate the same type of university as the norm, which is the large-sized comprehensive 'multiversity' characterised by coverage of a wide range of disciplines and schools and intensive research activities (Cantwell et al., 2018; Marginson & van der Wende, 2007a), institutionalising these global rankings in the Chinese system, as a result, may encourage Chinese HEIs to take the top-ranking universities as the norm and require them to reform through imitation of the norm.

The rationale of improving HEIs' international competitiveness through learning from the globally prestigious universities was not firstly developed in Project DFC. As Shi (2018) suggests, Tsinghua University has been comparing itself to American universities since the early 2000s. In Project 985 period, policy makers of Tsinghua University referred to HEIs from the Association of American Universities as the reference for performance comparison. The gaps between Tsinghua and these universities were shown through comparison with the average of Association of American Universities on a matrix of indicators, which were seen as representing the common qualities of WCUs including disciplinary development, creative human capital cultivation, research outcomes, faculty quality and funding. The results of comparison then showed the indicators and dimensions that should be worked on to approach the quality and standard of these universities.

Although it was not initiated by Project DFC, such a rationale of progression through imitating the globally dominant model is disseminated to a wider range of HEIs in the Chinese system through its implementation. Firstly, this can be clearly seen in the action plans of the selected HEIs in Project DFC. After being selected, each HEI was required to develop an independent action plan for Project DFC (MoE, 2017a). According to a participant from the Project DFC committee, similar to the above-mentioned case of Tsinghua University, the development process of the action plans in most DFC HEIs followed a rationale of benchmarking management. The selected HEIs were advised to identify one or several high-ranking domestic or overseas universities as the model for comparison. While exhaustive information about the action plans of the selected HEIs is not available because the full texts of the action plans were not open to the public, Yuan et al. (2019) provides details of the action plans that were made. Individual HEIs themselves determined the matrix of indicators which were used to compare with the model university through studying the methodologies of global rankings and the rankings awarded by the ESI database. Indicators which were considered to influence institutional performance on the rankings were then selected and used for comparison. According to the result of the comparison, individual HEIs determined the goals of the action plans with the aim of approaching or even exceeding the model university in terms of the selected indicators.

For HEIs in tier two of Project DFC, which were selected in only one or few disciplines, their action plans tended to focus on the improvement of the selected disciplines. They were advised to choose the best-performing universities in disciplines that they concentrated on and set up the goals for the action plan through a similar process. What is more, the action plan, which was determined by the HEIs themselves, was important for evaluation of the outcomes of Project DFC. HEIs' performance in Project DFC was evaluated by their achievement of the goals in the action plans, according to the participant from the Project DFC committee. The result is critical for HEIs' continuous involvement in Project DFC and their amount of funding for the next round. Although such a rationale of benchmarking through comparison and imitation of the best-performing universities was developed in previous

WCU projects, it has been further normalised and imposed on a much wider range of HEIs with the implementation of Project DFC.

Secondly, the rationale to imitate the globally prestigious HEIs can also be reflected in the proactive participation in global rankings by an even wider range of non-DFC HEIs, as mentioned earlier. In order to achieve better performance in global rankings, imitating the practices of the globally prestigious HEIs and developing a strategic action plan according to the requirements of global rankings seem necessary. Thus, taking global rankings as the norm of world class standard in fact has initiated imitation of and comparison with the universities that dominate the top-tier of the global rankings by a wide range of HEIs, regardless of their status in the Chinese system.

Such a change brought about by the implementation of Project DFC in fact indicates the strong influence of the international institutions of higher education in the global sphere. The taken for granted adoption of global rankings as the criteria for global comparison and reference, in effect substantiates the dominance of the multiversity model of WCU development, which is derived from the Anglo-American systems in the global system. Although Project DFC shows a spontaneous intention to participate in the WCU movement, the necessity to imitate the prestigious HEIs that is expressed in the policy reflects the institutional structure of the global environment for higher education development and competition, which is characterised by the domination of the Anglo-American model of multiversity. Thus, in order to participate in the WCU movement, Chinese HEIs are required to take the Anglo-American multiversity as the model and imitate it for better performance in global rankings. Consequently, the introduction of global rankings in the Chinese system should be seen as being influenced by the force of the global institutions of higher education development.

#### 4.3 The intention to reinforce social service function and the second reform by Project DFC

Although Project DFC, indeed, further encourages Chinese HEIs to approach and learn from the globally dominant model of HE provision, it also seems that there is an intention to skilfully adjust such a model to fit the Chinese context in the advocacy to adhere to 'Chinese characteristics'. In this section, the meaning of the goal 'adhering to Chinese characteristics' will be firstly explained and secondly, the changes in the rules of selection that is triggered by this goal will be illustrated.

The goal of adhering to Chinese characteristics requires HEIs to reinforce their social service function to contribute to the development of the nation state. As explained in the MoE's document (2022), adhering to Chinese characteristics means WCU development 'should take root in the Chinese context'. This in fact requires that higher education development be context specific and based on what is needed in the Chinese context. As is explained later in the same document,

the direction of higher education development should be closely connected to the future development of the nation state, serve the needs of the people, serve the needs of governance of the CPC, serve the needs of strengthening the socialism with Chinese characteristics, serve the needs of reform and opening up, and serve the needs of socialist modernisation.

Thus, at the heart of the meaning of the Chinese characteristics is a social service function, which emphasises that higher education development should be based on the actual needs of the nation state and the Chinese society. This requires that serving the interests of the nation state should be the aim of all activities in higher education. As stated in the national policy documents,

[The development of a group of WCUs] is to improve HEIs' levels in human capital cultivation, research, social service and cultural inheritance and innovation to make them important forces in scientific discovery and technological innovation, important sources for advanced ideas and

excellent culture and important bases for cultivating all kinds of high-quality talents. So that they can make a significant contribution to supporting the innovation-driven development strategy of the nation state, serving economic and social development, transmitting excellent Chinese traditional culture, disseminating the core values of socialism, and promoting the quality development of higher education (MoE, 2015b).

This suggests the social service function is multi-dimensioned. First of all, it emphasises the contributions of WCUs to the economic development of the nation state. Similar to the political agendas of many other countries, WCUs are seen as critical to the development of a knowledge economy in Project DFC (Salmi & Altbach, 2011). However, what is being emphasized in Project DFC is a more straight-forward model of WCU which can make contributions directly to the economy and the society. Figure 4.5. shows some examples of the data correlated to the goals of serving the economic development of the nation state.

As can be seen in these examples, it seems to suggest that serving the needs of national economic development should be taken as the aim of higher education activities, especially in research. Project DFC sets out priorities for HEIs in the planning of their research activities. It requires HEIs to focus on the fields of studies which may contribute more significantly and directly to the needs of economic development.

As well as contributing to economic development, the social service function also includes a dimension of contributing to the social development of the nation state. This can be seen in the orientation of research for the non-STEM subjects. It is considered that the purpose of research in these subjects is to function as intellectual hubs for better social planning and decision making. Examples of the data relating to contributions to social development are also listed in Figure 4.5.

Such orientation to prioritizing the needs of the nation state can also be seen in teaching activities. It is considered that education activities of WCUs serve the purpose of disseminating socialist values and ideology. As articulated in the national policy documents, Project DFC aims to cultivate 'constructors and successors for the development of socialism with Chinese characteristics' (MoE, 2015b). Different from what has been summarized in the existing

literature, this seems to indicate that the aim of education in WCUs is not merely to cultivate highly developed human capital with advanced knowledge, it is also to cultivate citizens with a collective sense of identity of being Chinese and accepting the traditional culture and the ideological values of China.

			(The implementation of the Project DFC) must strive to fulfil the needs of the significant strategies of the nation state, serve the main battlefield in economic development, target the global science frontiers ... highlighting disciplinary integration and collaborative innovation, highlighting the close connections with industrial development, social needs and technological frontiers (MoE, 2017a).
	Contributions to economic development		Strengthen the development of the disciplines related to national security or the vital interest of the nation state, encourage the development of emerging sciences and inter-disciplinary sciences, develop a group of disciplines for the urgent needs of the nation state, for support of industrial transformation and upgrading and regional development (MoE, 2017a)
			Basic research should sit at scientific frontiers and present strong capacity for making original innovation and producing new knowledge with great influences. Applied research should be able to solve the significant technological and engineering problems in economy or achieve transformative technological innovation (MoE, 2017a)
Social service		Think-tank for social decisions	Develop think-tanks with Chinese features and global influence to improve HEIs' capability of serving national decision making (MoE 2015b)
	Contributions to social development		Research in philosophy and social sciences should provide effective support for the solution of empirical problems and the development of major theories related to economic and social development of the nation state (MoE, 2017a)
			To form high-level think-tanks with Chinese features and global influences to make significant contributions to national and regional economic transformation, industrial upgrading, national security and public security (MoE, 2017a)
		Dissemination of socialist ideology and citizenship education	Inherit and innovate excellent culture Strengthen the role of HEIs in cultural construction. Increase the confidence in traditional culture and socialist institution, develop excellent culture and spirit that can facilitate social progression in each WCU with their own characteristics. Insist to guide education with socialist values and ideology, integrate the system of socialist core values in the whole process of education... Enhance research and promotion on excellent traditional culture and the socialist core values...fully utilize the traditional culture in education to facilitate the development of an advanced culture (MoE, 2017a).

Figure 4.5 Examples of data bits relating to social service

All these indicate that Project DFC targets WCUs that can correspond directly to the actual needs of the social and economic development of the nation state. A more detailed explanation about the contents of HEI's various activities will be presented in Chapter Six using the case study of Shenzhen.

Driven by an orientation of social service based on contextual realities, Project DFC requires HEIs in China to learn from the globally prestigious HEIs selectively, to imitate only what is considered to be needed in the Chinese context, rather than simple imitation which takes the globally dominant model as granted. Such an orientation of strategic imitation is also mentioned by interviewees in Shenzhen. As interviewee I explained the idea of WCU as the goal of HEI's development,

As President Xi says, we develop our own universities in China, we are not developing another Stanford or Harvard in China, but we are learning from their ways of development.

This indicates an intentional deviation from the dominant model of multiversity from which the Chinese HEIs are learning. Rather than simply replicating the globally dominant model of multiversity, the norm of WCU that is constructed by Project DFC seems to be different from the global model of multiversity, since it is required to be based on actual needs of the nation state. The intention to maintain such a 'Chinese characteristic' of HEIs is firstly reflected in the adoption of a combination of both international and domestic indicators as the criteria for HEI selection. It seems that the main reason for using a set of combined criteria is that the extent to which HEIs contribute to serve the needs of the nation state cannot be captured and compared by the international indicators. This can be seen from the concerns of using global rankings as the standard of excellence in the Chinese system.

Apart from the commonly seen criticism of global rankings regarding their flawed methodologies in the global academic community, reliance on these rankings as the standard of excellence under the implementation of Project DFC has also raised concerns about impairing the maintenance of Chinese characteristics of the HEIs (Shi, 2018; Zhong & Wang,

2020; Zhou & Wu, 2016; Zhou et al., 2019). Reliance on global rankings as the criteria of excellence may, firstly, lead to homogeneity since global rankings tend to take only certain higher education activities into account and fail to comprehensively assess the all-around functions of HEIs in China (Zhou et al., 2019). For example, the promotion of the traditional culture, which is considered to be an important function of HEIs in China, cannot be effectively measured in the global rankings. Stressing upward mobility in global rankings may encourage HEIs in China to focus and invest exclusively in research and education activities, which may influence the outcomes of global rankings, and create a group of HEIs that share a number of similarities. Secondly, taking the minimisation of the gap in terms of performance on global rankings between Chinese HEIs and their selected model HEIs in order to measure the improvement of HEI's may result in simple imitation without critical judgement, which may downgrade the original features of the individual HEI and lead to the traditional legacy of the Chinese HEIs, such as the function of preserving and transmitting traditional culture and ideas, being abandoned (Yuan et al., 2019; Zhou & Wu, 2016). Lastly, and also most importantly, over-reliance on the standards of excellence of global rankings may hamper the social service function of Chinese HEIs and result in failure to adapt to the actual circumstances and needs of the state and the society (Shi, 2018).

Therefore, the requirement to measure and compare the performance of HEIs in terms of the social service they provide to the nation state seems to explain why the domestic indicators remain an important part of the criteria for selection of HEIs in 2017. As interviewee E commented,

Our performance on global rankings may not be very helpful for entering the Project DFC... because they [the global rankings and the domestic indicators in the Project DFC] are very different systems of evaluation.

This suggests that what is being measured and how the standard of excellence is constructed in the domestic indicators may be different from those in the global rankings. Although the domestic indicators, which are developed to evaluate HEIs in the Chinese system, provide little information for the aim of global comparison, they measure and compare the

contributions to the nation state that are made by individual HEIs, and this is what the global rankings and ESI rankings cannot achieve. Among the domestic indicators, the disciplinary ranking by the MoE is the one which can provide comparison of performance of HEIs. Thus, it is the one which has been widely referenced by provincial or regional government and individual HEIs for the strategy of development. Figure 4.6 shows the methodologies of the four global rankings and the disciplinary rankings in 2012.

<b>Disciplinary ranking in 2012 (indicators may be different depending on subjects)</b>	<b>Areas</b>	<b>THE Ranking</b>	<b>QS Ranking</b>	<b>U.S. News</b>	<b>ARWU</b>
<ul style="list-style-type: none"> <li>1. Research talents: academicians of Chinese Academy of Science or Engineering, Thousand Talents Plan, Changjiang Scholar Project, The National Science Fund for Distinguished Young Scholars etc.</li> <li>2. Faculty-student ratio</li> <li>3. Full-time teachers number</li> <li>4. National key disciplines number</li> <li>5. National key laboratories number</li> </ul>	<b>Quality of faculty</b>				<ul style="list-style-type: none"> <li>• Staff of an institution winning Nobel Prizes and Fields Medals: 20%</li> <li>• Highly cited researchers: 20%</li> </ul>
<ul style="list-style-type: none"> <li>6. Quality of published papers; highly cited papers on ESI papers on Science/Nature, total number of other citation etc.</li> <li>7. Published papers per faculty</li> <li>8. Patents</li> <li>9. Funded research projects: national projects, provincial projects or collaborated projects with overseas institutions or other significant projects</li> <li>10. Academic awards: national or provincial awards</li> <li>11. Awards for design (for arts or architecture)</li> </ul>	<b>Research</b>	<ul style="list-style-type: none"> <li>• Reputation survey: 18%</li> <li>• Research income: 6%</li> <li>• Research productivity: 6%</li> <li>• Citations: 30%</li> <li>• Industry income: 2.5%</li> </ul>	<ul style="list-style-type: none"> <li>• Academic reputation: 40%</li> <li>• Citations per faculty: 20%</li> </ul>	<ul style="list-style-type: none"> <li>• Global research reputation: 12.5%</li> <li>• Regional research reputation: 12.5%</li> <li>• Publications: 10%</li> <li>• Books: 2.5%</li> <li>• Conferences: 2.5%</li> <li>• Normalized citation impact: 10%</li> <li>• Total citations: 7.5%</li> <li>• Number of publications that are among the 10% most cited: 12.5%</li> <li>• Percentage of total publications that are among the 10% most cited: 10%</li> <li>• International collaboration: 10%</li> <li>• Number of highly cited papers that are among the top 1% most cited in their field: 5%</li> <li>• Percentage of total publications that are among the top 1% most highly cited papers: 5%</li> </ul>	<ul style="list-style-type: none"> <li>• Papers published in Nature and Science: 20%</li> <li>• Papers indexed in Science Citation Index-Expanded and Social Science Citation Index: 20%</li> <li>• Per capita academic performance of an institution: 10%</li> </ul>
<ul style="list-style-type: none"> <li>12. Quality of doctoral thesis</li> <li>13. International communication</li> <li>14. Number of Doctorate/Masters degrees awarded</li> <li>15. Teaching awards: national or provincial awards</li> <li>16. Teaching materials</li> <li>17. Academic reputation</li> </ul>	<b>Education</b>	<ul style="list-style-type: none"> <li>• Reputation survey: 15%</li> <li>• Staff-to-student ratio: 4.5%</li> <li>• Doctorate-to-bachelor's ratio: 2.25%</li> <li>• Doctorates-awarded-to-academic-staff ratio: 6%</li> <li>• Institutional income: 2.25%</li> </ul>	<ul style="list-style-type: none"> <li>• Employer reputation: 10%</li> <li>• Faculty student ratio: 20%</li> </ul>	<ul style="list-style-type: none"> <li>• Alumni of an institution winning Nobel Prizes and Fields Medals: 10%</li> </ul>	
<ul style="list-style-type: none"> <li>• Proportion of international students: 2.5%</li> <li>• Proportion of international staff: 2.5%</li> <li>• International collaboration: 2.5%</li> </ul>	<b>Internationalisation</b>	<ul style="list-style-type: none"> <li>• International faculty ratio: 5%</li> <li>• International student ratio: 5%</li> </ul>			

Figure 4.6 the assessment systems of disciplinary ranking in 2012 and four global rankings

It appears that the measurement of the social service function of an individual HEI was an important part of the methodology of the disciplinary ranking in 2012. Firstly, the social service function was an important part of the assessment of research performance. This is reflected in the 9<sup>th</sup> indicator. The award of the research projects funded by the national government and its subordinate departments and provincial government is one of the important indicators for research excellence. Since they are funded by the government or agents of the government, such as the National Natural Science Foundation and the National Office for Philosophy and Social Science, they tend to be restricted to research directions, or even topics, which are considered to be critical for the current or future developmental needs of the Chinese state/provinces. What is more, the value of these government funded research projects are differentiated and so are the values they bring to bear on HEI's assessment of research performance. Research projects which are considered to be more important for the nation state tend to be seen as more valuable. Projects at national level, which are designed to serve the developmental needs of the nation state, tend to be seen as of greater value than provincial projects (Ding, 2014). The large-scale or the key national projects tend to be seen as of greater value than ordinary national projects (Ding, 2014). These large-scale or key projects tend to receive higher funding. However, the directions of these projects tend to be more strictly regulated within a range of research directions which are considered to be of critical importance for national development by the funding body (National Natural Science Foundation, n.d.). The application process for the more valuable projects tends to be more difficult because of more intense competition and more stringent requirements. Taking the attainment of these projects as an important indicator for HEI's research performance is therefore measuring to some extent how HEIs are serving the development of the nation state/provinces through research activities. HEIs which obtain higher-level projects are then considered to have a more significant contribution to the nation state and, therefore, tend to be more highly evaluated in research performance.

Similarly, assessment of HEI's contributions to the nation state is also an important part of the assessment of faculty quality. This can be seen in the 1<sup>st</sup> indicator. The academic titles of the

faculty members is one of the important indicators for faculty quality. Researchers with academic titles in the Chinese system refer to academic elites, including academicians in the Chinese Academy of Science or Engineering and researchers that are involved by government in the ‘talent projects’, which are designed for recruitment or cultivation of high-level talents. These plans are implemented with the aim of increasing the number of high-level intellectuals for the state’s current or future developmental needs. The Changjiang Scholar Project can be taken as an example. This is a national project by the MoE with the aim of developing a group of academic leaders with international influence (MoE, 2018a). Researchers that are given the title ‘Changjiang Scholars’ are ‘star’ researchers who ‘have significant influence in a certain discipline and have significant achievements that are recognised by the global research community’ (MoE, 2018b). It is also required that researchers who are nominated as Changjiang Scholars should ‘undertake key national research projects for the state’ and should undertake research in directions that correspond with national plans in the development of education and research. Thus, taking these academic titles as part of the indicators for the assessment of faculty is requiring HEIs to recruit and cultivate academic elites, whose expertise can be utilised for the developmental needs of the nation state.

Although the methodology of the disciplinary ranking by the MoE has been changing, these indicators, which relate to the measurement of social service by an individual HEI, remain in the 4<sup>th</sup> disciplinary ranking in 2017 and 5<sup>th</sup> disciplinary ranking in 2020. Thus, measurement of HEI’s contributions to the developmental needs of the nation state is important in the assessment of an HEI’s performance. Through the disciplinary rankings, an HEI’s performance in terms of provision of social service can then be measured and compared and the HEIs which can create the greatest contributions to the nation state can then be selected. Such a function of assessing HEI’s social service function cannot be achieved by any international indicators and thus, using the disciplinary rankings as part of the criteria for HEI selection is important to maintain the social service function as the core of the Chinese model of the WCU.

#### **4.3.1 The deviation from the multiversity model of WCU and using discipline as the unit of development**

Such an orientation to reinforce the social service function of WCUs is more evident in the second reform of Project DFC. This reform suggests a further deviation from the globally dominate model of multiversity to better fit the Chinese context by taking discipline as the unit of WCU development.

As mentioned above, the idea of learning from the prestigious HEIs in the global sphere was not an idea created under the implementation of Project DFC but was developed in previous WCU projects (Shi, 2018). Previous WCU policies including Projects 985 and 211, took each HEI as the unit of development and emphasised the overall improvement of the selected HEIs. This means that these WCU projects encouraged each HEI to improve in all discipline areas at the same time.

This suggests previous WCU projects considered excellence in all discipline areas as the standard of the WCU, which was the standard presented by the model of multiversity. Thus, emphasising the achievement of excellence in all discipline areas reflects the adoption of the multiversity as the norm of WCU development and the intention to encourage all HEIs that were in the WCU projects to develop into large-sized and research-intensive universities in China. However, this seems to be contrary to the achievement of rapid enhancement of the selected HEIs. In order to achieve excellence in all disciplines, the selected HEIs were oriented to devote resources to all-around development in every discipline with the aim to catch up with the globally renowned universities, regardless of whether such an aim to achieve excellence in all discipline areas in a short time was practical for Chinese HEIs. The expensive financial input required to develop HEIs of 'versatility' and the slow progress of narrowing the gaps between the globally prestigious HEIs then raised concerns about the problems of inefficiency.

Firstly, many of the selected HEIs distributed their resources evenly across all disciplines without consideration of actual needs. The development of some disciplines which had greater need for resources or had a better foundation for development was slowed down while some disciplines, which required fewer resources, had surplus resources (Ding, 2011). Secondly, undifferentiated distribution without strategic planning led to homogeneity among HEIs. With a group of HEIs being required to develop a wide range of disciplines yet without differentiation, there was the tendency of overlap in directions of research and teaching activities (Bao & Chang, 2016). As a result, similar research outcomes and excess human capital with similar skill sets were produced, which was perceived by the policy makers as a waste of resources. Lastly, and also most importantly, distributing resources evenly over a wide range of disciplines suggested including some disciplines which were considered as serving less to meet the developmental needs of the state because the research outputs and human capital that were produced by them tended to have less value in economic production (Ding, 2011; Zeng et al., 2018). As a result, the improvement to HEIs' function to serve the state's economic and social development tended to be limited.

Thus, Project DFC was designed to address these inefficiency problems by changing the unit of development to that of discipline (MoE, 2015b; 2017a). HEIs are selected according to their ranking performance (including domestic and global rankings) on the predetermined range of disciplines and only the best performing HEIs in each discipline were selected. Enhancement of each selected discipline was critical for the assessment of HEIs' performance in Project DFC. Thus, ESI, which is widely used as an indicator for disciplinary based research performance, was included as one of the major criteria for the first round of HEI selection in 2017.

Taking discipline as the unit of development firstly suggests the adaptation of a changed strategy in global higher education competition. It encourages HEIs to focus on the development of a limited number of disciplines which tend to have rapid enhancement, with strategic planning and resource concentration. As a result, rapid improvement of the

disciplines in focus is possible. There is a greater chance for Chinese HEIs to obtain upward mobility in global rankings and to narrow the gaps with the top-ranking western universities in the selected discipline areas in a short time. Thus, the efficiency of the national WCU project can be enhanced.

Secondly, using discipline rather than HEI as the unit indicates the norm of what is to count as a WCU has been modified under the implementation of Project DFC. The large comprehensive university, which is the most commonly seen model of WCU represented by the prestigious western universities, is no longer taken as the only form of WCU. HEIs which specialise in one or certain disciplines with outstanding performance can also be considered as WCUs. The traditional standard of excellence borrowed from the model of multiversity, which is excellence in all discipline areas, is thus modified. As interviewee F commented,

What is the meaning of the Project DFC? I think it is to concentrate resources on the development of disciplines, on one discipline. Because the reputation of a university to a great extent depends on the disciplines, the excellence in disciplines is paramount for many globally renowned universities.

With this reform, a model of WCU which is more suitable for Chinese HEIs was constructed to avoid uncritical imitation of the model of multiversity (Cantwell et al., 2018).

Thirdly, this reform reinforces the social service function of the selected HEIs, which is the core of the Chinese model of WCU. Using discipline as the unit for HEI comparison and selection effectively orients HEIs to focus on the disciplines which are considered as more useful in the economic production by policy makers of the state. This can be supported by the fact that disciplines were not equally valued in HEIs selection in Project DFC in 2017. As described in the national policy document (MoE, 2015b), one of the goals of Project DFC is to ‘optimise the structure of disciplines’, which means to achieve a better coordination among disciplines to optimise social service of the whole higher education sector. Disciplines, such as STEM

disciplines which tend to produce more applicable outcomes for practical economic activities, are more highly valued. In reality, STEM disciplines carry more weight than humanities and social sciences since they account for almost 70 % of the disciplines that are involved in Project DFC (MoE, 2017b). For example, 30 HEIs were selected because of their advanced performance in the discipline of material science and engineering while only two HEIs in education were selected in Project DFC. For the HEIs enrolled in Project DFC, it is required that they distribute a great proportion of resources to prioritise the teaching and research activities of the disciplines according to which they were selected in order to maintain their positions in Project DFC; the design of the action plan of each selected HEI was grounded on the development of these disciplines (MoE, 2017a). Assessment of HEIs' performance in Project DFC is thereby based on the improvement of the disciplines (MoE, 2020c).

What is more, more HEIs were selected in STEM disciplines also suggests improving performance in these disciplines may provide greater opportunity to enter Project DFC. Non-DFC HEIs may earn mobility to enter Project DFC through concentrating resources on STEM disciplines. The major 'inefficiency issue' of previous WCU projects, which refers to the overly average resource distribution on a wide range of disciplines, can then be effectively addressed. As a result, HEIs automatically reschedule resource distribution and focus on the production that is deemed as useful to serve the state's economic and social development. The social service function of the Chinese HEIs is then reinforced through the changes brought by Project DFC.

#### 4.4. The third reform of performance-based competition for HEI selection by Project DFC

Along with the third reform, which is a competition mechanism for HEIs selection, Project DFC seems to show an intention to change the existing HEI hierarchy, which is established to a great extent by design, to a performance-based hierarchy. In order to ensure the selected

HEIs' high-quality performance that is targeted by the policy, the employment of such a competition mechanism enables constant review and comparison of the performance of the selected HEIs against the standards of excellence set by the state. Thus, with a competition mechanism in place, it seems that Project DFC transforms the previously closed elite sector into an open league table, in which the HEIs that are involved can be changed or dropped.

This reform seems to allow greater mobility for HEIs in the Chinese system. Those HEIs which have been selected in Project DFC may be dropped and replaced if they fail to keep pace with the competition. HEIs in the lower strata, they may be given the opportunity to become a member of the elite sector if evidence of outstanding improvement of performance is presented. Thus, it seems to suggest more opportunities of upward mobility for HEIs in the lower strata.

Furthermore, the difficulty to compete with the HEIs in the elite sector for upward mobility seems to be greatly reduced with the second reform. Taking each HEI as the unit of performance assessment, HEIs in the lower strata have to compete with the elite HEIs in all discipline areas in order to become a member of Project DFC. This appears to be extremely difficult because many of the elite HEIs have accumulatively invested in the development of a comprehensive range of disciplines through continuous participation in previous WCU projects. Competing with them thus requires a great amount of investment of resources. However, the competition now seems to be much easier with discipline as the unit of analysis of performance. It seems possible that HEIs in the lower strata can improve the performance of one or a few disciplines rapidly and compete with the Project DFC HEIs through resource concentration and strategic planning in a certain discipline(s). Thus, the aspiration to enter the national WCU project by policy actors in regional government and regional HEIs has been greatly encouraged by the implementation of Project DFC. As interviewee E commented,

The Project DFC emphasises the development of disciplines and I think this is a great improvement.

It is possible that the overall performance of a university [in all discipline areas] may not be very

good but it can enter the national level [WCU projects] in certain disciplines and receive support

from the state. It works even if only certain disciplines can [achieve the first-class standard] but the university on the whole cannot [achieve the first-class standard]. This [excellence in disciplines] corresponds with the current trend of international higher education development.

Thus, combined with the second reform, Project DFC seems to reduce the difficulty for mobility to a great extent. As a result, a large number of HEIs in the lower strata proactively improved their performance against the requirements of selection in the predetermined disciplines. For example, according to Chen et al. (2018), 29 out of 31 provinces have initiated their own provincial projects that shows obvious relevance to Project DFC for the further development of HEIs within the province. Therefore, when compared to previous WCU projects, the influence of Project DFC has expanded to a much wider range of HEIs in the Chinese system and more HEIs are spontaneously reshaping themselves according to the standards set by the central authority, producing the products targeted by the policy and improving their function of social service for the needs of the state.

Seen from the surface, the initiation of Project DFC in China seems, therefore, to converge with the trend of using performance-based financing as a means of governance in many countries (Beerkens, 2022; Marginson, 2018b). By initiating performance-based comparison, and linking funding to HEI's performance, this reform in financing has been used as a technique for reinforcing government control to enhance efficiency and accountability of higher education in many countries, including those that are market-oriented, by fostering competition in rankings that are liked to state funding (Beerkens, 2022; Marginson, 2018b). This would suggest a process of convergence between the development of the Chinese higher education system and other systems globally. However, as will be seen in subsequent chapters, through in-depth investigation from the perspective of HEIs, this thesis argues that what is happening in the Chinese system under the implementation of Project DFC may be slightly different. The policy design of Project DFC seems to show a strong intention to maintain the previously established HEI hierarchy because of the path-dependence of the central planning governance, which can be traced back to when the Soviet model was

introduced and established in China. It will be argued that central planning remains, from the perspective of policy makers, the more efficient way of resource distribution in higher education. Thus, the previous hierarchy among HEIs which was established under central planning and allows the central authority to determine who gets what in the Chinese system, may be considered to continuously contribute to national interests. Therefore, although competition is allowed, the mobility of HEIs in the hierarchy is highly limited since the established hierarchy, as an institution for maximising national interests, is difficult to reverse, as will be illustrated in the next chapter.

#### 4.5 Conclusion

This chapter illustrated two elements, i.e. the values and the goals and the rules, of the design of Project DFC. Driven by the value of providing social service for the nation state, the norm of WCU in the Chinese system seems to be constructed by two seemingly contrasting ideas, which, on the one hand, emphasise achievement of a global standard of excellence while on the other hand adhering to the maintenance of Chinese characteristics as core to the mission of Chinese HEIs.

The tension of these two seemingly conflicting forces triggers the implementation of Project DFC and initiates three major changes in the rules of its implementation. On the one hand, Project DFC reflects an intention to accelerate the achievement of world first class standard by HEIs in the Chinese system through changing the criteria of HEI selection. With the global rankings and ESI rankings being introduced as an important part of the criteria, HEIs are encouraged to accelerate the achievement of world first-class standard by referring to the global rankings for performance comparison and learning from the top-tier HEIs in these rankings. As the model of multiversity tends to be taken as the norm of the WCU by the global rankings, reference to these rankings as the standard of world first-class encourages imitation of the globally dominant model of multiversity in the Chinese system.

However, the intention to maintain Chinese characteristics, which means to take serving the actual needs of the nation state as the primary aim of higher education, may encourage HEIs to selectively learn from the multiversity model. Driven by the aim to reinforce the social service function of the WCUs, Project DFC uses discipline as the unit for performance measurement and comparison. This change in the rules reflects a deviation from the globally dominant model of multiversity. It indicates a rationale that is contradictory to that of the large-scale, comprehensive multiversity by suggesting excellence in a certain discipline rather than excellence in all subject-areas. Such a reform in the rules encourages concentration on the development of the disciplines which are considered more constructive for the development of the nation state.

In the next chapter, the remaining three elements of the policy design of Project DFC will be presented. These three elements indicate a redistribution mechanism, which reflects central planning remain in the governance regime of the current Chinese system and contribute to maintain the hierarchy of Chinese HEIs.

## **Chapter Five Central planning and path dependence: the governance of the Chinese higher education system**

This chapter continues to illustrate the policy design of Project DFC at national level and includes the rationale, the policy tools and the implementation structure of the policy design. The illustration of these elements will answer the fourth research question: to what extent has a competition-based mechanism been established to inform the HEI hierarchy under the implementation of Project DFC?

Seen from its overall design, Project DFC is a refined device, which was devised to make small adjustments to the previous WCU policies. The previous chapter presented elements that have been changed while this chapter is going to illustrate the elements that are unchanged in Project DFC from previous WCU policies. These elements were repeatedly mentioned in the interviews in Shenzhen. Although they are not mentioned in the national policy documents, they are important parts of the policy design. This is because, behind these unchanged elements, there seems to be a set of national institutions which together function as a device to coordinate production in the higher education sector according to central planning. Such a coordination device is considered necessary in the Chinese system because it ameliorates the deficiencies of the market mechanism in three ways. Firstly, it is thought that this coordination device provides better quality control of the research and education outputs by HEIs. Secondly, it is considered that it enhances the match between the supply and the demand of the labour market. Thirdly, it enables better social service to the nation state through control over distribution of resources. Based on these findings, this chapter argues that, although a performance-based competition has been introduced under the implementation of Project DFC, the extent to which the existing HEI hierarchy can be changed by it seems rather limited. This is because the maintenance of these national institutions tends to inhibit the functioning of the competition mechanism. As a result, the existing hierarchy is likely to persist in the Chinese system and it is difficult to reverse. In this chapter, this

coordination device by design will be illustrated along with an explanation of three elements of the policy design at national level. Understanding this coordination device is important since it reveals the underlying ideology of economic nationalism of the Chinese system. Also, it triggered the reframing of the policy design for WCU development in Shenzhen, which will be presented in the next chapter.

## 5.1 Rationale: state planning as the more efficient way of distribution in higher education

The coordination via central planning in the Chinese system is most evident in the provision of education. It is exercised through the subject catalogue, which is devised by the State Council Academic Degree Committee under the MoE as a national institution to regulate the educational activities in individual HEIs. Illustration of the subject catalogue is important because firstly, a key assumption or belief of interviewees, which perceives central planning as a more efficient way to distribute resources in higher education, can be explained. This is a rationale that underpinning the arrangement of the whole Chinese system, including Project DFC. Secondly, understanding the subject catalogue is important because it forms part of the coordination device, which constrains the possible options in policymaking in Shenzhen. This is one of the main topics of the next chapter.

This section will firstly illustrate how central planning is exercised through the subject catalogue in the current Chinese higher education system. Secondly, why it is thought to be ameliorating the deficiencies of the market mechanism by policy makers in the Chinese system will be explained.

### **5.1.1 Central planning governance of education activities and the national institution of the subject catalogue**

The subject catalogue restrains the range of subjects for higher education in each HEI in the Chinese system. As reported in the interviews, the management of subjects in each HEI, including setting up new degree-granting educational programs in a certain subject, and changes to or cancelation of the existing subjects, is strictly regulated by the guidelines for subject management by the Academic Degree Committee. According to the guidelines (MoE, 2009), it is required that the subjects that are included in degree-granting educational activities in all HEIs should be aligned with the range of subjects articulated in the subject catalogue.

Such a catalogue is created through a process of central planning, within which the power to determine the range of subjects for higher education is effectively centralised to the Academic Degree Committee. The decision on what subjects should be included in higher education is made based on the analysis and calculation of the national statistics of admission, degree granting, and employment of each individual subject (MoE, 2009). It seems that changes in these statistics are considered to reflect the actual demands for specialised human capital by the labour market. Thus, HEIs' educational activities should comply with the subject catalogue, which is based on practical analysis of 'real' data. The power to adjust the catalogue is also centralised in the hands of the authorities of the Academic Degree Committee. The subject catalogue is reviewed every five years and adjusted at ten-year intervals. The catalogue that is currently in effect was published in 2020, with 703 subjects being classified into 13 fields of study using a three-level classification (an example of the field of education is presented in Figure 5.1) (MoE, 2020a).

The regulation on the range of subjects is most stringent in undergraduate education. In general, HEIs that grant bachelor degrees can only set up subjects that are included in the catalogue (MoE, 2012b). Setting up new subjects that are not included in the catalogue is possible but it must be approved by the MoE through three levels of scrutiny to ensure that

the necessity of setting up the new subject is thoroughly discussed and proved (MoE, 2012b). According to the guidelines by the Academic Degree Committee, in order to set up a brand-new subject, an application must be submitted which includes details about the basic information of the HEI, teaching and research staff for the new subject, design of the curriculum, discussion of the necessity and differences from other similar subjects and the supporting infrastructure, such as the necessary library or laboratory facilities (MoE, 2012c). The application is then examined by three levels of administrators and degree committees, including internal examination by the HEI itself, provincial government and, lastly, the MoE. Only with the approval of the MoE can the new subject be set up by the proposed HEI (MoE, 2012c). Thus, the power to determine whether a new subject can be included in undergraduate education is in the hands of the central authority not individual HEIs.

To ensure that undergraduate education in all HEIs is conducted within the predetermined range of subjects by the Academic Degree Committee, other changes to the existing subjects, including adjustment and cancellation, must all be applied for and approved by upper-level government (MoE, 2012c). The aim is to inform the central authority of changes in education provision so that timely adjustment can be made to adapt to the demands of the labour market. Thus, for undergraduate-level education, although the responsibilities for administration of the changes in subjects have been largely decentralised to provincial government, all approved changes must be reported to the MoE annually to ensure that changes to all subjects in the whole system can be updated regularly.

Field of study	Discipline	Subject
<b>Education</b>	Education	Pedagogy
		Science Education
		Humane Education
		Educational Technology
		Art Education
		Preschool Education
		Primary Education
		Special Education
		Chinese Education
		Education and Rehabilitation
		Health Education
		Cognitive Science and Technology
	Sports Science	Physical Education
		Sports Training
		Instruction and Managements of Social Sport
		Wushu and Traditional Chinese Sports
		Sports Somatic Science
		Sports Rehabilitation
		Recreational Sports
		Physical Training
		Winter Sports
		Electronic Competitive Sports and Management
		Sports Engineering
		Tourism and Sport
		Sports Development

Figure 5.1 Subjects under the discipline of Education in the subject catalogue. Source: MoE, 2020.

Postgraduate education is subjected to similar regulations. However, it seems that here greater autonomy in decisions about subjects is granted to HEIs. Nonetheless, similar to undergraduate education, to set up new educational programs, HEIs must apply for the approval of upper-level government. However, HEIs can apply for degree granting in the unit of a discipline, which includes multiple subjects. According to the guidelines of the Academic Degree Committee (MoE, 2009), HEIs that have been authorised to grant a certain level of research degree in a certain discipline have the autonomy to determine the subjects they provide for education. This means that HEIs are allowed to set up post graduate programs in

all subject areas under the discipline independently. For example, if an HEI has been authorised to grant master's degrees in sports science, it is allowed to provide education in all subject areas under the discipline of sports science without further application (see Figure 5.1). What is more, HEIs have the autonomy to set up new subjects that are not included in the catalogue, although there is a limitation of no more than two subjects in each discipline.

With these regulations in place, what types of specialised human capital can be produced by the higher education sector is, to a great extent, controlled by the central authority. Thus, with the national institution of the subject catalogue in place, educational activities in each HEI are effectively regulated within the predetermined range. The subject catalogue also contributes to the centralised control over the amount of specialised human capital produced by the higher education system.

The decision-making process regarding how much should be produced by HEIs, i.e., the admission number at all levels of higher education, also follows a similar process of central planning. How many students should be admitted in each level of higher education every year in total is planned and determined by the central authority in advance. According to the online document provided by the MoE (2016), the total number of admissions is planned jointly by two agencies under the central government, i.e. the National Development and Reform Commission and the MoE, based on the national plan for higher education development and considerations of the needs of national economic and social development. The admission numbers for each HEI are then distributed in a top-down manner to ensure that national admissions correspond with the predetermined numbers agreed by the central authority. Interviewee F explained how the admission plan for each HEI is determined each year:

There is control over the total numbers of admissions. For both *Gaokao* [undergraduate] and postgraduate admissions, there are total amounts of national enrolment, which is then distributed to each province and then to each HEI. So the annual total amount is determined by the above. Say we enrol 7,000 undergraduates and 3,000 postgraduates, these figures are determined by the upper-level governments and cannot be changed.

Of course, it is possible that we end up admitting fewer students, and then we may be allowed to enroll more.

Thus, the decision on annual admissions for each HEI is, to a great extent, made by the central authority rather than by HEIs themselves. Similar to the decision about the range of subjects, which is explained above, the national plan of admissions is determined through a bottom-up process of calculation and analysis of the national statistics. Interviewee I gave further information on how the annual admission plan is determined:

The decision process is both top-down and bottom-up. Firstly, the provincial government reports the total number of admissions for this year to the central government, according to the numbers in past years and the changes [such as participants in the *Gaokao*]. The total number of national admissions is then calculated and determined by the central government.

Then allocation of admissions for each HEI works in reverse. According to the online document by the MoE (2009), admissions for each province are distributed according to the number of participants in the *Gaokao* within the province, the admission rate and the capacity of HEIs. This allocation process is subject-based, which means the decisions of allocation is coordinated via the subject catalogue. As the interviewee above continued,

The admissions for each province then are distributed according to the national plan, probably with adjustments comparing to the number reported by the provincial government. Take the number reported by Guangdong province; if they think it is too high, they will reduce the number, otherwise they will increase it. So the admissions for each province are confirmed in both ways. Then the admissions for each HEI are distributed by provincial government and the number of admissions for each subject is distributed by each HEI. Say our university is allocated a number of 7000 admissions for undergraduates, the estimated number of admissions for each subject is reported to the university. For example, if we report enrolling 80 students for the subject of preschool education, then the university may adjust the number a little bit. After that, the annual admission plan will be announced to the public.

Thus, the decisions on admissions also adopt a mechanism of central planning, within which the final decisions about admissions are made by the central authority. As can be seen, the subject catalogue functions as an important national institution, which enables the human

capital produced by the higher education system to be effectively coordinated by the central authorities.

### **5.1.2 The exercise of centralised control and the path dependence of the central planning governance**

It can be seen from the description above that central planning remains the major mechanism through which supply and demand are coordinated in the Chinese system, even though it has gone through reforms along the lines of a neo-liberal form of modernisation. This model of central planning governance, through which what is to be produced and how much is to be produced by the higher education sector are determined by the central authority, can be traced back to when the Soviet model of higher education was introduced and set up in the Chinese system. The central planning governance persists in the Chinese system because it is thought to ameliorate the deficiencies of the market mechanism through coordination by the central authorities. Centralised coordination is one of the recurring themes that was identified from the interview data. According to the interviewees, it facilitates the better functioning of the higher education system in three ways.

#### **5.1.2.1 Better coordination of supply and demand of human capital**

Firstly, it is considered that central planning enables control of supply by the higher education sector, through which the match with the demands of the labour market can be enhanced, a form of ‘man’ power planning. As interviewee E in Shenzhen explained:

If admission was opened up to coordination by the force of the market, it might lead to huge problems. For example, there might be too many students admitted to one subject and too few to another.

It seems that centralised control and coordination is seen as an effective way to avoid market failures due to information asymmetries between individual HEIs and the labour market. It

seems that individual HEIs, as the suppliers of human capital, are seen as impotent actors. It is believed that they lack the capability to gather all the necessary information and coordinate with each other and employers to cater to the needs of the labour market correctly. Thus, irrational decisions that may lead to market failures due to a mismatch between demand and supply are considered inevitable when the decision of provision is decentralised to individual HEIs. Through the overarching power of the central authority, it is possible to oversee and coordinate the activities of all providers in the higher education system. This is because the central authority, on the one hand, can perform large-scale calculation and analysis of national statistics and make plans for human capital cultivation based on the estimated needs of the labour market in advance. On the other hand, it can coordinate educational activities nationwide in accordance with the plans through centralised control.

Through central planning, it is believed that the supply of human capital by the higher education sector is based on the actual needs of the labour market. Such a rationale explains why control over the range of subjects is most evident in undergraduate-level education. The close relationship between undergraduate education and human capital provision in the currently massified Chinese system may be the reason. According to statistics from the MoE (2022), undergraduate education provides the most graduates for the labour market among all levels of post-secondary education in 2021.

A balanced supply and demand in higher education is considered important in China not only because of its relevance to better efficiency, but also because of its relevance to social stability. As the interviewee above continued to explain,

If how the number of students who should be admitted and what kinds of subjects should be involved are determined by the universities... for a university, if fewer students [than required by the demands of the labour market] are admitted, the problem can be easily fixed. However, if too many students are admitted and they can't find jobs after graduation, this problem is impossible to be solved by the university itself... if too many students are admitted with a low employment rate that might even lead to social chaos. This is why we have these [centralised controls on subject management and admissions], to avoid waste of resources and to maintain the stability of society.

In the case of a market failure due to information asymmetries, an individual HEI and its decision makers are also seen as incapable to solve the social problems that are caused by over-production. This, it is believed, may create damaging impacts on the nation state. Thus, in order to avoid market failures, especially overproduction, centralised control is considered necessary. Thus, the strict regulations on education activities of HEIs through the subject catalogue have a more important function to restrict and monitor the amount of output by HEIs to avoid overproduction. The coordination by the central authority enhances not only the efficiency of human capital production but also the stability of the higher education system and the wider society.

#### 5.1.2.2 Control for quality

Secondly, central control exercised through the national institution of the subject catalogue, it is suggested, enables better control of the quality of education outputs since changes to educational activities in individual HEIs are closely monitored by government bureaucrats. Authorisation by upper-level government for degree granting in HEIs is not only conducted to regulate the range of subjects/disciplines but also to ensure that the capability of the HEIs to provide a certain level of education is thoroughly examined to ensure the quality of education.

The requirements that should be reached by HEIs to set up undergraduate programs are articulated in the National Standards of Bachelor Degree Education Quality (MoE, 2009). These requirements include regulations on the contents and design of the curriculum, composition and quality of the faculty, supporting facilities and funding. Application is subject-based and the requirements for each subject are slightly different. Although the power of authorisation has been decentralised to the provincial government, applications are subjected to multiple levels of examination to ensure that HEIs' capabilities to provide

bachelor-degree level education have been thoroughly considered and examined.

Interviewee H described the process of earning authorisation from the provincial government:

Say we want to open a program in education and enrol undergraduates, then the faculty first of all reports the plan to the university and the plan is then subjected to internal review by experts. After being approved by the university, it is then reported to the provincial government for examination.

Applications for postgraduate degree programs are subjected to more stringent control by the central authority to ensure the high quality of postgraduate education, probably because research degree education is seen as being closely related to the cultivation of high-level research talent and innovative research activities. Using education as an example, Figure 5.2 shows the requirements for the application of the subject of education for bachelor degree education<sup>19</sup> and the discipline of education for research level education by the MoE. The requirements can be slightly different depending on subject differences.

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<sup>19</sup> For the purpose of comparison, Figure 5.2 only shows the requirements of faculty composition, human capital cultivation, supporting conditions and facilities of bachelor degree education. Some other requirements, such as that of curriculum design, are not included in Figure 5.2.

	Bachelor level	Master's level	Doctoral level
Faculty composition	<ul style="list-style-type: none"> <li>Number of teaching staff: at least 6 teachers in each subject, student teacher ratio less than 18:1</li> <li>More than 2/3 full-time teachers should be 30–55 years old, more than 30% staff should be associate professors or professors</li> </ul>	<ul style="list-style-type: none"> <li>Number of teaching staff: 15 full-time teachers with a contract longer than 3 years and at least 4 teachers per subject.</li> <li>Composition of staff: staff under 45 years old should be more than 40%. Staff with bachelor degrees should be more than 50%. Staff with associate professorship or above should be more than 25%. Staff with doctoral degrees should be more than 60%</li> <li>Academic leaders: at least one academic leader with professorship in each subject. Academic leader should have 5 high-level papers, one published book and one research project funded by provincial government or above in last five years; received national or provincial awards in teaching or research; 2 years of experience in supervising master's students</li> </ul>	<ul style="list-style-type: none"> <li>Number of teaching staff: 25 full-time teachers with a contract longer than 3 years and at least 5 teachers per subject.</li> <li>Composition of staff: staff under 45 years old should be more than 40%. Staff with bachelor degrees should be more than 60%. Staff with associate professorship should be more than 50% and 30% with professorship. Staff with doctoral degrees should be more than 70%</li> <li>Academic leaders: at least two academic leaders with professorship in each subject. Academic leader should have 10 high-level papers, one published book and one research project funded by provincial government or above in last five years; received national or provincial awards in teaching or research; 10 master's students per year and experience in doctoral education</li> </ul>
Human capital cultivation	<ul style="list-style-type: none"> <li>Establish proper institutions for quality control</li> </ul>	<ul style="list-style-type: none"> <li>undergraduate of the discipline has a considerable scale and quality, graduates have good career development and good employer reputation</li> </ul>	<ul style="list-style-type: none"> <li>have granted master's degrees for more than 5 years with more than 50 graduates</li> <li>master's graduates become the backbone in their field and a certain proportion of graduates continue to pursue doctoral degrees.</li> </ul>
Supporting conditions for cultivation	<ul style="list-style-type: none"> <li>Provide a sufficient number of fully functional teaching facilities</li> <li>Provision of practical training</li> <li>expenditure for daily operation should be more than 1,200 per student per year; teaching expenses should be more than 30% of tuition income for newly established subjects</li> </ul>	<ul style="list-style-type: none"> <li>Research outputs: receive 3 provincial or above educational research awards; a total of 30,000 research funding from government for research projects in the last 5 years</li> <li>Academic communication: more than 3 staff have attended international conference and 15 people have attended national conference; at least 1 international communication project in recent 5 years; specialised funding for research students to attend academic activities; ensure research students attend at least 1 conference</li> <li>Facilities: 1 provincial or above level research platform; 40 professional journals, 30,000 copies of books, 2 million volumes of professional electronic literature, 60 databases.</li> </ul>	<ul style="list-style-type: none"> <li>Research outputs: receive 5 provincial or above educational research awards; a total of 50,000 research funding from government for research projects; 1 project by provincial or above level government and 7 high-level research outputs per staff in the last 5 years</li> <li>Academic communication: host at least 1 international conference, 3 national conference, 2 international cooperation projects in the last 5 years; academic leaders should attend at least 1 international conference, other members attend more than 1 national conference per year; specialised funding for research students to attend academic activities; ensure research students attend at least 1 conference</li> <li>Facilities: 1 provincial or above level research platform; 50 professional journals, 50,000 copies of books, 2 million volumes of professional electronic literature, 60 databases.</li> </ul>

Figure 5.2 Requirements of application for bachelor, master's and doctoral degree education. Source: MoE, 2018; 2020.

As can be seen, the requirements are more strictly determined as the degree level goes up, especially in research performance. There are no clearly articulated requirements for HEIs' research performance for application at bachelor degree education, but there are exhaustive requirements for research performance for applications at both master and doctoral degree education.

Apart from the exhaustively articulated requirements, control over the quality of postgraduate education is also exercised through limitation of the number of HEIs which can receive authorisation. Different from authorisation for bachelor degree education, which is conducted annually, authorisation for postgraduate education programs is conducted at three-year intervals and is highly selective (MoE, 2017b). The requirements by the MoE for postgraduate

education are presented as the threshold for application. This means HEIs that submit applications have to compete for authorisation and only some of the HEIs receive authorisation. For master's degree education, although the power of authorisation has been decentralised to provincial government, which is similar to bachelor degree authorisation, the number of HEIs that can receive authorisation is strictly regulated by the MoE (GOV, 2015). For doctoral degree education, the power to determine authorisation is further centralised in the MoE. The result of more stringent requirements and centralised control is a low approval rate for the applications for doctoral degree programs. In 2017, of 1429 applications for doctoral degree programs, only 655 were approved, i.e. an approval rate of less than 46% (MoE, 2018b). As interviewee F explained:

Too many admissions may result in a decrease of quality. [This is why] the state is always in control. In many other countries universities can set up doctoral degree education spontaneously, if it is deemed necessary. But we must be examined and authorised [by the government]. This is also to avoid waste of resources [in low-quality education activities].

Since the number of authorisations is highly limited, only HEIs that show the highest standard as measured against the requirements of the MoE can successfully receive authorisation. Thus, stringent authorisation via the subject catalogue enables centralised coordination to avoid unintended investment of the limited resources in low-quality programs. The quality of education, especially that of postgraduate education, is then better controlled.

#### 5.1.2.3 Control of distribution among subjects

The third reason for adhering to the subject catalogue seems to be that it enables coordination for better social service to the nation state. Firstly, with the range of subjects being regulated by the subject catalogue, provision of education is catering to the perceived needs of the nation state rather than the needs of students as the consumers of higher education in the Chinese system. Thus, the subject catalogue as a national institution is

reinforcing social service of the whole system. The Chinese higher education system shows a distinct difference from systems that are coordinated and managed by quasi-markets in terms of provision of education activities.

In systems that are governed by quasi-markets, although controlled and regulated by the government, the market remains the fundamental mechanism for higher education arrangement driven by a neoliberal ideology (Olssen & Peters, 2005). In an ideal market-driven mechanism, it is considered that HEIs spontaneously enhance their services and products to cater to the needs of their consumers (Henisz et al., 2005). Due to the high level of responsiveness of HEIs to consumers, changes on the demand side can be swiftly transferred to the supply side. Thus, the market mechanism is considered to be more efficient since it can automatically deliver resources and arrange production in a balanced way, provided that the necessary conditions for the efficient functioning of the market are created (Olssen & Peters, 2005). Although there seems to be a tendency to increase government control over higher education in many of these countries (Beerkens, 2022; Marginson, 2018b), the market remains the primary mechanism for coordination and distribution of resource in terms of provision of educational activities. This means the outcome of distribution is, to a great extent, a result of competition among HEIs, although the rules of the competition may be shaped by the government to reinforce efficiency and accountability. The government is one of many stakeholders but the role it plays in the system remains indirect under the neo-liberal ideology, especially in the arrangement of education activities. The provision of education responds, it is assumed, to consumer needs and consumer-centred competition remains the core mechanism that coordinates supply and demand (Dill, 1997).

However, in the Chinese system, the central authority on behalf of the nation state plays a direct role in the arrangement of educational activities. Although a cost-sharing financing system has been established in the Chinese system and most students pay at least part of the tuition fees, the provision of education is not consumer-needs oriented. Rather than being responsive to consumers, HEIs are responsive to the judgement of the central authority, in

terms of what is needed by the labour market and, more importantly, by the nation state. Thus, although the Chinese system has gone through reforms along the lines of neo-liberal modernisation, it seems that a quasi-market has not been formed and central planning remains the main mechanism for higher education governance and distribution. The subject catalogue enables centralisation of the power of decision making, and allows the higher education sector to be arranged according to the design and the perceived needs by the central authority with the aim of maximising the contribution to the nation state.

Secondly, the centralised coordination exercised through the subject catalogue to reinforce social service to the nation state can be seen in the authorisation for degree granting. It enables strategic allocation of resources among subjects and subjects that are considered more constructive for national interests tend to be prioritised in authorisation. This can be seen in the authorisation for new subjects in undergraduate level education. To recap, the applications for subjects that are excluded from the subject catalogue for bachelor degree education must be approved and authorised by the MoE (MoE, 2012). Subjects that are considered to be more beneficial for social and economic development are more likely to be approved. For example, 31 new subjects were approved to be added to the catalogue by the MoE in 2022 mainly with the aim to better serve the developmental needs of regional economic and national strategies (MoE, 2022a).

Such strategic allocation is most evident in the authorisation for research degree education. Since the number of authorisations is highly limited for postgraduate education, there is a strong orientation to 'prioritise the fields of studies in areas that are urgently needed by or critical to the state's development and areas that remain blanked in China' to ensure that the new projects being authorised 'closely surround the state's strategies for economic and social development' (MoE, 2020b). For example, the guidelines published by Henan provincial government for applications of postgraduate degree granting in 2017 clearly announced they would reduce the authorisations for certain areas of studies while prioritising others. According to the guidelines, authorisations in computer science and technology,

management science and engineering, engineering management, applied economics, mathematics, biology, chemistry and civil engineering would be suspended or limited (Henan Province, 2021). Since a number of HEIs had already been granted the ability to award master's degrees in these disciplines and the employment rate of these disciplines had been lower than 70% for the previous three years, these disciplines were considered to be in a status of oversupply compared to the demands of the labour market. Conversely, applications relevant to seventeen areas of industrial and social development would be prioritised for authorisation since they were considered to be 'closely related to economic development and greatly needed by society' (Henan Province, 2021). These were either 'subjects related to new industries that were critical to national developmental strategies', including modern agriculture, artificial intelligence, national security, national governance, cyber security, integrated circuits, high-tech equipment, energy storage technologies, new-generation information technology, biomedicine, new energy, new materials, transportation and logistics, or 'subjects that were important to the improvement of people's wellbeing', including public security, public health, environmental protection and food security (Henan Province, 2021). A similar orientation is also noticeable in doctoral education authorisations, which are determined by the MoE. In 2017, more than 400 of the applications for doctoral degrees that were approved by the MoE were in STEM subjects, accounting for around 62% of the authorised applications. This secured concentration of the limited resources for doctoral education in the prescribed areas corresponded to the developmental strategy of the state. Under such an orientation, it is highly possible that the resource allocation in individual HEIs would be strongly influenced. The resources for the development of postgraduate education and research are then likely to be concentrated on disciplines that are judged to be more important for the development of the nation state since they tend to have a higher possibility of gaining authorisation from the upper-level of government.

Thus, the subject catalogue as a national institution that restrains HEIs' educational activities, is used as a governing device, which enables coordination by the central authority in the Chinese higher education system. It is seen as beneficial to the interests of the nation state

because it contributes to better efficiency, quality and more rational distribution for national interests in higher education. Thus, with the subject catalogue in place in the Chinese system, continuous benefits have been created for the nation state. The creation of increasing returns for the national interests seems to be the self-reinforcing mechanism that reinforces the persistence of the subject catalogue. The employment of this coordination device, this thesis argues, reflects that an ideology of economic nationalism, which considers central planning as a better way in order to achieve nationalist goals, is part of the forces that shape the current Chinese system. This is also the underlying idea of the design of Project DFC, as will be presented in the following sections.

## 5.2 A redistributive mechanism a coordination device for distribution among HEIs

Another theme that was identified from the interview data are differentiation, which means a group of top-tier national HEIs are differentiated from the other HEIs in terms of resource distribution. Such differentiation is achieved through two particularised institutions in relation to public funding structure and HEIs' autonomy, which apply differently to different groups of HEIs (Ogilvie & Carus, 2014; Ogilvie, 2019). These national institutions form a redistribution mechanism that privileges the top-tier national HEIs in access to the limited resources. With these particularised institutions in place, the working of the newly-introduced performance-based competition seems to be greatly constrained. The redistribution mechanism will be explained along with an illustration of the policy tools of Project DFC.

### 5.2.1 Policy Tools: the maintenance of an HEI hierarchy for resource distribution

Two policy instruments were identified in the design of Project DFC, which were a capacity building and an authority-based instrument. In this section, the two policy instruments and

how they privilege top-tier national HEIs in the access to multiple resources will be illustrated. It can be seen that maintaining the existing HEI hierarchy seems to be part of the policy design of Project DFC. This is because the policy instruments that contribute to the reinforcement of the hierarchy are not changed in Project DFC, despite its claim to facilitate competition among HEIs.

#### 5.2.1.1 Capacity building: differentiation in funding

Capacity building is one of the main policy instruments that is in use in Project DFC. As mentioned in Chapter Four, Project DFC adopts a three-stage implementation plan, which proposes to complete the final goal, i.e. China becomes one of the top-ranking countries in terms of WCUs, by the 2050s. This indicates that Project DFC is a long-term plan for HEIs' capacity enhancement based on the recognition that the world first-class standard cannot be achieved immediately for most Chinese HEIs. It is also recognised that the long-term development of WCUs requires significant investment in resources. Such investment, it seems, is through strategic techniques and institutions with the aim of concentrating the limited resources on the targeted HEIs. It is considered that the impediments to their development due to insufficient resources can then be removed.

It is natural that HEIs selected in Project DFC tend to have more advantages in the competition over resources including funding, best-performing students and staff. It is likely that the widely recognised reputation gained from being selected as one of the elite HEIs in Project DFC is transformed into a signal that further differentiates the value of their research and education from the non-elite HEIs. As a result, they may be able to attract more funding, better-performing students and staff. However, it seems that the concentration of the resources given to HEIs in the elite sector in the Chinese system is more than an outcome of competition among HEIs. Rather it seems that it is also an outcome of purposeful

arrangement to ensure that the limited resources can be concentrated on the selected HEIs, especially the top-tier HEIs.

Funding is one of the most important resources for HEIs, and the annual income of HEIs in the Chinese system is highly differentiated. It seems that through the capacity building instrument, a national institution which enables the top-tier national HEIs to receive funding from multi-levels of government is established. As a result, the national HEIs in the top tier are overwhelmingly advantaged in terms of funding since the majority of public funding from government is concentrated on them. Figure 5.3<sup>20</sup> shows the top 50 HEIs with the highest estimated budgets in the Chinese system in 2022 according to the statistics published by each HEI. Forty-eight of the best-funded HEIs are national HEIs that are involved in Project DFC. The majority of these are in tier one. Thus, it can be seen that the top-tier HEIs in the hierarchy tend to have more sufficient funding. Notably, there are two non-DFC HEIs in the top 50. Both of them are regional HEIs in Guangdong Province, one in Shenzhen and the other in the capital city of Guangzhou. A comparison of the structure of incomes between these two regional HEIs and the top-tier national HEIs reveals the reason why the top-tier national HEIs tend to have more abundant incomes.

For both regional HEIs, sufficient fiscal funding from their regional government grants them an income that is much higher than the majority of the HEIs in the Chinese system. Indeed, the government grants for both regional HEIs are much higher than those of the national HEIs, which are listed in Figure 5.3, due to the decentralisation of fiscal responsibility. Take Guangzhou University as an example. The amount of fiscal funding from its regional government for the University is estimated to be nearly 4 billion RMB (506 million GBP equivalent), the fourth highest among all the HEIs that have published the structure of annual incomes in the Chinese system, after that of Tsinghua University, Peking University and Zhejiang University. However, government grants seem to be the main source of income for

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<sup>20</sup> Statistics of the incomes in Figure 5.3 were sourced from the website of each HEI respectively except for one university: Civil Aviation Flight University of China. The statistics of this university were sourced from Guizhou Planning Office of Philosophy and Social Science (2022) because they were not accessible from the university' official websites.

both regional HEIs. Over-reliance on regional government also makes them incomparable to the top-tier national HEIs, which have multiple sources of incomes and limited reliance on their governing body, i.e. the central government. Diversified sources of income seem to be the main reason why the top-tier HEIs tend to have a higher income compared to lower tier HEIs. The notable gap in terms of income between these top-tier national HEIs and regional HEIs is mainly due to two sources of income: the income generated from education and research activities, and the income from other revenue. A closer examination of these two categories of income, especially the later one, will reveal a national institution of funding, which is designed to concentrate public funding on the top-tier national HEIs.

	University (unit: 10,000 RMB)	Estimated Income of 2022	Income A: government grants from administrative body	Proportion of Income A	Income B: revenue from education and research activities	Proportion of Income B	Income C: other incomes	Proportion of Income C	Residuals from 2021	Total incomes
1	Tsinghua University	2,558,122.42	573,213.95	22.41%	1,371,987.17	53.63%	605,961.00	23.69%	1,063,000.73	3,621,123.15
2	Zhejiang University	1,601,318.73	415,887.05	25.97%	915,000.00	57.14%	270,431.68	16.89%	1,008,935.65	2,610,254.38
3	Peking University	1,630,060.88	517,111.59	31.72%	712,174.72	43.69%	371,570.07	22.79%	562,801.84	2,192,862.72
4	Shanghai Jiao Tong University	1,531,122.49	294,622.49	19.24%	874,000.00	57.08%	362,500.00	23.68%	510,861.94	2,041,984.43
5	Sun Yet-sun University	1,296,629.86	298,469.16	23.02%	495,816.38	38.24%	502,344.32	38.74%	396,421.73	1,930,519.27
6	Fudan University	972,276.67	274,031.13	28.18%	442,522.00	45.51%	255,686.41	26.30%	460,762.84	1,715,533.14
7	Harbin Institute of Technology	894,388.83	313,321.33	35.03%	388,950.00	43.49%	192,117.50	21.48%	508,403.14	1,441,791.97
8	Beihang University	839,856.07	275,946.07	32.86%	408,000.00	48.58%	155,910.00	18.56%	444,888.00	1,428,433.90
9	University of Science and Technology of China	744,181.24	360,915.24	48.50%	269,000.00	36.15%	84,000.00	11.29%	594,295.96	1,338,477.20
10	Xian Jiaotong University	848,690.99	307,901.24	36.28%	455,600.00	53.68%	85,000.00	10.02%	488,506.53	1,337,197.52
11	Shandong University	945,200.00	301,889.57	31.94%	383,500.00	40.57%	259,810.43	27.49%	361,300.00	1,306,500.00
12	Huazhong University of Science and Technology	859,975.02	330,031.05	38.38%	358,086.00	41.64%	171,787.85	19.98%	334,174.24	1,298,381.95
13	Tongji University	811,945.50	199,645.50	24.59%	398,000.00	49.02%	214,300.00	26.39%	306,171.08	1,195,134.45
14	Dongnan University	827,687.10	204,577.60	24.72%	507,240.00	61.28%	115,780.50	13.99%	277,296.85	1,190,322.16
15	Wuhan University	766,082.08	324,466.08	42.35%	278,240.00	36.32%	161,860.00	21.13%	354,202.07	1,189,275.15
16	Beijing Institute of Technology	660,227.20	215,227.20	32.60%	365,000.00	55.28%	80,000.00	12.12%	480,010.06	1,159,011.27
17	Sichuan University	678,746.64	316,127.92	46.58%	266,152.53	39.21%	96,016.19	14.15%	368,843.46	1,101,171.94
18	Xiamen University	796,149.97	228,478.11	28.70%	252,201.24	31.68%	315,470.62	39.62%	201,472.50	1,070,973.32
19	Northwestern Polytechnical University	691,922.69	228,898.31	33.08%	338,251.00	48.89%	90,850.38	13.13%	368,020.00	1,059,942.69
20	Jilin University	738,006.30	342,006.30	46.34%	241,000.00	32.66%	155,000.00	21.00%	253,330.32	1,039,336.62
21	Beijing Normal University	715,700.78	242,265.71	33.85%	230,426.00	32.20%	243,009.07	33.95%	253,037.91	989,685.52
22	Central South University	607,441.81	266,634.72	43.89%	278,300.00	45.82%	62,424.59	10.28%	272,558.19	960,000.00
23	Nanjing University	607,720.71	234,716.47	38.62%	225,621.56	37.13%	145,855.68	24.00%	294,231.27	934,711.52
24	South China University of Technology	574,731.79	180,779.44	31.45%	229,671.78	39.96%	164,280.57	28.58%	347,244.27	921,976.06
25	Tianjin University	531,074.35	238,402.51	44.89%	232,950.00	43.86%	59,721.84	11.25%	272,242.32	845,464.00
26	Dalian University of Technology	573,427.23	199,598.23	34.81%	243,000.00	42.38%	130,829.00	22.82%	214,895.10	822,480.93
27	Renmin University of China	597,761.35	237,348.19	39.71%	228,063.00	38.15%	132,350.16	22.14%	93,813.57	799,908.92
28	Chongqing University	529,422.81	199,376.61	37.66%	210,000.00	39.67%	120,000.00	22.67%	163,896.08	754,720.81
29	University of Electronic Science and Technology of China	519,407.15	177,407.15	34.16%	275,000.00	52.94%	67,000.00	12.90%	209,183.53	728,590.68
30	Nanjing University of Aeronautics and Astronautics	420,286.19	168,500.69	40.09%	214,910.00	51.13%	36,064.50	8.58%	235,902.64	725,742.68
31	Nanjing University of Science and Technology	445,237.09	161,637.09	36.30%	233,000.00	52.33%	50,600.00	11.36%	226,203.82	674,019.29
32	East China Normal University	501,566.41	167,629.11	33.42%	202,380.00	40.35%	131,557.30	26.23%	167,898.07	673,464.48
33	Wuhan University of Technology	494,511.74	213,402.97	43.15%	218,000.00	44.08%	63,108.77	12.76%	163,869.46	658,381.20
34	Hunan University	453,089.00	149,342.00	32.96%	259,198.00	57.21%	40,834.20	9.01%	178,323.10	641,701.00
35	Civil Aviation Flight University of China	584,600.00								637,400.00
36	China Agricultural University	457,259.25	161,739.25	35.37%	173,000.00	37.83%	122,520.00	26.79%	177,412.84	634,672.09
37	Northeastern University	453,032.51	180,261.73	39.79%	202,295.72	44.65%	70,475.06	15.56%	153,238.11	620,361.84
38	Xidian University	398,986.13	179,266.65	44.93%	173,765.41	43.55%	45,954.07	11.52%	206,648.70	605,634.83
39	Nankai University	480,319.42	179,669.59	37.41%	185,073.00	38.53%	115,576.83	24.06%	124,860.44	605,179.86
40	Beijing Jiaotong University	348,109.19	119,459.23	34.32%	149,621.00	42.98%	74,469.96	21.39%	149,297.27	577,948.74
41	Shenzhen University	518,505.00	360,939.00	69.61%	80,102.00	15.45%	5,123.00	0.99%	45,351.00	563,857.00
42	Lanzhou University	375,914.71	193,005.65	51.34%	141,923.60	37.75%	40,842.46	10.86%	136,340.58	551,712.38
43	Ocean University of China	360,258.73	146,061.28	40.54%	147,000.00	40.80%	67,197.45	18.65%	100,376.96	550,832.21
44	Harbin Engineering University	381,545.98	162,321.41	42.54%	193,922.00	50.83%	25,302.57	6.63%	137,420.15	548,751.06
45	University of Science and Technology Beijing	348,301.97	136,301.97	39.13%	122,000.00	35.03%	90,000.00	25.84%	177,731.65	547,926.00
46	Southwest Jiaotong University	408,635.76	166,728.01	40.80%	179,000.00	43.80%	62,850.00	15.38%	135,978.20	544,613.96
47	Southwest University	401,308.89	227,977.84	56.81%	125,655.57	31.31%	47,675.48	11.88%	86,814.58	513,229.57
48	Hohai University	325,667.31	128,891.31	39.58%	112,000.00	34.39%	83,826.00	25.74%	136,009.85	504,928.76
49	China University of Petroleum (East China)	328,400.00	124,324.75	37.86%	125,000.00	38.06%	79,075.25	24.08%	150,138.00	488,538.00
50	Guangzhou University	369,112.69	369,112.69	100.00%	77,252.00	20.93%	11,773.03	3.19%	0.00	458,137.72

Figure 5.3 Top 50 HEIs with the most estimated incomes in 2022.

Firstly, research performance may lead to significant disparity in annual incomes between the top-tier national HEIs and the regional HEIs. Thus, rather than government grants, revenue generated from research activities is the main source of income for many top-tier national

HEIs. Take Tsinghua University as an example; more than half of its annual income is generated from education and research activities, and this category of income is estimated to reach over 1.37 billion RMB (173 million GBP equivalent) in 2022. The revenue generated by educational activities is less than 0.3 billion (38 million GBP equivalent). This means the majority of income for Tsinghua is generated through research activities. Compared to Shenzhen University, the gap in the revenue generated by research activities between the two HEIs is almost 1 billion RMB (126 million GBP equivalent), which is an enormous sum of money unlikely to be covered by government grants since it is almost triple the amount in grants that Shenzhen University receives from Shenzhen government. Thus, it seems that income via research is one of the causes of income disparity for HEIs in China.

Funded research projects are an important part of HEIs' research activities in China. According to the funding bodies, funded research projects can be categorised into government-funded research projects and projects that are funded by non-government bodies, mainly enterprises. As Ding (2014) suggests, the reputation of HEIs tends to have a great influence on the competition over both kinds of funded projects. The higher an individual HEI is in the hierarchy, the more advantaged they tend to be in the application for both kinds of funded projects. HEIs in Project 985 tend to be more advantaged in applications for government-funded projects. Thus, it seems that the positions of HEIs in the hierarchy may influence their competitiveness over research funding and the top-tier HEIs tend to be more advantaged in the competition.

However, the abundance of financial resources for the top-tier HEIs is achieved not only by advantages in research funding but also by bureaucratic arrangement to purposefully increase the available funding for elite HEIs. This can be seen in the category of other incomes. This category of incomes is also important for the top-tier HEIs. For some HEIs, this may be the most important type of income. For national HEIs, this category mainly includes donations, investment, deposit interests, rental incomes and, most importantly, funding from provincial or other levels of government. For example, at Sun Yat-sen University in Guangdong Province,

the fifth most funded HEI in 2022, this category of other incomes is even higher than the government grants from its governing body, i.e. the MoE, and the revenue generated by research and education activities. Thus, other income is the main source of its annual incomes and government grants from provincial government are an important part. The precise calculation of provincial government grants is difficult since details of the category of other incomes are not open to the public. However, at least 1 billion (126 million GBP equivalent) was granted to the University in the form of funding for the provincial WCU project<sup>21</sup> from 2018 to 2020 (Department of Finance of Guangdong Province, 2018;2019; 2020). Conversely, HEIs in Shenzhen, which was also included in the same provincial project, received little funding from the provincial government, and government grants from Shenzhen government remained their main source of income. As interviewee B mentioned:

The provincial government gave each of the first-tier universities 1 billion in funding [126 million GBP equivalent]. We were second-tier back then and they gave us only 0.4 billion [50 million GBP equivalent]. So Shenzhen government decided to give the same amount of funding, 1 billion for each regional university...Then in the second round of the provincial project, they made it clear that they would not give any funding to Shenzhen so it all depended on ourselves.

Thus, many of these top-tier HEIs receive government grants from multiple levels of government. Such a financial structure of the top-tier national HEIs being supported by multiple levels of government can be traced back to Project 985. Although all HEIs in Project 985 are national HEIs, which are under the administration and funded by various ministries under the central government, in order to increase the funding available for their capacity building, corresponding provincial governments were invited to cooperate in Project 985, based on the claim that the development of these HEIs would be constructive to provincial development (MoE, 2012c). Thus, many of these top-tier HEIs receive fiscal funding from multiple levels of government due to the deliberately constructed financial structure to ensure they receive adequate funding to meet national (or local) needs.

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<sup>21</sup> The provincial project was initiated after the DFC with an aim to support the better development of HEIs that have entered the DFC or to encourage other HEIs to enter the DFC. Details of the provincial project will be explained further in the next section.

Such a national institution regarding coordination of public funding effectively privileges the financial positions of top-tier national HEIs since the majority of the public funding is concentrated on them. It also constrains the competitiveness of regional HEIs since they tend to rely on their regional government in the currently decentralised funding system. As a result, the advantages in funding of the top-tier HEIs tend to be securely maintained under the capacity building instrument.

#### 5.2.1.2 Authority-based policy instrument: differentiation in autonomy

Although sufficient funding is important for the further development of HEIs, it seems that other resources are more relevant to the upward mobility of regional HEIs in the Chinese system. As interviewee E commented,

Funding is in fact not so important to us. Because our annual income is 6 billion [760 million GBP equivalent], this is a lot...but more important to us is entering Project DFC. It has great implications on the overall development of the university, say in terms of [obtaining] projects, admissions, employment... so we hope to enter Project DFC, not only for more funding, but more importantly to improve the competitiveness and reputation of the university.

This relates to another particularised institution in relation to HEIs' autonomy. Autonomy has been used as an important policy instrument along with the capacity-building instrument in the Chinese system. Against a background of centralised control, a group of top-tier national HEIs are differentiated from the other HEIs and entitled to greater autonomy in relation to postgraduate education. This enables them to have more advantages in the competition over resources, such as best students and researchers. As a result, these resources that are critical to higher education development tend to be concentrated on the top-tier HEIs.

The first type of autonomy that is delegated to the top-tier HEIs relates to the recommendation of undergraduate students as candidates for research-level studies. How many students can be recommended by an individual HEI is considered to be critical to the quality of postgraduate admissions. In the Chinese system, HEIs with the approval<sup>22</sup> from the MoE are allowed to nominate a number of graduates as postgraduate candidates. These nominated candidates can participate directly in the interviews with individual HEIs in the second round of selection without taking the National Graduate Entrance Examination. Similar to the *Gaokao*, students are ranked and selected to participate in the interview according to their performance in this examination. Usually, only the best-performing students who are considered to present excellent learning abilities throughout their undergraduate studies can be nominated for recommendation. Thus, increasing the scope to admit students who are nominated through recommendation rather than through the national examination is seen as critical to enhance the quality of research students. Therefore, HEIs in China are competing over this group of students and the competition has been intensified against a background of postgraduate education expansion<sup>23</sup> (Tang, 2018). Policy actors of the prestigious HEIs and their provincial governments have made strategies to increase the admission of these recommended students. For example, the Shanghai government has announced the strategy of striving to ‘increase the proportion of admission through recommendation in order to establish a mechanism to discover and cultivate outstanding innovative human capital in the early stage and select the “good seedlings” for research precisely’ (Shanghai Municipal Education Commission, 2021). Many DFC HEIs, such as Fudan University, Nanjing University and Guangdong University of Technology, have announced such a strategy to increase the proportion of recommended students in the admissions for 2022 (Fudan University, 2021; Nanjing University, 2021).

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<sup>22</sup> Currently there are 367 HEIs that have been authorised the autonomy of recommendation (Wang et al., 2020).

<sup>23</sup> Postgraduate education was expanded along with the decision of higher education expansion in 1999 (MoE, 1999a). The MoE announced further expansion of postgraduate education in 2020 with an increase in admission over 20% (MoE, 2020c). The number of postgraduate admissions in 2020 exceeded 1.1 million, 15 times the number in 1998, which was 725,000 (MoE, 1999b; 2021).

Confronting the intensified competition over the best-performing students, increasing the number of recommendations is seen as a reliable way to secure the best-performing students from undergraduate education according to the interviewees in Shenzhen. The probability that the best-performing students will stay in their original university to pursue a higher degree tends to increase when they are selected for recommendation because, by choosing their original university rather than other HEIs, their opportunity to pass the interview and continue their education is much higher. Thus, the number of recommendations may have significant influence on HEIs' competitiveness over the best-performing students.

However, again, the number of recommendations is strictly controlled by the central authority. The number of students that can be recommended by each HEI is determined by the MoE, similar to the distribution of annual admissions of undergraduates. As a result of centralised control, the number of recommendations is highly differentiated, and HEIs in the top tier of the hierarchy tend to have greater autonomy over recommendation decisions than HEIs in the lower strata. In the 2006 policy document for the administration of the recommendation institution by the MoE, there were clear regulations about the number of recommendations for different HEIs. HEIs in Project 211 may recommend up to 15% of their graduates while the limitation was 2% for the non-211 HEIs (MoE, 2006). According to Long (2016), there were in total more than 96,000 students who received recommendations in 2013, and more than 75% of these students were from 211 HEIs. Due to the expansion of postgraduate education and the replacement of Project 211 by Project DFC, such regulations no longer seem valid. However, the differentiation among HEIs in terms of the number of recommendations extends further. Wu (2018) analysed the statistics of admissions in 2018 of 40 DFC HEIs; most of these HEIs recommended more than 15% of its graduates. The number of recommendations of Peking University was around 1500. Its recommendation rate, at over 53%, was the highest among all HEIs, which means that more than half of the undergraduate students graduating from Peking University in 2018 received the opportunity of recommendation (the statistics of Tsinghua in 2018 were not available). This made an obvious contrast with the non-DFC HEIs. According to one of the interviewees from Shenzhen government, the number of

recommendations for one of the regional HEIs in Shenzhen in 2020 was around 250, with a recommendation rate of 4%. Restrictions on the number of recommendations seem to further disadvantage the lower-strata HEIs in the competition over the best-performing students. As the interviewee continued to explain, the limitation on the number of recommendations led to the loss of outstanding students because many students would choose the more prestigious HEIs if they were required to take the national examination. Thus, the loss of these students greatly influenced the quality of admissions for regional HEIs in Shenzhen.

Conversely, as Wu (2018) suggests, the proportion of the recommended students in the total postgraduate admissions of some DFC HEIs had been increasing continuously since 2015 and had reached the limit of 50% set by the MoE.<sup>24</sup> The proportion was even higher in some key subjects of the DFC HEI. For example, the subject of engineering at Peking University admitted only recommended students in 2018. Thus, it seems that being granted more autonomy in the recommendation of undergraduate students further reinforces the advantages of the top-tier HEIs in the competition over the best-performing students, which is considered to contribute to enhancing the quality of postgraduate education in these HEIs.

The second type of autonomy relates to degree granting in postgraduate education. As mentioned in the first section, authorisation for postgraduate-level degree granting is under the strict regulations of the Academic Degree Committee. However, according to the decisions of the MoE (2018), a group of HEIs have been exempted from centralised regulations and are allowed to make their own decisions in regard of the disciplines for the provision of postgraduate education. Currently, there are 31 HEIs that are included in this scheme of deregulation. All of these HEIs are national HEIs. More importantly, 30 of these HEIs were previously involved in Project 985, which included only 39 HEIs, and are now tier-one HEIs of Project DFC.<sup>25</sup> Thus, it seems that the HEIs that have been occupying the top tier of the hierarchy are being granted more autonomy in relation to postgraduate education.

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<sup>24</sup> According to the MoE's regulation (2006), the proportion of recommended students should not exceed 50% of annual admissions.

<sup>25</sup> University of Chinese Academy of Sciences was not in Project 985. This was because the institution previously functioned as a subordinate research institution for research students' cultivation for the Chinese

Compared to other HEIs in the system, the autonomy that has been granted to these elite HEIs has two dimensions. On the one hand, the disciplines that can be involved in postgraduate education in HEIs in the lower strata is strictly regulated by the central authority. To recap, these HEIs are required to apply for the authorisation of upper-level government in order to set up educational programs in new disciplines. Authorisation is conducted at three-year intervals and is highly selective. Conversely, HEIs in the top tier are allowed to set up new postgraduate programs on their own decisions every year. For doctoral education, there is a limit on the number of newly established programs of less than 5% of the existing programs of each HEI and there are no clearly articulated limitation on master level education. Although it is required that each HEI should establish proper procedures and higher standard requirements for internal review prior to the establishment of new programs, and all the approved decisions should be reported to the central government, proposals for new educational programs are only subjected to internal review by the HEI itself without applying for the authorisation of the central authority. What is more, HEIs in the lower strata can only set up a maximum of two subjects that are not included in the subject catalogue, while the top-tier HEIs are allowed to set up interdisciplinary subjects that are not included in the subject catalogue without clearly stated limit. On the other hand, the number of annual admissions of research students in most HEIs is also strictly limited by the central authority. However, HEIs in the top tier have the autonomy to determine the annual admissions for the newly established research education programs by themselves.

Thus, compared to the elite HEIs, the quantitative development of postgraduate education of HEIs in the lower strata of the hierarchy is greatly restricted by centralised control. Interviewee C stated,

According to the current regulations, the annual admission plan for research students in our regional HEIs is strictly regulated by the MoE. You see, for example, University A has

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Academy of Sciences and was not officially reformed into a university until 2000, by when the selection for Project 985 had already ended.

earned the authorisation for ten doctoral programs, but it is only allowed to admit around 200 doctoral students every year. This restricts the development of the university.

For HEIs in the top tier, such administrative limitations on postgraduate education development are greatly reduced. Being granted more autonomy for self-determination, postgraduate education tends to be more developed in these elite HEIs. What is more, as the interviewee above suggested, underdevelopment of postgraduate education can have further implications on the overall long-term development of individual HEIs.

On the one hand, the disparity in terms of the number of postgraduate students may have a direct influence on an HEI's upward mobility. For example, the number of research students was used as one of the indicators for the assessment of an HEI's performance on human capital cultivation in the disciplinary rankings by the MoE in both 2012 and 2017. The performance of HEIs which have insufficient research students due to strict limitations on postgraduate education may be downgraded in the disciplinary rankings. Since the disciplinary rankings tend to be closely related to HEI selection in Project DFC, HEIs' opportunities for upward mobility through entering Project DFC may be affected.

On the other hand, disparity in terms of postgraduate education development may further influence HEIs' research performance due to the close relationship between postgraduate education and research activities. Firstly, the research projects by students themselves are an important part of the research activities in HEIs. Thus, research outputs of an HEI may be compromised if a limited number of research students can be enrolled. Secondly, the productivity of research staff may be influenced by the limited number of research students. Research students can be an important workforce for research activities, especially for some STEM subjects whose research is based on laboratory and team work. Lack of a considerable number of research students may severely restrict the productivity of a faculty's research activities. What is more, disparity in both the quantity and quality of research students may further disadvantage HEIs in the lower strata in the competition over experienced research staff. As reported by interviewees from both the Shenzhen government and HEIs, restrictions

on the development of postgraduate education have increased the difficulties in recruiting outstanding research staff in regional HEIs in Shenzhen. High-performing researchers who are in charge of a handful of research projects at the same time in particular tend to rely heavily on the help of research students. Restricting the number of research students thus restricts the number of research projects they can conduct annually and the efficiency of completing these projects. As interviewee D explained, in order to remedy the problem of deficiency of research students one of the regional HEIs in Shenzhen decided to employ a large number of post-doctoral researchers. However, this greatly increased the cost for research and this solution may be financially inapplicable for most regional HEIs in the Chinese system, which rely on grants from regional government as their main source of income. Thus, by being granted greater autonomy in postgraduate education development, the advantages of the elite HEIs in the competition over experienced research staff may be further reinforced.

Disadvantages in the competition over experienced research staff tend to further exacerbate the disparity in terms of research performance. Recruitment of these experienced researchers seems to be critical for the enhancement of research performance in the Chinese system. As Guo (2020) argues, the reality of competition over academic labour among HEIs in China is the competition over the academic elites. Academic elites refer to researchers with academic titles. To recap, these are either academicians of the Chinese Academy of Science or Engineering or researchers who are involved in the talent recruitment or cultivation plans by different levels of government. These are either experienced researchers who have achieved major breakthroughs in their career or young researchers who show potential in making great innovative research outcomes.

Recruitment of these academic elites is critical for the rapid enhancement of research performance not simply because of their outstanding research skills and abilities, which may contribute to enhancing the quality and quantity of publications. More importantly, the recruitment of academic elites relates to HEIs' competitiveness for government-funded research projects. As Guo (2020) argues, the funding system for academics in China functions

as a screening system that aims to select and focus on the top-performing researchers. Thus, the academic elites, especially the experienced research ‘stars’, tend to have better access to the government-funded projects. Especially for the competition over the large-scale and key national projects, which are considered critical for national development strategies, the experienced research elites tend to have a greater advantage in the competition over these critical public resources (Ding, 2014). Conversely, young researchers who are at the beginning of their careers and in greater need of these resources tend to be disadvantaged in the competition (Huang, 2018). As Ding (2014) argues, accumulated experience and the reputation of the academic elites can be transferred into knowhow, information and social capital that enable them to have better access to these important national projects. Thus, recruitment of these experienced research stars may enable HEIs to gain better access to the government-funded research projects, especially the national-level projects which are closely related to the assessment of HEIs’ research performance.

Recruitment of research elites and obtaining government-funded research projects have direct impacts on HEIs’ performance against the standard of excellence for HEIs’ assessment in the Chinese system. The number of academic elites in the faculty and the number of, and the total amount of funding from, government-funded research projects are used as important indicators to assess HEIs’ performance, the results of which are used for various performance-based allocations. One example is the application for the authorisation of research-level degree granting. As explained in the previous section, authorisation for new research-level educational programs is highly selective, especially for doctoral education, and only a limited number of HEIs can receive authorisations with a rather low approval rate. Thus, the authorisation for research degree granting in reality is a performance-based competition among HEIs. Recruitment of academic elites and obtaining of government-funded research projects are important indicators for HEIs’ assessment of the quality of faculty and research performance (as can be seen in Figure 5.2). Thus, recruitment of academic elites may increase the probability of getting degree-granting authorisations for HEIs. As interviewee E mentioned,

One example is psychology. Just a few years ago, psychology in University A could not even get the authorisation for a master's degree. Then they got the authorisation for doctoral degrees and even entered the top ten in the last disciplinary ranking. This was mainly because they recruited a Chang Jiang Scholar and a team of high-level faculty. They made real efforts and improvements so they got the support from the university with funding, land and human resources. So psychology developed into a large school with a team of around 60 people from a small faculty of 10 people in just a few years.

Thus, it seems that recruitment of academic elites is a key to the rapid performance enhancement to compete for degree-granting authorisations.

More importantly, these indicators were also used as important indicators in the disciplinary rankings in both 2012 and 2017 by the MoE. Similarly, they were used as indicators to assess HEIs' performance in the quality of faculty and research performance (see Figure 4.6 in Chapter 4 for the indicators of the disciplinary ranking in 2012). HEIs' performance in the disciplinary ranking can then be influenced directly. Moreover, recruitment of the academic elites may also contribute to the publications and obtainment of academic awards, which were two other important indicators for research performance in disciplinary rankings. By suggesting the importance of academic elites for HEIs' research performance, it does not mean that the quantity and quality of publications, funded research projects and the obtainment of academic awards, based on which the research performance are measured, can be automatically improved due to recruitment of the academic elites. As Guo (2020) suggests, the measures taken by individual HEIs to create a supportive environment which enables the newly recruited members fit in quickly may also influence their outputs and contributions. However, it seems that HEIs with more academic elites tend to have greater opportunities to rapidly improve their performance in these indicators, compared to HEIs without academic elites. Thus, recruitment of the academic elites seems critical for an HEI to rapidly enhance its performance in the disciplinary rankings and this small group of researchers are the targets that are competed for by HEIs in China. Being disadvantaged in the competition over the academic elites thus impacts on the opportunities of regional HEIs to gain upward mobility through participation in Project DFC.

Thus, it seems that the authority-based instrument has sequential impacts on the distribution of best-performing research students, the academic elites and the government-funded research projects. By granting granted more autonomy to the top-tier national HEIs, their access to these resources tends to be prioritised. With the authority-based instrument being unchanged, Project DFC seems to show an intention to maintain the existing HEI hierarchy. This is because firstly the entitlement to more autonomy of these HEIs seems to be a purposeful arrangement. The decision of which HEIs to include in this policy scheme was not based on HEIs' competition since there is no specified standards for entry. Secondly, with the privileged access of the top-tier national HEIs being securely protected, the competition over these resources is greatly restricted. This is because advantages in the competition over these resources may be critical for HEIs development in the Chinese system, unlike funding. In the currently financially decentralised system, regional HEIs and national HEIs are funded by different governing bodies. Regional HEIs, with the majority of their funding coming from their regional government, technically speaking, are not in too much competition with national HEIs in terms of fiscal funding. Unlike funding, the competition over the best students and the academic elites is a zero-sum game, which means when one gets more the other gets less. With the authority-based instrument in place, the competitiveness of the majority of HEIs is compromised due to centralised control on autonomy while the privileged access to these resources of the top-tier national HEIs tends to be facilitated. Thus, the authority-based instrument has effectively reduced the working of competition among HEIs. Combined with the capacity building instrument, it seems that an institutional infrastructure which supports the sustainable development of the top-tier HEIs through concentration of resources has been established in the Chinese system. As a result, the existing hierarchy may be stably maintained and it is difficult to reverse. Especially with the three-tiered implementation structure of Project DFC, upward mobility by regional HEIs seems more difficult.

### **5.2.2 Implementation structure of a three-tiered governance: a screening mechanism to select HEIs to serve national interests and national needs**

This section illustrates another element that forms the redistribution mechanism under central planning in the Chinese system. Project DFC is implemented via a three-tiered system of governance which determines the HEIs that should be included in the top-tier. The three-tiered governance structure is formed by the central government, provincial government and regional government.

On the one hand, such a three-tiered structure with the central government and its subordinate ministries sitting at the pinnacle enables the centralisation of the power over the decisions of who is eligible to enter the top tier. For example, the HEIs that are eligible to be granted greater autonomy in postgraduate education are determined by the central authority. Although the administrative power over a range of responsibilities has been decentralised to provincial government, the power of provincial government is rather limited. For example, although the provincial government is in charge of the authorisations of degree granting of master's degrees, the total number of authorisations is determined by the central government.

On the other hand, in order to achieve upward mobility to enter Project DFC, regional HEIs must go through the scrutiny of this three-tiered governance structure. This means they must produce outcomes that are judged to be more relevant to the interests of all three levels of government. This three-tiered governance structure thus poses great difficulties for regional HEIs to achieve upward mobility, because firstly, regional HEIs must compete with other HEIs, including the national HEIs which are already in the higher strata of the hierarchy, and secondly, catering to the interests of all three levels of government may be quite challenging. This three-tiered implementation structure in fact sets great entry barriers that exclude a large number of HEIs from participation and therefore effectively reduce the competition.

This can be seen in the process of how HEIs in Shenzhen achieved upward mobility. As the first step, in order to participate in the competition, strong fiscal support regional government

is indispensable since regional HEIs tend to rely heavily on funding from regional government. However, competing with national HEIs is expensive, as can be seen in Figure 5.3. There are only two regional HEIs in the top 50 most funded HEIs in 2022. This means most regional government may not be able to afford the necessary expenses. Thus, it is possible that the majority of HEIs are excluded from the competition against national HEIs due to insufficient funding. Meanwhile, increased funding from regional government may require HEIs to produce outcomes that are deemed satisfying by policy actors in regional government. As interviewee A stated,

First of all, because they [HEIs] need to earn the funding, they need to put forward substantial goals as promising outcomes, then will we give them [the required amount of funding]. If you set the goals too low, we won't give you that much money.

Regional HEIs then may have to compete with other HEIs under the same funding body to produce satisfying outcomes for continuous financial support from the regional government. Similarly, in order to enter the provincial project, regional HEIs may need to compete with a wider range of HEIs to produce outcomes that are judged to be relevant to the provincial interests. After the announcement of Project DFC, 29 out of 31 provinces of mainland China initiated their own provincial projects that show obvious relevance to Project DFC (Chen et al., 2018). In Guangdong Province, a provincial project of High-Level University (HLU) patterned on the rationale and design of Project DFC has been implemented. A small number of HEIs in the province have been selected and differentiated into two tiers. According to the interviewees, being involved in the provincial project is necessary for regional HEIs to get further mobility in the hierarchy. As interviewee B explained,

We must enter [the provincial project] to be entitled as one of the first-class HEIs in the province...just like applying for doctoral education authorisation, we must earn support from the province first and then we can have the support from the state. We must upgrade in this sequence.

It seems that being selected in the provincial project is the premise of entering Project DFC for regional HEIs. This suggests earning the recognition of policy actors in upper-level government is necessary to achieve mobility in the system and such recognition is based on

judgement of HEI's contribution to the interests of the province and the nation state. This requires HEIs in Shenzhen to prove their contributions to the provincial interests compared to other HEIs within the province.

This firstly requires HEIs in Shenzhen to adjust their performance against the standards set by policy actors in provincial government. Figure 5.4 shows the indicators of the evaluation system of the provincial HLU project. Although it showed great similarities with the selection criteria of Project DFC, there were differences. For example, the provincial project included a category of social service, which required HEIs' to provide actual cases, and seemed to focus more on substantial contributions by individual HEIs.

Criteria	Instrument
Overall improvement of HEI	Global rankings
Overall development for selected key-point disciplines	1.Number of ESI top 1‰ and 5‰ ranking disciplines 2.Number of ESI top 1% ranking disciplines 3.Number of top 10% (or top 3) disciplines in the discipline ranking by the MoE 4.Other representative figures
Faculty development	1.Increased number of national high-level talents 2.Increased number of outstanding young scholars 3.Increased number of teachers with oversea degrees 4.Other representative figures
Quality of human capital cultivation	1.Increase of students' admission score and institutional ranking in Gaokao 2.National and international academic competitions awards 3.National and international non-academic competition awards (i.e. sports) 4.Published paper by students 5.Entrepreneurship and employment 6.Co-training programs with oversea institutions 7.Other representative figures
Research/teaching platforms development	1.Increase of national research platforms 2.Increase of ministerial/provincial research platforms 3.Increase of ministerial/provincial teaching platforms 4.Increase of research platforms with international cooperation 5.Other representative figures
Research and innovation	1.Approved national research projects (including numbers and the amount of funding) 2.Approved key ministerial/provincial research projects 3.National or ministerial research awards 4.Publication on national or international leading journals 5.Publication of books or textbooks 6.Patent application and licensing 7.Other representative figures
International cooperation	1.Cooperative education institutions and programs 2.International research and teaching platforms 3.Teachers with oversea degrees or training experiences 4.Exchange students with oversea institutions 5.Increase of international students 6.Other representative figures
Reform in management	1.Internal management structure reform 2.Resources adjustment and optimization among disciplines and promotion of disciplinary integration 3.Employment system reform 4.Innovation in talent cultivation strategy 5.organization, evaluation and stimulation of research activities 6.Optimization of resource distribution mechanism
Social service	5 cases provided by HEI

Figure 5.4 The system of assessment in the HLU. Source: Sohu. com, 2018

Thus, improving performance against the standard set by the provincial government then was critical to earn the recognition of the provincial government. Currently Shenzhen HEIs have achieved great upward mobility in the provincial project, with two in the first tier and two in the second tier. The achievement of upward mobility required strategic planning. Interviewee E talked about the change of the strategy adopted by one of the HEIs in Shenzhen for upward mobility:

We pay more attention to research now. We pay more attention to the quality and influence... we don't focus only on quantity anymore, but more on the influence of research, like citation rate, contribution to the economy, etc. We do not emphasise the quantity of publications or the amount of total funding, like the research projects funded by Natural Science Foundation, we can receive over 360 projects successfully now, but this is not our focus anymore. We focus on the large-scale or key projects.

Conducting the large-scale/key research projects seemed to be an important indicator for research performance. To recap, these projects are research areas that are considered to be of critical importance for national development. This is why applying for the large-scale/key government-funded research projects was an important part of the strategy for regional HEIs in Shenzhen. By conducting more of these projects, what HEIs in Shenzhen were demonstrating, on the one hand, was enhanced research capacity since competition for these projects was intense. On the other hand, they were showing greater commitment to the development of the nation state/province. Thus, in order to earn upward mobility in the provincial hierarchy, HEIs in Shenzhen must show the transformation from HEIs that serve only regional development to HEIs that are capable of and committed to making greater contributions to the nation state/province.

Contributions to the interests of the province seemed to be an important criterion for HEI selection in the provincial project. Examination of HEIs' contributions to the provincial interests not only based on performance against the articulated standards but also based on the subjective judgement of policy actors in provincial government. This explains why HEIs in Shenzhen were disadvantaged in the beginning in the provincial project. As interviewee B stated,

In the first round, we have only one HEI that entered tier two of the provincial project...because the province did not give much attention to Shenzhen and they focused more on the national HEIs, HEIs administered by the province and HEIs in Guangzhou and gave them support, including financial support. They tended to think higher education in Shenzhen was less developed.

According to the interviewee, being judged as less constructive to provincial interests was an important reason for the disadvantages experienced by HEIs in Shenzhen in the competition to enter the provincial project. As interviewee H explained,

Shenzhen is a city with economic autonomy, which means we are separated from the province in the national system of accounting. So it is normal that Shenzhen is disadvantaged in higher education distribution. Usually, say in application for provincial research projects, Shenzhen is less competitive. Because they normally support higher education development in Guangzhou [the capital city of the province] in priority and then the other cities and finally Shenzhen.

Judgement of the extent to which an HEI serves the interests of the province thus was an important criterion for HEIs selection. The consideration that HEIs in Shenzhen tended to serve more of the developmental needs of the city rather than that of the province made HEIs in Shenzhen less likely to be selected. Since the city is separated from the province economically, it was considered that allocation of the limited resources for HEIs in Shenzhen is the least likely to create the returns identical to allocation to HEIs in other cities for the collective interests of the province.

Except for comparison of HEIs in terms of their quantifiable performance against the incentives by the provincial government, the selection also seems to be subjective and based on perceived needs by the bureaucrats in provincial government as well. Interviewee B talked about how proving to contribute to the perceived needs of the province was critical for HEIs in Shenzhen to achieve upward mobility:

[in the first round] they [the provincial government] gave those HEIs administered by the province 1 billion RMB [126 million GBP equivalent]. Our university was in tier two and just received around 400 million [50 million GBP equivalent], I think. So Shenzhen government decided to give the same amount of funding and both of our HEIs received 1 billion because we took them seriously...you can see that HEIs in other cities, say in

Guangzhou, they received little funding [from regional government] ...So why did they [provincial government] pay attention to [HEIs in] Shenzhen later [in the second round]? Because they saw the commitment of Shenzhen to develop these HEIs into high-quality universities... and the improvement was significant as well, so they thought this was a good thing that regional government was willing to invest [in HEIs] and the enhancement of higher education in Shenzhen would also facilitate the overall development of higher education in the province. So there was actually a change in their perception [about Shenzhen HEIs] ...In the second round, they did not give any funding [to HEIs] in Shenzhen but we invested 4.4 billion [557 million GBP equivalent]...

Apart from HEIs' performance improvement, the commitment of Shenzhen government and its willingness to provide funding for the long-term development of its regional HEIs were also important. This was because the willingness and capability to provide sufficient funding by the regional government greatly reduced the financial burden on provincial government and allowed the concentration of funding on other HEIs under the provincial government's direct administration. As suggested by the interviewees from both Shenzhen government and HEIs, in the second round of the provincial project, although HEIs in Shenzhen managed to enter tier-one in the provincial project, they did not receive any funding from the provincial government and Shenzhen government was almost the only source of funding. What is more, the rapid enhancement of the HEIs in Shenzhen has encouraged the proactivity of other HEIs and their administrative regional government to participate in the provincial project. Thus, providing upward mobility for HEIs in Shenzhen is proved to be constructive to the interests of the province.

Thus, it seems that proving the contributions to the interests and the needs of the province is critical to earn the recognition of the bureaucrats in the provincial government and achieve upward mobility for HEIs in Shenzhen. This seems to suggest that the selection for the provincial project is not just a competition based on the quality of research and education among HEIs. It is also a process of bureaucratic distribution, through which the limited places in the provincial project were distributed to HEIs that were judged to contribute the most to provincial and national interests by bureaucrats in provincial government. Similarly, in order to enter the national project for further upward mobility, HEIs in Shenzhen must prove their contributions to the national interests and compete with all HEIs in the Chinese system,

including those national HEIs that are already being selected. Thus in order to enter the national project, regional HEIs must cater to the interests of three levels of government and produce outcomes that are considered satisfying by policy actors in all three levels of government simultaneously. This seems rather challenging, speaking from Shenzhen HEIs' experience, and therefore, may effectively exclude a large number of HEIs from participating and reduce the competition faced by the national HEIs in the higher strata.

Thus, it seems that behind these unchanged elements of the policy design of Project DFC there are a set of national institutions which are designed to maintain the existing HEI hierarchy by design. They achieve this aim by changing the conditions for HEIs' competition through centralised coordination. On the one hand, they secure the privileged access of the top-tier HEIs to the resources that are critical for higher education development. On the other hand, they set demanding barriers for entry to exclude a large number of HEIs. Despite the claim to change the unchanged status of the HEIs that were involved in the previous WCU policies by using a competition mechanism for HEIs selection, these elements remain and contribute to reducing the competition and maintaining the existing hierarchy effectively. In this hierarchy by design, who gets what is, to a great extent, the outcome of central planning. Through a set of national institutions illustrated in this chapter, it seems that an institutional infrastructure has been formed in the Chinese system to enable concentration of resources on HEIs that are judged to be most relevant to the national interests. Although Project DFC allows HEIs in the lower strata to compete for upward mobility in the hierarchy through the performance-based competition for HEI selection, it seems that the extent of mobility is rather limited, with the intention to maintain the existing hierarchy.

Such an HEI hierarchy by design can be traced back to when the Soviet model of central planning governance was established in the Chinese system. It has been persistently maintained because it allows strategic distribution of resources under central planning in the decisions about who gets what in the Chinese system. By concentrating resources on HEIs which are judged to contribute more to national interests, it is considered that the majority of the limited resources in the higher education sector are devoted to activities that are

beneficial to the nation state. Thus, through maintenance of such a hierarchy by design, it is considered that the national interest is being continuously prioritised in the higher education sector with increasing returns. The three elements of the policy design that are presented in this chapter are unchanged in Project DFC and contribute to the maintenance of the existing HEI hierarchy. Thus, it seems that with national interest being prioritised as increasing returns, such an HEI hierarchy is persistently locked into the current Chinese system.

### 5.3 Conclusion

This chapter illustrates the other three elements of the rationale, tools and implementation structure of the design of Project DFC. It argues that central planning remains in the Chinese system ever after the implementation of Project DFC, which suggests a governance reform in convergent of the global trend of performance-based financing. This is because the role played by the central authority remains critical in resource distribution in higher education. This allows the concentration of the resources that are necessary for WCU development on the HEIs, which are considered to serve the most to national interests and national needs. As a result, the HEIs that have been selected in the elite tier are advantaged in the competition over resources, including funding, students and research staff by the protection of the redistribution mechanism. The opportunities of upward mobility of HEIs in the lower strata, especially the regional HEIs, tend to be limited.

It is against such a background, with national institutions that preserve maintain the privileges of the top tier national HEIs under central planning, that the plan to develop WCUs by Shenzhen government and HEIs were initiated. In the next chapter, the plan by Shenzhen and how it was developed will be presented.

## **Chapter Six A policy design to change the path dependency in Shenzhen**

This chapter sets out to answer research questions two (What is the policy design for WCU development in Shenzhen?) and three (How has the policy design been reframed?).

The policy design for WCU development in Shenzhen mainly presents two major differences, compared to that at the national level. Driven by the national policy of building a Pioneering Demonstration Zone (PDZ), which requires accelerating the development of WCUs in Shenzhen, two elements, i.e., values and goals, and policy tools, have been reframed in the central design by policy makers in Shenzhen. The policy making process in Shenzhen will be presented in this chapter. The regional policy for higher education development under the PDZ was firstly developed by policy makers in Shenzhen and then submitted to the central government for a final decision. In the first section, value and goal, and how this element of the policy design was changed in Shenzhen will be illustrated. In the second section, the choice of policy tool by policy makers in Shenzhen will be presented. Lastly, the final decision by the MoE will be presented and its implication for understanding the governance of the Chinese system will be discussed.

Seeing from the policy design, it shows an intention of the policy makers in Shenzhen to make changes to the centrally planned and controlled regime of governance. Changing the centralised governance suggests altering the particularised institutions, which enables the concentration of resources on the selected HEIs via strategic coordination of the central authorities. Seeing from the result that the proposal by Shenzhen, including changes to these particularised institutions, has been rejected by the central government, it seems that these particularised institutions, which were devised under central planning and contribute to maintain the privileges of the top tier HEIs, are seen necessary in the Chinese system.

## 6.1 The reframing of the idea of WCU in Shenzhen

As explained in Chapter Four, emphasising the instrumental value of higher education, the idea of a WCU that is constructed in Project DFC at national level refers to HEIs which take serving the nation state as the priority but meanwhile also have strong international competitiveness. This idea of a WCU in the policy design in Shenzhen has been changed with an emphasis on social service for the local region. Similarly focusing on the instrumental value of higher education, the idea of a WCU that is constructed in Shenzhen refers to HEIs which take serving the city as the aim of higher education activities. Two elements shaped this idea of a WCU in the policy making process in Shenzhen. These are the interpretation of the PDZ by policy makers in Shenzhen and the accountability of Shenzhen HEIs to the Shenzhen government.

### 6.1.1 Interpretation of the PDZ policy: a requirement to reform WCU development

The reframing of the idea of a WCU in Shenzhen is firstly shaped by the interpretation of the PDZ policy by policy makers in Shenzhen. The PDZ policy seems to indicate that a new form of WCU should be devised in Shenzhen. However, the ambiguous policy document of the PDZ policy opens up the possibility of interpretation by policy makers in Shenzhen. Based on the considerations on the reality of higher education development in Shenzhen, a new form of WCU, which is designed to serve the local needs, is formed.

#### 6.1.1.1 The ambiguous national policy document of the PDZ policy

The national policy of PDZ, which intends to develop Shenzhen into a globally advanced city as a national model of modernisation, includes the acceleration of WCU development in Shenzhen as part of its policy agenda (State Council, 2019). Thus, the development of WCUs,

which is the goal of Project DFC, has become a task that must be achieved by Shenzhen and the design of the regional policy for WCU development in Shenzhen has been inevitably impacted by the PDZ. However, the national policy is ambiguously articulated and it seems to allow great possibility for interpretation.

On the one hand, the PDZ outlines an ambitious goal for the future development of higher education in Shenzhen. The PDZ policy concerns the overall development of the city of Shenzhen. Its goal is to develop Shenzhen into a model of modernisation, whose experience will be the paradigm of modernisation development to be followed and referred to by other cities (State Council, 2019). As a model for demonstration, the PDZ requires that Shenzhen should be a model of advanced development in all dimensions. This can be seen in the three-stage goals outlined in the national policy document (State Council, 2019):

#### Development objectives

--By 2025, Shenzhen will have become one of the top global cities in terms of economic strength and development quality, maintained world-class research and development intensity and industry innovation capability, significantly improved the cultural soft power, elevated public service and ecological and environmental quality to the international advanced level, and built up into a modern, international, and innovative city.

--By 2035, Shenzhen will have become a national model of high-quality development with globally leading economic competitiveness, become the capital of innovation, entrepreneurship, and creativity with global influence, and a model city of China's socialist modernization.

--By the middle of the century, Shenzhen will have become a global benchmark city with remarkable competitiveness, innovation capability, and influence.

It can be seen that the model city that is desired by the PDZ is a modernised city which has achieved progressive development in all dimensions of people's life. These include advanced developments in the economy, governance, urban culture, public services provision and sustainable development for the building of a pleasant environment. It requires that Shenzhen should become a leading city in all these dimensions that are related to the construction of a

modernised social life and its experience of development should become the textbook of modernisation that can be learned from by other cities in China or even in the global community.

To become a model suggests a future city which has not yet been achieved and is substantially different from contemporary cities. Thus, in order to become the model for demonstration to other cities, reform in all aspects of Shenzhen society is necessary and this includes the higher education system. With development of WCUs being emphasised, this policy seems to suggest a new form of WCU should be devised in Shenzhen.

In contrast to this ambitious vision, the idea of this progressively developed higher education system that should be brought about in Shenzhen is ambiguously constructed in the policy document of the PDZ. The orientation for higher education development in the policy document is rather simple: to 'substantiate HEIs' autonomy and accelerate the development of first-class universities and disciplines' are the only instructions that are related to higher education development (State Council, 2019).

On the one hand, having HEIs that are world first-class standard seems to be the only specified description of the higher education system in the future Shenzhen by the PDZ policy document and it is also the only goal specified for Shenzhen in terms of higher education development. Except for this, what other attributes should be presented in the higher education system in Shenzhen as a national model and how the system should be different from, say, the currently more developed system in Beijing, is not clearly stated.

On the other hand, the PDZ policy is also unclear about what course of action should be adopted to bring about the progressive development in higher education. Although it claims to substantiate HEI's autonomy in the national policy document, it is not clear what kinds of autonomy the PDZ policy is referring to. Nor is it clear how the exercise of that autonomy by regional HEIs in Shenzhen will be ensured.

Thus, with an ambiguously constructed national policy document, it seems that the PDZ policy is open to a wide range of possible interpretations by the policy makers in Shenzhen. Given that little instruction is specified in the national policy document, it seems that the policy design, which includes a set of more precise policy goals and the necessary policy instruments, depends on the policy makers in Shenzhen. As interviewee C described the policy making process in Shenzhen after the announcement of the PDZ,

This depends on us. First of all, we need to have a plan. The next five years, for a start, what do we want to do? We need to propose a goal, a comprehensive goal, to develop an internationalised and opening higher education system, a highland of higher education in the south of China... The criteria we have to design by ourselves as well. What goals to achieve in the future, [for example] having one or two HEIs to enter the Project DFC in the next two years. For example, how large a scale should we achieve in higher education...

So, due to the ambiguously articulated national policy document, policy makers in Shenzhen played a critical role in the task to design and develop a new form of WCU, which include the deep connections between HEIs and their local region rather than focusing only on global competition.

#### 6.1.1.2 Reflections on the realities of higher education development in Shenzhen

In response to the PDZ, policy makers in Shenzhen proposed that the higher education system to be developed in Shenzhen should be one which is designed to serve the developmental needs of the city. What should be demonstrated by Shenzhen to other cities is the close correspondence between higher education and local industry. This proposition was based on considerations of the realities of higher education development in Shenzhen.

In emphasising that higher education development in Shenzhen is to be the model for other cities, the PDZ poses great challenges for policy makers in Shenzhen. It is considered that

there is a great gap in terms of higher education development between Shenzhen and other cities that are more progressively developed in higher education, such as Beijing and Shanghai. Thus, it is challenging to become a model from which these cities should learn. What is more, the demanding timeline that is outlined in the national policy document of the PDZ requires that Shenzhen should achieve this goal in less than two decades. Given the reality that higher education in Shenzhen is lagging behind, a special strategy is considered to be needed to cope with the challenging goal of becoming a national model. As interviewee D explained the rationale behind the policy making in Shenzhen,

...So we need a thorough research [to make an action plan for higher education development for the PDZ]. We need to compare [to higher education systems] in and out of the country, to see whether is it possible to become a model that can be learned from... we can't compare to Beijing and Shanghai but there is something [we can present] as the characteristics of Shenzhen, something that Beijing and Shanghai can't compare [with us]. There are tens of hundreds of high-level HEIs in Beijing and Shanghai while there are at most 10 or 20 in Shenzhen. But you can't say that Shenzhen cannot be a model [that Beijing and Shanghai should learn from]. We are more flexible in administration of HEIs, we do better in integrating the industry and higher education and this is what they should learn about.

Given that Shenzhen is incomparable to these advanced cities in the quality of higher education, the policy makers in Shenzhen suggest that what should be presented as the norm of higher education development to be followed by other HEIs is the close connection between higher education and local economic development. This is in fact reframing the idea of higher education that is presented in the policy design of Project DFC at national level. The emphasis on social service to the nation state in the policy design at national level has been changed to local relevance. The proposition of devising a new form of higher education, the purpose of which is to serve local needs, is also driven by the funding relationship between Shenzhen government and its regional HEIs, which will be presented below.

### **6.1.2 The desire to increase accountability of higher education**

The second force that contributes to the reconstruction of the idea of a WCU relates to the funding relationship between Shenzhen government and its regional HEIs. The desire to increase public accountability of regional HEIs also give form to the proposition of a new form of WCU to serve local needs.

Along with the implementation of Project DFC and the provincial project of HLU, a large amount of extra fiscal funding from Shenzhen government has been invested in its regional HEIs. According to the interviewees in both Shenzhen government and the HEIs, each HEI which entered the provincial project of HLU received 1 billion RMB of extra funding from Shenzhen government. Funding for each HEI was increased to 1.8 billion RMB in the second round of the HLU (2018-2021).

However, as fiscal funding from Shenzhen government is the major source of income for HEIs in Shenzhen, increased fiscal funding at the same time reinforces the demand to increase the accountability of regional HEIs to Shenzhen government. As interviewee A stated,

Regional HEIs in Shenzhen are not funded by the nation state. They are funded by regional government [Shenzhen government] so they must serve the regional government. This is for sure. Regional HEIs must serve the region [the city]. This is the difference between regional HEIs and national HEIs.

Increased funding as investment in HEIs, as a result, further reinforces the intention of policy makers in Shenzhen government to confine WCU's activities to provide social services for the city. Thus, shaped by these two elements, an idea of a WCU which is designed to serve the needs of the city has been established in regional policy in Shenzhen. In order to achieve this goal of WCUs, comparatively decentralised control of local higher education, which hampers the maintenance of the institution infrastructure formed by a set of particularised institutions, is seen as necessary, as will be explained in the next section.

### **6.1.3 A mutualistic city-higher education relationship**

Similar to its conception at the national level, the idea of a WCU that is constructed in Shenzhen also focuses on the social service function of higher education. However, the WCU that is targeted by policy makers in Shenzhen seems to emphasise more the inter-relationship between an HEI and its local context. It seems that what they propose to develop is a system of higher education, including WCUs, which shares a mutualistic relationship with the city. As interviewee H stated,

A WCU must interact with the society, make contributions to regional economic and social development and national needs. This is the first element [of a WCU]. This is to say the development of our university should be synchronised at the same pace with local development.

Higher education and WCUs are seen as an indispensable part of the future social life in Shenzhen. Perceiving higher education in this way, the planning of its development has been integrated as part of the city's future development. As interviewee A explained the rationale behind the action plan made for the PDZ,

As you can see the positioning of Shenzhen by the nation state [in the PDZ]. It requires Shenzhen to develop into a model city of modernisation, a flagship city in the world... to achieve these goals of positioning, there must be a highly-developed higher education, highly-developed in both quantity and quality. Quantity, if there are not enough HEIs, it is hard to get further development [it is difficult to support the further development of the city] ...Currently we have about 14 HEIs. We will establish 5 or 6 new HEIs in the next five years, about one new HEI per year. So by 2025, there will be 25 HEIs and 200,000 students in higher education. This is the overall plan for higher education development. More important is the quality of higher education. All the positioning we mentioned previously requires the support of high-quality higher education.

In this system, HEIs are perceived as an organic component that forms part of a self-functioning urban ecosystem, especially in terms of the innovation system in the city. The municipal party secretary of Shenzhen explained the rationale of such a system of innovation in an interview with China Central Television,

We have proposed and started to develop an innovation system. It starts from basic research to technological breakthrough to the industrialisation of the outcomes with commercial resources and human capital support [all these steps can be accommodated and finished in Shenzhen].

HEIs in this urban ecosystem function as the producers of knowledge innovation, which correspond and cater to the needs of knowledge innovation and human capital for the city's development. Such a proposition which integrates higher education into the development of a city and perceives HEIs as a part of a well-functioning ecosystem shows great similarities to the self-sustaining High Skill Ecosystem (HSE) proposed by Finegold (1999). This model by Finegold explains the role of WCUs as the catalyst for the geographic clusters of high-tech companies. In fact, the HSEs in the developed countries are an important point of reference of policy borrowing for the action plan of higher education development under the PDZ in Shenzhen, especially those that are located in a bay area like Shenzhen. As interviewee D explained their policy planning process,

We also studied Stanford, well the bay areas and we compared some of the bay areas, like the one in Silicon Valley, Tokyo, New York and maybe some in the UK as well. The thing is they are quite different... It [the policy borrowing] is actually a combination.

However, driven by the value which puts serving the development of the city as the purpose of higher education in Shenzhen, the experiences of higher education development in these HSEs have been tailored to meet the needs of the policy makers in Shenzhen. As interviewee A explained how they referred to the experiences of some prestigious WCUs in their policy making process,

Internationally speaking, the cities with prestigious WCUs may not be economically advanced cities. For example, Cambridge, Oxford, the local city may not be economically advanced. This is the same in the U.S., cities with advanced HEIs do not necessarily have well-developed high-tech industries. What does this mean? It means higher education is not making direct contributions to the [local] industries, at least this is how we understand it. They make indirect contributions, like through basic research. But the industrialization of basic research is relatively weak [industrialisation of basic research is

difficult]. So Shenzhen is hoping to change this.

Such interpretation of the HSEs shows an intention to change the globally dominant model of WCUs into a model of WCUs, which is designed to make direct contributions to local development. All of an HEI's activities, in this model, are oriented towards the developmental needs of Shenzhen in order to provide direct contributions for the city. As interviewee B explained,

HEIs must integrate with the development of the city, this means...the published paper [by HEIs] must be based on the developmental needs of the city. Research, human capital cultivation, technological innovation and social service [activities], all of them must serve the future developmental needs of the city.

This requires regional HEIs to take making direct contributions to the city as the purpose of their activities in research, education and international cooperation.

#### 6.1.3.1 The purpose of research

With providing direct contributions to the development of the city as the value of WCUs, the research activities in HEIs in Shenzhen have been oriented to produce more directly applicable outcomes for the development of the city. As interviewee A explained the orientation for research activities in regional HEIs,

HEIs need to integrate with the development of the city. Basic research, applied research and knowledge and technology transfer, they must surround the development of the pillar industry, new industry and future industry. Research papers must integrate with the developmental needs of the city, for the future of the city.

The scope of research then is confined to meeting the needs of local economic and social development. This utility-based 'selectivity' on research activities tends to be more evident in basic research. The value of basic research is well understood by policy makers. As interviewee

A explained, basic research is important for theoretical and technological breakthroughs, which is significant for further development of applied sciences. However, due to the uncertainty of yielding transferable research outcomes and the time-consuming characteristics of basic research, there is a strong orientation to focus on research activity which can produce useful outcomes for the city,

Abstract, theoretical research, although necessary, should not be the majority of research activities for a regional HEI. [Because] regional HEI must serve for the local... We also encourage explorative research, but explorative research must serve the future development of the city as well.

Basic research in regional HEIs in Shenzhen then tends to be limited to a small range of topics, which can produce foreseeable contribution to local development in the future. In contrast to the orientation to restrict the scope of basic research, applied sciences which tend to be more closely related to the solution of practical problems, are encouraged. For example, interviewee G mentioned the transition of one of the regional HEIs, from a basic research focus university to one which is more application oriented, under the orientation of problem solving.

At the early stage of establishment, the university had a more basic research focus. Some people would call it a 'Cal-tech model' because it tended to focus on basic natural sciences, such as physics, mathematics, biology...But from 2015 or 2016, we further clarified the direction of development and started to change from focusing on natural sciences to a combination of natural sciences, engineering and medicine. Now we are aiming to be an innovative research university with a focus on science, engineering and medicine, as well as business and humanities and social sciences in specific topics. natural sciences are [for] basic research. Engineering is [for] applied research and social application. Medicine is a combination of basic and applied research as well.

Research activities, which can yield transferable scientific and technological innovation, are then highly valued since it is thought that commercialisation of such research outcomes can produce immediate economic growth. As a result, the production of patents has been constructed as one of the purposes of higher education. As interviewee H stated,

An innovative city needs innovative universities. These universities not only produce human capital and knowledge but also produce patents and establish their own

companies... Knowledge creation, innovation and entrepreneur are the three mottos of our university. Knowledge creation means producing new knowledge, means publishing papers...innovation means transforming new knowledge into patents and entrepreneur means transforming these patents into productivity, into a form of application in society

In order to encourage faculty's participation in practical problem solving, specific measures are undertaken by HEIs. For instance, some HEIs establish collaborative labs with companies to strengthen connections with local industry. Collaboration with local companies enables researchers from HEIs to get first-hand information about the practical problems in production or in the process of development of business plans, thus enhancing research staff's abilities to identify problems and provide solutions efficiently. Apart from applied research, participation in consultancy work for companies is another form of applying knowledge to practical problem-solving. Thus, HEIs also encourage research staff to participate in consultancy work,

We encourage professors to do social service. We encourage and allow professors to provide service for companies one day in a week. It can be their own companies or companies related to their profession. Their service can facilitate better development [of the society] with their knowledge and innovation to be applied in the development of social productivity.

Other measures have also been adopted to enhance the transfer of research innovation. For example, Shenzhen HEIs have established technology transfer centres as the agency for consultancy to assist faculty's business start-ups or as an agency for coordination to assist technology transfer by connecting research innovation and industrial needs. Some HEIs have also established their own asset management company to give financial support for business start-ups to encourage industrialisation by the faculty.

With the aim to orient research activities to produce more direct contributions to the city's development, there is a tendency to reform the evaluation systems for both HEIs and individual researchers to highlight the social service for the local society in Shenzhen. For example, policy makers in Shenzhen government suggested that there was a plan to develop a performance-based financing system, which would include HEIs' direct contributions to

local development as part of the standard of excellence. HEIs have also altered how the performance of faculty is evaluated. For example, interviewee I mentioned the university he works in adopts a performance measurement method for the faculty, incorporating social service activities. Participation in social service activities accounts for 20% of performance assessment for all faculty staff.

#### 6.1.3.2 The purpose of education

Similarly, following an orientation of social service, education activities of HEIs are centred around the economic and social developmental needs of the local society. Education in this local-serving model of WCU serves three purposes and these are inculcation of a Chinese identity, workforce production and cultivation of innovative talents.

Firstly, the construction of a Chinese identity for citizens is articulated as the goal of education in higher education in the national policy documents of Project DFC (MoE, 2017a). It is also presented as the primary purpose of education in regional HEIs in Shenzhen because it is seen as the main attribute of the 'Chinese characteristics' of higher education. As interviewee G stated,

We emphasise the inculcation of love for home and country in students [in education]. Why the love for one's home and country [so important even though] we are training students with the ability of global mobility? I think this is where we are different from HEIs in other countries. [Developing HEIs] rooted in China mainly reflects the inculcation of love for home and country in terms of education.

The primary purpose of education is then articulated as the construction of a national identity with patriotism. In the action plan by the Shenzhen government, this is listed as the first strategy of development for the cultivation of 'builders and successors of socialism with Chinese characteristics'. This means that the purpose of higher education is firstly to cultivate Chinese citizens, who support the socialist institution in China and at the same time have a

sense of responsibility to contribute to the development of the nation state. As the interviewee continued,

Both teaching and research should be tightly related to the development and the fate of the state. To be frank, we are not trying to establish a Chinese version of Oxford or Stanford. We learn from them. But in terms of education, in terms of guidance and building students' personality, we must have a very clear idea.

The second purpose of education in HEIs is for workforce production for the city. Provision of a workforce with professional knowledge and skills for local development is an important mission of regional HEIs in Shenzhen. As interviewee G talked about education in regional HEIs in Shenzhen,

...the most important output of universities is not services to the local industry but educated students...University A has produced nearly 300 thousand alumni...they are everywhere [they are serving the city in every industry]. Shenzhen's [rapid] development in the last 40 years is unimaginable without it.

Preparing a workforce that is tailored to the needs of the labour market and industry is an important mission of higher education in the local-serving model of WCU proposed by policy makers in Shenzhen. As interviewee D stated,

There should be interactivity between HEIs and the city. Because a good university will not have subjects that are not useful for society. It will make self-adjustment and it will not have courses which are not demanded by society [because] there will be great difficulties for graduates to find a job. [Thus] education programmes of HEIs must integrate with the developmental needs of economy, the society and the city, and this is what we hope for as well.

Providing graduates suitable to the local industry is considered to be an important facet of the quality of higher education. Through applying the corresponding theoretical knowledge and skills learnt from higher education, it is considered that graduate students are contributing to the development of local industry and the relevance between the workforce provided by HEIs and the local industry is enhanced. Thus, in order to enhance the relevance of education activities in HEIs for industry, HEIs are encouraged to deepen the connection

and collaboration with industry in education to produce a tailored workforce for the local industry. Policy makers in Shenzhen are exploring new forms of education that can enhance such correspondence and propose 'order-based' education programmes. This refers to HEI-based training and education programmes, the curriculum of which is designed collaboratively with companies, after receiving orders from companies based on their actual needs. As interviewee A explained the rationale,

I promoted the collaboration between the first-class companies, for example Huawei, and the HEI I used to work in. We established a specialised college to train human capital for these companies. We can train all kinds of talents according to their needs and we develop specialised curriculum according to their technical standards to provide direct services to these companies. This reflects the direct contribution of HEIs to the development of the city.

The third purpose of education activities in HEIs is to create high-level innovative talent who can make significant contributions to economic and social development. This firstly refers to research talent, who can bring creative ideas for technological and scientific innovation that can be applied to solve practical problems or trigger the development of new industries for economic production. There is also a strong orientation to tailor the cultivation of research talent for the local industry so that their skills better correspond to the research activities needed by companies in Shenzhen.

According to the interviewees, in order to increase the correspondence between industry and the cultivation of research talents in higher education, policy makers in Shenzhen propose two new forms of education. One is project-based education programs. It refers to collaborative training programs among government, companies, HEIs for the training of specific research talent. For example, Harbin Institute of Technology, Shenzhen is cooperating with Huawei for the training of engineering research talents. The training of this research talent is based on the collaborative projects between the university and the company, including those on 5G technology, AI technology and cloud computing technology (X-institute, n.d).

Except for project-based educational programs, policy makers in Shenzhen are exploring another form of education, platform education. This refers to educational programmes based on the collaborative platforms established by high schools, HEIs, companies, Shenzhen government and research centres. The aim is to discover and cultivate innovative talents from a young age. As interviewee A explained, the rationale for this platform school is to explore the possibility of a credential-free education to minimise the signalling effect of credentials,

This is an exploration of a new form of education. Our education, from basic education to higher education, is strictly restricted by examination. We are exploring a possibility, ...a form of future school, a form of platform school. The X Institute with Tsinghua University is an exploration of a collaborative education to gather high school, HEI and companies together for the education and training of talents.

The aim of policy makers in Shenzhen in initiating this platform education is to optimise the selection and training mechanism for research talents for the local companies. As he continued,

Why include companies? What we think is, our companies can set up research labs here and students then can participate in the research projects of these companies from an early age. Companies may discover students with innovative abilities even though they are not graduates from Peking or Tsinghua University. This is a selection based on students' abilities only. [On the one hand,] this is to break down the boundaries between basic education and higher education and between education and industry. On the other hand, this is a reform of the current discipline-based education. Training students' creativity through participation in research projects. This is to discover and train students with creativity since early age. For students, who are truly talented but may not be able to get good marks in exams, they can be discovered here by the companies. So this is a new form of school to train excellent innovative talents by integrating the best resources from the best basic education, the best HEIs and the best companies.

The second type of innovative talents refers to entrepreneurial talent. Graduates who have the ability to establish start-ups with advanced technology and knowledge learnt from higher education experiences are seen as the most important products made by HEIs through education. As interviewee G stated,

The best products of universities ...are educated students. For example, the tax revenue created by Tencent company by Ma Huateng in one year exceeds the investment from Shenzhen government in the last 30 years on his university. This suggests [regional universities] may not provide technological innovation but they produce excellent talent, it could be research talent in science and technology, it could entrepreneurial talent, it could be management talent...Universities in Shenzhen have produced a lot of millionaires. I think this is a significant contribution to society. Entrepreneurial talent, rather than scientists, are the people who are making the greatest contribution to the society. They create tax revenue, solve unemployment, produce products that are beneficial to the society. So they make the greatest contribution and this is how we should evaluate universities.

Thus, in this local-serving model of WCU, it seems that making direct contributions to local society has become the most important aim of education and also an important indicator of the quality of education.

#### 6.1.3.3 The purpose of internationalisation

In this local-serving WCU model, active participation in international communication and competition activities by HEIs is seen as an important means to attract resources that are constructive to the development of the city. Better performance in global rankings is thought to be important because it increases the possibility to attract excellent international students and research staff in regional HEIs in Shenzhen. Due to the popularity of the global rankings in global environment, it is considered that the higher ranking HEIs tend to be more advantageous in the competition for students and faculty. As interviewee F stated,

We have been making progress on various rankings. It is not to say that getting higher rank is the purpose of higher education. But rankings influence social reputation, [with progress on global rankings] everything will be changed, like popularity among students and teachers.

International human capital is thought to be critical for HEIs' further development, especially for their research performance. Along with the aim to achieve better performance in global rankings, in order to attract more advanced faculty internationally, HEIs in Shenzhen are

reforming their management of human resources. According to interviewee B from Shenzhen government, in all HEIs in Shenzhen, the traditional way of human resource management in China has been changed into the more widely used tenure-track in western HEIs. The aim is twofold. Firstly, it is to enable changes in staffing because the traditional staffing system in Chinese HEIs means long-term employment and most faculty members are employed until retirement<sup>26</sup>. The tenure-track requires the profile of faculty members to be reviewed after a probationary period and the contract will not be renewed if the candidate fails to pass the review. Thus, it is considered that the tenure-track provides a performance-based employment system to ensure that the faculty members perform as needed by HEIs. Secondly, in the traditional staffing system in Chinese HEIs, salary is fixed by positions and working age while using the tenure-track individual researcher's salary can be different. Thus, it is considered to increase the possibility to recruit the research 'stars' from overseas via tenure-track because more competitive offers can be made. As interviewee B stated, this reform enabled 'in and out, up and down' in terms of human resources management in HEIs. The result also seems significant. According to interviewee H, over 90% of the academic staff of the university he works in have international studying or working experience.

Recruitment of advanced faculty and students is thought to contribute to the enhancement of research and education activities. As the above interviewee continued to explain, a faculty of academic staff with international background not only contributes to higher quality of education because many courses are taught in English or involve teaching materials in English. A faculty with diverse background and experiences also contributes to new ideas for research activities. Therefore, with better research and educational outputs, it is thought that the social service function of HEIs in Shenzhen to the city is also enhanced.

Participation in international activities by HEIs can also provide something that is more important since it may lead to immediate increase in economic returns. That is the flow and

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<sup>26</sup> In the traditional staffing system, employment can not be terminated unless extreme cases, for example, continuous absent from work for more than 15 days (State Council, 2014c). What is more, for those who has been employed for more than ten years, HEIs must sign an employment-to-retirement contract with them, if requested. Thus the traditional staffing system encourages life-long employment.

creation of knowledge through transnational communication and cooperation. HEIs in this local-serving model of WCU function as the hub to absorb advanced knowledge through international cooperation. As interviewee I explained, the aim of maintaining cooperative education is to expand their opportunities to cooperate in research with HEIs internationally,

Internationalisation is an important indicator of WCU...we have good cooperation relationship with foreign universities. We are cooperating with foreign universities in training PhD students and these are all very important facets of internationalisation. Although we can train the PhD students by ourselves, we insist on cooperating with foreign universities. This is because, through cooperative training, the professors of both sides are brought together to carry out scientific research jointly.

This corresponds with the observation of Fu (2015), which suggests HEIs in developing countries usually play dual roles in their national innovation systems. Fu (2015) suggests that they not only function as the creator of new knowledge but also play an additional role of absorbing and transforming the advanced foreign knowledge into industrial innovations. This is because the local industry in these countries tends to have a comparatively low level of absorbent capability. The task of decoding and translating the advanced knowledge and technologies for industrialisation is thus, it is said, sourced out to external experts in the HEIs. Such advanced knowledge is thought to be an important asset for the development of a knowledge economy and HEIs are used as the channel through which the advanced knowledge is sourced for local industry in the model of WCU in Shenzhen. As interviewee A explained, the rationale for deepening globalisation in the regional higher education system was to be seen in terms of,

...higher education globalisation is one of our important strategies [for HEI development], this is why we are promoting cooperative education [between foreign and local HEIs] vigorously... [through cooperative education] what we are promoting is the cooperation among our advanced industries with the domestic elite universities and foreign world-class universities. Through the integration of excellent resources both from the domestic and international to serve the development of our local industries. This is also for the service of our local industries. We promote the cooperation between domestic HEIs and foreign HEIs on subjects, which are needed by local industries.

Thus, in this model HEIs function as the hub to absorb knowledge and highly-skilled human capital including research staff and students in Shenzhen. The participation in international cooperation and competition of regional HEIs is thought to create important contributions to the economic development of the city. With serving local needs of development taken as the value of WCUs in Shenzhen, HEI activities including education, research and international cooperation and competition, are thereby bound to serve the city.

Although the innovation system proposed by policy makers in Shenzhen, with the local-centric model of WCU as a part of it, is a product of policy borrowing, it in fact shows fundamental differences to the HSE model. Firstly, the innovation system that is proposed by policy makers in Shenzhen adopts a rationale that is the opposite to that of the HSE. In the model of HSE proposed by Finegold (1999), research-intensive universities are vital to initiate an HSE. This is because the university, on the one hand, is the important part of the ‘catalyst’ that triggers the initial gathering of the high-tech start-ups and, on the other hand, it sustains the growth of the cluster through the provision of innovative research breakthroughs and students with high skills (Finegold, 1999).

The innovation system in Shenzhen, however, adopts a rationale reverse to that of Finegold’s model. An HSE in informational technology has been formed in Shenzhen with a cluster of advanced IT companies. The scale of electronic information manufacturing industry in Shenzhen accounts for one sixth of that in China in 2021 (Shenzhen government, 2022). However, its formation was not triggered by scientific or technological breakthroughs of the regional HEIs, which is central to Finegold’s model. Rather the formation of a supply chain seems to be the critical element that triggered the establishment of an HSE in Shenzhen. Being adjacent to Hong Kong, low production costs combined with low-cost land and cheap labour turned Shenzhen into a locus to receive industrial transfer from Hong Kong and also other countries (Wang et al., 2012). Being the first special economic zone to transit to a market economy also facilitated the concentration of industrial transfer in Shenzhen (Long & Luan, 2013). The labour-intensive companies, such as those for processing and assembling, in the

electronic information manufacturing industry started to cluster in Shenzhen (Wang et al., 2011). As a result, a complete supply chain, which can provide all the necessary components for production and low production cost due to reduction in transportation has attracted IT companies to gather in Shenzhen (Wang et al., 2011). According to a survey by Long and Luan (2013), over 90% of the companies that participated in their research in Shenzhen were supplied by local manufacturers. Thus, in the case of Shenzhen, it seems that the formation of a supply chain due to international industrial transfer was the catalyst for an HSE. As the municipal party secretary of Shenzhen stated in an interview with China Central Television,

2018 when I was in Silicon Valley, they told me, we could not compete with Shenzhen in infrastructure because the supply chain in Shenzhen is complete, especially in the IT industry. Our output value accounts for one-sixth of the country's and one-tenth of the world's.

The establishment of these high-tech companies formed a technological frontier (Aghion et al., 2005) and attracted human capital from all over the country. This can be supported by the large migrant population in Shenzhen. Shenzhen has the largest population of migrants in China with over 82% of its population being migrants from other cities, according to statistics from 2010 (Zhong & Feng, 2017). This suggests the majority of the workforce are from outside, and the establishment of HSE in Shenzhen is supported by the large migrant population.

Thus, this is vastly different from Finegold's model, in which universities initiate and support the development of HSEs by research breakthroughs and highly-skilled human capital for knowledge diffusion. Policy makers in Shenzhen propose to develop WCUs after a HSE has been formed. The development of WCUs in Shenzhen is proposed as an additional component being added to a well-functioning HSE by design. Thus, in order to integrate the HEIs and the existing HSE, purposeful orientation of higher education activities towards the local needs to increase the connection and correspondence is considered necessary.

Thus, the governance of the WCUs in the HSE is the second point where the innovation system in Shenzhen is fundamentally different from that of Finegold's model. In Finegold's model,

which is derived from California, the HEIs tends to be more self-governing entities, through which they have more freedom in the decisions of their activities, especially in basic research. Diffusion of knowledge and technology and supply of highly-skilled labour that contributes to the development of HSE are then the by-products of HEIs' research and education activities, rather than the purposes of these activities. However, in the local-centric model of a WCU proposed in Shenzhen, with providing direct contributions to the city as the purpose, research tends to be confined in scope. What is more, in order to ensure the rapid development of regional HEIs and to ensure serving the local needs is prioritised in higher education activities, a higher-level decision-making power to exercise control over regional HEIs by the local authority is seen as being necessary.

## 6.2 Decentralisation as the necessary tool in the policy design in Shenzhen

In order to develop WCU that takes serving local needs as the purpose of higher education, changing the policy tool in the policy design is seen as necessary by policy makers in Shenzhen. Decentralisation, which enables more local control on regional HEIs thus is considered essential for the delivery of the local-centric WCU model. The reframing of the policy tool is also shaped by two elements. Firstly, it is driven by the interpretation of the PDZ and, secondly, it is motivated by the agency of policy makers in Shenzhen to make changes. These will be illustrated in this section.

On the one hand, the PDZ policy seems to suggests a greater level of autonomy will be granted to HEIs in Shenzhen. To recap, in the national PDZ policy document, the instruction related to higher education development includes 'to substantiate HEIs' autonomy'. However, in this ambiguously articulated policy document it is unclear about what kinds of autonomy should be substantiated for HEIs in Shenzhen and it includes few restrictions on implementing the PDZ policy in Shenzhen. Thus, from the perspective of the policy makers in Shenzhen, the PDZ policy not only encourages them to devise a new form of WCU, it also encourages a

different way to develop WCUs through the exercise of their agency. When asked about how to understand the PDZ in terms of the requirements on higher education development, interviewee A explained,

It includes two dimensions. Firstly, it requires the development of high-quality WCUs. Secondly, it requires Shenzhen to explore the possibility of innovation on the current governance on higher education.

On the other hand, the centralised control through which regional HEIs are differentiated from the national HEIs is seen as constraining the exercise of the autonomy of regional HEIs and the agency of policy actors in Shenzhen. As illustrated in Chapter Five, the central planning governance model ensures that the power of decision making in relation to HEIs' activities, such as the size of annual enrolment, is centralised in the hands of the central authority. This inhibits the exercise of local control over higher education for the purpose of developing WCUs for local service. What is more, the hierarchy designed for differentiated distribution of resources under the central planning governance disadvantages regional HEIs in Shenzhen in the competition over the resources that are critical for rapid development. Thus, an intention to make changes to the institution of central planning governance, which leads to differentiation in terms of allocation between national HEIs and regional HEIs, is shown in the policy making in Shenzhen. As interviewee B commented,

Higher education in China is under a lot of restrictions. It [higher education] has a very strong trait of planning... For example, for a newly established HEI, it is required that it has to wait at least 16 years after its establishment to admit doctoral students. This is [what I mean] the constraint by the current system. So what are we demonstrating as a model...is to remove the impediments by the current institution.

As a replacement, a model of governance with the power of control being decentralised to Shenzhen government was proposed by policy makers in Shenzhen. Decentralisation is seen as the necessary tool in the policy design in Shenzhen to deliver the local-serving model of WCU. They are asking for decentralised governance in two dimensions in relation to provision of degree granting education and international cooperation.

Policy makers in Shenzhen propose that more autonomy should be given to policy actors in Shenzhen to manage the provision of degree granting education. As interviewee A explained,

The power to grant degrees autonomously, that is to say, the accreditation of master's and doctoral degrees in which subjects to how many students, we hope we can do it ourselves and we don't have to apply to the MoE. We can make our own decisions about which subjects should enrol postgraduate students and how many students to admit... we also hope the new HEIs can be granted autonomy to conduct both undergraduate and postgraduate education when they are established, starting [both undergraduate and postgraduate education] at the same time so that the postgraduate education can be developed rapidly.

Policy makers in Shenzhen are requesting two types of autonomy in relation to degree granting education. First the autonomy to determine whether an HEI in Shenzhen is qualified for a certain level of degree granting education. As illustrated in Chapter Five, for a regional HEI, in order to set up a degree granting educational programme and enrol students, application for authorisation from upper-level government is necessary. The power to determine authorisation regarding degree granting in higher education is strictly controlled by the central authority through the institution of the subject catalogue in the Chinese system, especially for doctoral degrees. What is more, earning the authorisation for degree granting can be time-consuming. As interviewee D stated,

To establish a [new] university in our country, it must start from bachelor degree education. After 8 years of granting bachelor's degree can [the university] have master's degree [programmes], and another 8 years to have doctoral education [programmes]. This means about 20 years [can a university be upgraded] to have doctoral degree granting education.

As can be seen above, time is used as an important indicator to measure HEIs' qualification to conduct a certain level of education. According to the regulation by the Academic Degree Committee (MoE, 2020a), eight years of degree granting education experience is one of the requirements used as the threshold to apply for a higher degree granting programme. For example, an HEI in Shenzhen may apply for a master's degree granting programme in

education only after it has accredited bachelor's degree in the discipline of education for eight years. Such a time-based indicator has effectively differentiated national HEIs and non-national HEIs in terms of postgraduate education authorisation, especially the authorisation for doctoral education. This is because the majority of non-national HEIs are more recently established, after the 1999 decision of expansion to absorb the rapidly increasing demands for higher education. For example, only HEIs which were authorised to conduct bachelor degree education before 2006 are qualified to apply for doctoral degree education in the current system, according to the regulation of the Academic Degree Committee. Currently, there are 1270 HEIs with bachelor degree granting education while in 2006 there were only 720 HEIs authorised as bachelor degree granting universities (MoE, 2007; 2022). This means over 43% of the bachelor degree granting universities in the Chinese system now are excluded from the competition over the authorisation for doctoral degree education. Thus, using time as an indicator for excellence in higher education, the centralised control of degree granting is considered to constrain the development of non-national HEIs and the legitimacy of such a requirement is questioned by policy makers in Shenzhen. As interviewee B commented,

This is a constraint of the current system [on higher education development]. So this [changing the requirement on time] is what we need to demonstrate... In [higher education systems in] other countries, there is no time requirement when conditions are met.

Interviewee A also mentioned the proposal to change the time-based requirement,

We hope, because in our universities, we now have a number of academicians as full-time members here. [We hope that] disciplines with academicians to be given doctoral degree granting [qualification] directly. [We hope for disciplines] with a team of high-profile members, we don't need to apply [for authorisation] and we can approve by ourselves.

This also suggests that the criteria used to differentiate HEIs are considered illegitimate and changes to the centralised control of degree granting is seen as necessary. As a result, what was proposed by policy makers in Shenzhen is to decentralise the power of decision to HEIs and let them decide what educational programmes to provide at all levels of higher education.

The purpose of decentralisation is to enable the rapid development of higher education in Shenzhen. As interviewee B explained,

We hope that bachelor, master and doctoral levels of education can be developed in the same time in our HEIs. We must rigorously develop postgraduate education, [in that way we hope] two of our HEIs may enter the Project DFC. [In this way] the newly established HEIs can develop with a high starting point. The size of higher education can be enhanced as well. Then the transformative development of higher education in Shenzhen is possible.

The second type of autonomy that was requested by policy makers in Shenzhen relates to the size of enrolment. As illustrated in Chapter Five, the size of annual enrolment in HEIs, to a great extent, is constrained by the decisions of the central planning authority. To reiterate, the national annual enrolment is centrally planned and distributed in a top-down order via the three-tiered governance system. For HEIs in Shenzhen, how many students to enrol each year then is distributed from central government to provincial government to Shenzhen government and finally to individual HEIs. Such a centrally controlled distribution of annual enrolment is considered to set great limitations on HEIs' production of human capital in Shenzhen since they tend to be given a rather small share of annual enrolment, especially in postgraduate enrolment. Thus, the purpose of decentralisation is to expand the power of local authority in the decisions about enrolment. As interviewee B stated,

Another thing we are asking for is...to be further separated [from the provincial government] in terms of enrolment...We hope to apply directly to the MoE. Say if we apply for 1000 [admissions] then the MoE makes the decision directly, [not via the provincial government] this will be more beneficial for our HEIs.

Thus, both types of autonomy are related to the decisions about the size of education, especially postgraduate education. It is considered that, due to the centralised control and planning, the inability to make autonomous decisions about admissions and degree granting results in great difficulties to produce the great amount of high-level human capital that is needed in Shenzhen. Thus, it is considered that decentralisation is the necessary policy tool for the further development of HEIs themselves and also for the needs of the city.

Policy makers in Shenzhen proposed that more autonomy should be given to Shenzhen in terms of decisions about international cooperation. As mentioned in the previous section, international cooperation is important to attract flows of advanced knowledge and research faculty, and cooperative education with overseas HEIs is one form of international cooperation activity of HEIs in Shenzhen. In addition to this function, it is considered that cooperative education also contributes to the rapid enhancement of the quality of education. As the president of the Chinese University of Hong Kong, Shenzhen explained why the University established a cooperative HEI in Shenzhen in an interview by CCTV,

Shenzhen is a young city of immigrants. These two attributes of Shenzhen made it a good place to build up a new university. For example, in terms of financial technology, we learned that Shenzhen was aiming to become an internationalised financial city. I did some calculation, Shenzhen needed to introduce 1,800 high-level financial human capital every year [in order to become a city like that]. But according to our survey 10 years ago, there were less than 20 [high-level financial talents] each year. So Shenzhen needs a large number of human capital but who is going to cultivate these talents? Students cultivated in Hong Kong they won't come. So I thought of using the [university] system and talents from Hong Kong to cultivate our own students here. Now we are providing around a thousand people every year, I mean, internationalised financial talents, all of high quality.

Cooperative education provides an efficient solution to produce high-quality human capital, which is thought to be urgently needed by the city's rapid development. Through borrowing the advanced educational resources from overseas HEIs, such as high-quality teaching materials and experienced teachers, cooperative education not only contributes to the quantitative expansion but also the qualitative enhancement of human capital cultivation. As indicated by interviewee C, they are proactively reaching out to establish more cooperative HEIs; however, the establishment of these HEIs again needs to be authorised by the MoE,

International cooperation is a very important part, and our local universities has been working with a lot of overseas HEIs. However, according to the national regulations, there are regulations on international cooperation in higher education. setting up programmes, departments and independent HEIs must be earn the approval from the MoE...first of all, approval from the MoE takes a very long time. This is because the committee [for international cooperation] only has few meetings every year and all you can do is to wait.

Usually there will be a long list of suggestions for refinements after the meetings saying standards are not met. Year by year and it takes a long time...and restricting HEIs' development. But we want rapid development.

The inefficiency of centralised authorisation thus seems to contradict the perceived need of rapid expansion of human capital cultivation by policy makers in Shenzhen. Consequently, they require comparative decentralisation of the power to authorise cooperative education programmes to local authorities in Shenzhen.

To summarise, it can be seen that by suggesting decentralisation as the necessary policy tool, the policy design for WCU development in Shenzhen, is in fact requiring changes be made to the central planning governance to enable more autonomy to be exercised in Shenzhen for the better and more rapid development of its HEIs. As interviewee A explained,

We produce what we need, what the market needs, what the industries need and what the people need... we want the powers to make our decisions. The rationale is we hope these powers can be decentralised so that we can react more flexibly and swiftly to the needs of the market.

Such a decentralised governance proposed by policy makers in Shenzhen, although it may enable policy actors in regional HEIs to have more autonomy in making decisions for their own HEIs, it shows fundamental differences from a deregulated form of governance. This is because in this decentralised governance, what is being prioritised is the interest of the city. Although the regulations that are constructed for centralised control by the central authority may be reduced, HEIs are required to coordinate their activities in accordance with the perceived needs of the city by the local authority to produce the optimal contributions for the development of the city. This suggests the types of autonomy that are granted to HEIs are not to be exercised with free will. Rather these are bounded forms of autonomy, the exercise of which is under the control of local authority with the aim of turning HEIs into WCUs that are designed to serve the interests of the city. Prioritising the interests of the city, this reframed design by policy makers in Shenzhen then seems to conflict with that at the national level, as will be explained in the next section.

### 6.3 The final decision by the central government: rejection to change and path dependence

Despite the ambiguously articulated PDZ policy document, which seems to have few restrictions on policy making in Shenzhen, the policy design by Shenzhen must, nevertheless be submitted and approved by the central authority before it is put into practice. Thus, the power of decision-making remains centralised in the hands of the central authority, which may exercise the power of veto to inhibit the undesired outcomes of regional policy making.

As the result of the final decision by the central government shows, the policy design for WCU development by policy makers in Shenzhen with the proposition to establish a comparatively more decentralised governance seems to have been rejected. The decision of the policy makers in central government was communicated in the form of a list of authorisations (State Council, 2020). In this list, there is only one authorised issue that is related to higher education, which is that Shenzhen is granted the power to set up or remove post-doctoral programmes. The three types of autonomy proposed by policy makers in Shenzhen are not mentioned at all. This outcome, the current thesis argues, further demonstrates the overarching policy intention to maintain the particularise institutions, which contribute to maintain the existing hierarchy among HEIs under the central planning governance in the Chinese system.

The PDZ policy has turned Shenzhen into an extreme case, the circumstances of which in terms of policy making for WCU development are usual. On the one hand, the ambitious goal of the PDZ which seems to require the rapid development of higher education in Shenzhen in order to be a model for demonstration and the centralised control which has set great limitations on the development of regional higher education have driven policy makers in Shenzhen to decide that changes to the institution of governance are necessary. On the other hand, although the rapid development of Shenzhen city and its higher education is deemed as the desired outcome through the implementation of the PDZ policy, the proposed changes

to the particularised institutions as the necessary means for the achievement of the goal of the policy is not permitted. This seems to suggest that these particularised institutions, which differentiate the top-tier HEIs and the rest of the system intentionally, are seen as essential for the Chinese system by the central authority.

## 6.4 Conclusion

This chapter has answered the remaining two research questions. Firstly, it presents the policy design for WCU development in Shenzhen. There are two major changes to the policy design in Shenzhen compared to that at national level. The first change is the idea and the value of a WCU that is constructed in Shenzhen. Similar to the policy design at national level, it focuses on the instrumental value of higher education. However, different from the national policy design, it intends to develop WCUs, which share a mutualistic relationship with the city and take serving the needs of the city as the purpose of higher education. This reframing of the goal in policy design is driven by an increased demand for accountability and the interpretation of the policy PDZ by policy makers in Shenzhen.

The second change to the policy design in Shenzhen is in the choice of policy tool. More decentralised governance to make decisions about the future trajectory and development of Shenzhen HEIs is considered as necessary to bring out the local-centric model of a WCU and the proposition to make changes to the centrally planned and controlled governance to enable greater local control on higher education. This reframing of the policy tool in the policy design is driven by the interpretation of the policy PDZ as allowing the possibility to change and the agency of policy makers in Shenzhen to make changes. Such a reframed policy design in Shenzhen seems, however, to be rejected by central authority. This result reflects the intensified conflict between policy makers in Shenzhen and the central authority over higher education governance. It may also reflect the intention to maintain the HEI hierarchy designed by central planning in the Chinese system.

## **Chapter Seven Discussion and conclusion**

Following the research questions, the previous three chapters presented an updated account of WCU development in the Chinese system under the implementation of the newest national policy of Project DFC from the perspective of Shenzhen government and HEIs. It is considered that the model of WCU development advocated by policy makers in Shenzhen may have important implications on the discourse of WCUs, which is dominated by rankings. The Shenzhen model, which places strong emphasis on the HEIs' engagement with their local region, may have new insights on the WCU concept for a more balanced and sustainable model of WCU development. This chapter will firstly discuss the implications of the findings from the previous chapters and summarise the thesis with a conclusion of the potential contributions that the thesis intends to make.

### **7.1 Discussion**

Through investigation of the experience of Shenzhen, it is considered that new insights on WCU development may be learned from the case of Shenzhen by bringing the connection between HEIs and their local region back into focus. Before further explaining the implications learned from the Shenzhen case, a discussion of the changes in governance of the Chinese system, the institutional background against which the Shenzhen model of WCU development emerged, will be given.

#### **7.1.1 The current state of governance in the Chinese system**

Seeing from the case of Shenzhen, it seems that the implementation of Project DFC is not a transformative reform that intends to completely change the central planning in China, rather,

it seems more like an adjustment to further skew towards the NPM approach while maintaining the centrality of the state in governance. On the one hand, the persistence of central planning remains or is even reinforced. On the other hand, techniques of NPM have been further adopted. Thus, the governance approach seems to be a blending of both central planning and NPM techniques.

As the findings from the case of Shenzhen suggest, the influence of the Soviet mindset, which considers state planning as a better way of organising higher education, seems to remain in the current Chinese system. In this section, how the central planning governance is manifested in the current system through institutions will be discussed. It can be firstly seen in the fact that some institutions, which were devised during the imitation of the Soviet model, remain valid in the current system. These institutions include the top-down allocation of annual admission and the subject catalogue, the continuous application of which were both discovered from the Shenzhen case as presented in Chapter Five.

The top-down allocation of annual admission was introduced in the Chinese system during the time of imitating the Soviet model in the 1950s (Zhang, 2012). As mentioned in Chapter Two, the top-down allocation of annual admission was an important part of the institution framework, which was designed to ensure the higher education sector functioned as a machine for human capital training in accordance with state planning (Froumin & Kouzminov, 2018). In the Soviet model, the annual output of higher education was determined by the nation state according to the anticipated needs of the economy (Froumin et al., 2014). HEIs executed the order by providing training to the required number of students that were allocated to them (Kuraev, 2016). The top-down admission allocation institution, which was devised to control the quantity of output by the higher education sector, was also established in China in the 1950s (Bian, 2019) and has been in place until now, except for when the system was disrupted by the Cultural Revolution (Han, 2019). Although the admission allocation institution in the current system may not be identical to that in the 1950s, it is highly similar in that the central planning of the state remains the mechanism that coordinates and decides

the annual plan of admission. Different from the 1950s, this institution in the current system is more flexible, with greater room for the discretion of HEIs and consideration of market needs (Ma, 2021; Jia, 2015). First of all, an individual HEI has the autonomy to distribute the enrolment quota among subjects within the total number enrolment that is allocated to them from above. Secondly, HEIs have the discretion to plan for their annual admission, which is referred to when the national plan is determined. As explained in Chapter Five, the national admission plan is based on the calculation of the statistics, which are reported by each HEI in a bottom-up manner. On the one hand, an individual HEI thus has the autonomy to plan for admission according to the needs of their local region. On the other hand, they are also able to reflect on demands of both the students and the labour market based on statistics of past years enrolment and employment (Ma, 2021). Thirdly, HEIs are allowed to make slight changes to the allocated number according to the situation of enrolment in reality (Ma, 2021). Although these changes apply, the final decision of national higher education admission is still determined by the centre, which enables the policy makers in central government to make adjustments according to the national plan of economic and social development.

Similarly, the institution of the subject catalogue was also a creation by the central government in 1954, with an intention to follow the Soviet model in terms of specialisation division (Guo, 2013). Since then, the subject catalogue has been in place in the Chinese system (Guo, 2013). Although it has been changed four times and the one in use now is significantly different from the first version, the idea that it is used as an institution to regulate both the range of subjects included in higher education and the content of teaching in each subject remains unchanged (Xiang, 2011). Similarly, compared to the 1950s, greater autonomy is granted to HEIs under the current version of the subject catalogue. For example, as mentioned in Chapter Five, HEIs that have been approved by the MoE are allowed to make changes or set up the existing subjects in the catalogue.

The existence of both the subject catalogue and the top-down admission allocation, seems at odds with the market mechanism, given that a quasi-market has been installed in the

Chinese system (Marginson, 2013). This is because the existence of both institutions tends to diminish individual HEIs' flexibility in responding to the changing demands of the market. Especially when the demands for a new educational programme, such as a new interdisciplinary subject that is not included in the catalogue, emerge, there tends to be a delay in provision because the approval of the centre is required. The maintenance of these institutions, even though they conflict with the logic of the market, seems to suggest that the central government still play a central role in the decisions about the output and the content of education activities. Thus, it seems to suggest that although the Chinese system has gone through reforms in line with neo-liberal modernisation, a mindset that perceives central planning as a better way of organising higher education remains.

Secondly, the persistence of state planning in higher education governance can be seen in the reinforcement of the particularised institutions against the background of Project DFC. The logic of Project DFC is to intensify the competition among HEIs by using a performance-based competition for HEIs selection and the introduction of this competition mechanism was also the main reason to replace the previous WCU projects with a new project.

However, the continuous adoption and the further reinforcement of the particularised institutions seems to show a logical conflict with that of Project DFC. As explained in Chapter Two, these particularised institutions were firstly devised to deliver the design of a vertically stratified higher education over the course of imitating the Soviet model in the 1950s. They created and maintained a hierarchy among HEIs in accordance to state planning through granting the selected elite HEIs privileged access to resources that were necessary for higher education development (Chen & Li, 2019; Hu, 2012). The intended result was concentration of the limited resources on the selected HEIs and that their development would be prioritised since their rapid development was considered to better serve national needs (Tan & Wang, 2016; Yang, 2019). Through the implementation of the particularised institutions, the HEIs that were designated as being more closely linked to national development received more resources. Thus, the implementation of these particularised institutions, which contributed to

creating and maintaining a hierarchy among HEIs, was an important indication of state planning because the central government played a central role in the distribution of resources in the higher education system.

Despite the decentralisation and marketisation reforms in line with the global trend of governance reform under the impacts of neo-liberal policies in higher education after the late 1970s (Fan, 2018; Marginson, 2013; Mok, 2005), it seems that these particularised institutions were gradually strengthened and the privileges granted to the elite HEIs also increased. Apart from the privileges in staffing and admission, which were granted to them since the 1960s, they were granted additional funding in the 1980s (Hu, 2012). As learned from the case of Shenzhen in Chapter Five, a set of particularised institutions continue to exist in the current Chinese system. Compared to earlier stages, these particularised institutions in the current system enable the top HEIs' privileges in access to more resources. In the current system, they form a redistributive mechanism, which enables the top-tier HEIs to have advantages in a wider range of resources including funding, best students, research elites and research projects.

What is more, against the background of the implementation of Project DFC, these particularised institutions have been further strengthened with a new institution related to degree granting being initiated. The decision to grant 31 top universities the autonomy to grant postgraduate degrees was made in 2018, around two years after the implementation of Project DFC (MoE, 2018). As explained in Chapter Five, this decision gave these 31 universities the exclusive right to make their own decisions about the size of postgraduate education while the size of postgraduate education in the rest HEIs is strictly controlled by the centre in a top-down manner. The disparity in the size of research students not only has direct impacts on HEIs' ranking performance in the national system but also relates to HEIs' research productivity and quality by influencing its attractiveness over the research elites. Thus, this institution in fact sets a barrier to claiming autonomy in degree granting. By setting such a barrier to entry (Ogilvie & Carus, 2014; Ogilvie, 2019), this autonomy becomes the exclusive

right of the 31 universities that have been selected. Through exercising this autonomy, this institution is privileging their access to important resources, including research students and research elites. More importantly, such a decision seems to be an intentionally designed differentiation between the top national HEIs and the rest of the system because the rules, against which HEIs may earn the eligibility for entry, are not clear. This seems to exclude the other HEIs on purpose because the way to earn entry is unknown.

Other particularised institutions that have been presented in Chapter Five also function in a similar way. For example, the institution on postgraduate recommendation also functions by setting barriers to the exercise of enrolling research students through recommendation. By having the privilege to enrol more students through recommendation, the top universities tend to have better access to the best-performing students. As a result, these particularised institutions effectively strengthen the privileges of the top universities in the competition over the best students, academic elites and research projects and hinder the competition between them and the other HEIs.

Thus, it can be seen that these particularised institutions seem to show a logic that conflicts with that of Project DFC. Project DFC was designed to intensify competition among HEIs for the placement in the top tier while the particularised institutions diminish the competition between the top HEIs and those in the lower strata as a result. A tendency to strengthen the privileges of the top HEIs against the background of Project DFC therefore further reduces the effects of the competition mechanism implemented via Project DFC. Such a conflict in logics may be due to preserving the privileges of the top HEIs being seen as necessary.

After more intensified competition among HEIs has been initiated by Project DFC, it is possible that it may be increasingly difficult to concentrate the best students and research elites in the top HEIs. The best performing research students and research elites are critical to individual HEIs' improvement in performance, especially in terms of research productivity and quality. However, unlike funding, the competition over them, especially the research elites, is a zero-

sum game because their availability is limited. In the currently decentralised Chinese system, the available funding for individual HEIs, especially the regional ones, largely depends on the financial position and the willingness to invest in higher education of their funding bodies. This means the advantages of the top HEIs in the competition over the best research students and staff may be challenged by regional HEIs, which are generously funded. It is highly likely that regional HEIs that proactively seek upward mobility through Project DFC would attempt to turn around their disadvantaged position to attract the best students and, especially the research elites, if they are adequately funded. The increase of their housing of the best students and staff may suggest increasing difficulty to concentrate these intellectual talents in the top HEIs. Shenzhen is a good example. Despite the disadvantages in recruiting the research elites as reported by the interviewees, the number of newly recruited academicians of both the Chinese Academy of Sciences and the Chinese Academy of Engineering has increased significantly in Shenzhen. Take Southern University of Science and Technology, which has entered the second round of Project DFC, as an example. It houses 24<sup>27</sup> academicians from both Academies in total in 2023, rising from 14 in 2017 (Shanghai Association for Non-government Education, 2017; Southern University of Technology, 2023). This number is significantly higher than that in most HEIs, including 23 out of the 39 top-tier HEIs that were in Project 985<sup>28</sup>.

If the example of Shenzhen, especially Southern University of Science and Technology mentioned above, gives an impression that the particularised institutions fail to maintain the privileges of the top HEIs in the competition over the top researchers, this may not be the case. It is considered that the disadvantaged position of the HEIs in Shenzhen in the competition over resources against the top-tier HEIs may be representative of regional HEIs, the policy makers of which also strive for upward mobility in the Chinese system, because the particularised institutions apply for them identically. However, as explained in Chapter Three, it should be noted that Shenzhen is a very special case in terms of the large sums of funding from Shenzhen government that are available for its regional HEIs. As presented in Chapter

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<sup>27</sup> Statistics of academicians in each HEI are found on their official websites.

<sup>28</sup> Statistics acquired from HEIs' websites.

Three, the fiscal funding for higher education in Shenzhen in 2020 has exceeded both Beijing and Shanghai even though there are far fewer HEIs in Shenzhen (SZNews, 2021a). This means the average funding available for each regional HEI may be much higher in Shenzhen. The annual income of Shenzhen University for example, as presented in Chapter Five, was comparable to that of many national HEIs in Project DFC in 2022 and nearly 70% of that came from Shenzhen government (Shenzhen University, 2022). With generous funding available, it is possible that policy makers in HEIs in Shenzhen reduce the disadvantages, for example, by making more competitive offers in the competition over research talents. However, the large sums of funding that are necessary to increase regional HEIs' competitiveness may not be affordable in most cities. Without such significant financial support from their government, it is extremely difficult for regional HEIs to reduce the impacts of the disadvantaged position posed by the particularised institutions. Thus, while these particularised institutions remain and further reinforced, it is highly likely that the privileges of the top HEIs are effectively maintained even if the competition among HEIs has been intensified due to Project DFC. As a result, the dominance of the top HEIs in the distribution of the resources tends to be maintained.

The intention to maintain the privileges of the top national HEIs in the system may be further explained by the rejection of Shenzhen government's higher education development plan for policy PDZ by the centre. What policy makers in Shenzhen asked for was a greater level of autonomy in relation to international cooperation in higher education provision, recommendation in postgraduate enrolment and research degree granting. The latter two types of autonomy have already been granted to national HEIs at the top. Thus, what policy makers in Shenzhen requested, in fact, was to exercise the same level of discretion as the top national HEIs in these two types of autonomy for their regional HEIs. However, as explained above, granting the required autonomy to HEIs in Shenzhen means that the advantaged position of the top HEIs in access to the best research students and academics would be largely diminished compared to HEIs in Shenzhen. More importantly, since Shenzhen is positioned by policy PDZ as the future model of development, which will be learned from and

applied nationwide, granting the required autonomy to HEIs in Shenzhen may undermine the legitimacy of the top HEIs to exercise these types of autonomy as their exclusive rights. A possible result is that more regional HEIs may request to exercise these types of autonomy and therefore, the privileges of the top HEIs in accessing resources will be greatly reduced.

Thus, although not identical, the particularised institutions that are in place in the current system perform a similar task with those in the 1950s, which is to enable the top HEIs more privileges in the distribution of resources. Consequently, they contribute to the high concentration of resources in almost the same group of HEIs and the persistence of a hierarchy with them sitting at the top. What is more, which HEIs should be involved in these particularised institutions seems more like a result of state decision rather than a consequence of HEI competition because the criteria against which HEIs were selected were not clear. Thus, the implementation and further reinforcement of these particularised institutions, this thesis argues, implies that the central planning governance remains powerful in the current Chinese system and the direct role played by central government in resources distribution continues.

Although there seems to be a tendency to maintain central planning, there is also a tendency to fine-tune the governance approach by adopting techniques of neo-liberal policies. The governance regime in the Chinese system seems to be a process of reform in movement by gradually blending the institutions of central planning with the tools of the neo-liberal model since the late 1970s. As presented in Chapter Two, the Chinese system went through a series of decentralisation and privatisation reforms following an orientation to align with the market transition of the economy in the last few decades. In this process, the highly centralised Soviet model has been altered and institutions, such as the mandatory placement of graduates and uniformity of curricula, were gradually abandoned. Meanwhile, institutions that are mentioned above, such as the subject catalogue and top-down allocation of admissions, have been maintained and enabled the nation state to play a central role in regulating and coordinating higher education development. Thus this process has been gradually moving away from the central planning approach to a market-based neo-liberal approach based on needs in reality.

The initiation of Project DFC thus seems to be a move further away from the central planning governance and skewed towards the market-based approach by using a performance-based competition to replace the previously state order-based HEIs selection.

Rather than assuming that transforming higher education into a market or intensifying competition would automatically lead to more progressive development, the seemingly strategic maintenance of the central planning governance enabled one of the greatest strengths of the Soviet model, which is a powerful state in resources coordination and distribution. The strength of a strong state in higher education coordination through the strategic distribution of limited resources, this thesis argues, was critical to the simultaneous achievement of the massification process and the rapid improvement of the top HEIs in the Chinese system in the last few decades. Judging from these achievements, it is considered that the choice of maintaining state planning in governance has contributed significantly to the rapid development of the Chinese system.

However, the long-term concentration of resources on the top HEIs under central planning also contributed to problems such as low cost-efficiency for WCU development and the great gap between the top HEIs and the rest of the system. It seems that the changes in governance under the implementation of Project DFC may alleviate these problems.

Firstly, Project DFC has indeed driven significant improvement of the performance of a few top HEIs in the global rankings. For example, in the newest QS rankings of 2023, Peking University and Tsinghua University achieved their historical new heights of 12 and 14 respectively (Quacquarelli Symonds, 2023). It seems that Project DFC is indeed effective in terms of accelerating the top HEIs' achievement of world class status in the league table.

Secondly, Project DFC may give rise to the improvement of a group of regional HEIs in the Chinese system, even though the particularised institutions, which may mediate the impacts of the competition among HEIs, remain. This can be seen, on the one hand, in the increase of

regional HEIs that are included in Project DFC in the second round. Three out of the seven newly included HEIs are regional HEIs. On the other hand, Project DFC has encouraged policy makers at the regional level to pay more attention to the improvement of their regional HEIs. As can be seen in the Shenzhen case, transforming the state-order based HEI selection in the previous WCU projects, which seemed to exclude the entry of the rest of the system, on the one hand, has initiated significant extra funding from Shenzhen government for its HEIs. On the other hand, the intensified competition under Project DFC has encouraged policy makers in HEIs in Shenzhen to improve the quality of education and, especially, research. The inclusion of global rankings and ESI in performance assessment pushed policy makers in Shenzhen HEIs to pay more attention to the quality rather than the quantity of research outputs and to benchmark research activities against internationally recognised standards. Thus, the change in governance initiated by Project DFC has indeed encouraged substantial improvement in HEIs in Shenzhen. Improvement in a wider range of regional HEIs in other regions may also be possible. As mentioned in Chapter Four, the majority of provinces have initiated their provincial projects to improve the performance of their regional HEIs after the implementation of Project DFC. In order to increase the competitiveness of the HEIs involved, it is likely that extra funding from regional/provincial government may increase. With available funding increased, there may be significant improvements in these regional HEIs. As a result, it is possible that the large gap in terms of quality between the elite and non-elite HEIs in the previous WCU projects may be greatly diminished. A middle tier of regional HEIs with improved quality may emerge and a better quality of higher education may thus, be accessible to a larger population.

Although Project DFC may have effectively improved the placement of a few top HEIs in the league tables and diminished the gap between the top HEIs and the rest of the system, it may also raise concerns about reducing diversity among HEIs in the Chinese system. Regardless of the policy goal to encourage different paths towards WCU development in the policy documents, Project DFC, with a single standard of excellence, which was defined by the centre as the criteria for selection, may in fact drive highly similar strategies in a wide range of HEIs.

Such a standard, as explained in Chapter Four, is defined as the combination of international indicators, including global rankings and ESI ranking, and domestic indicators, including national disciplinary ranking by MoE and national awards. Using such a unified standard for HEIs selection in Project DFC in fact expands the impacts of these international and national ranking schemes in the Chinese system and enforces conformity of HEIs' behaviors. A possible result may be changing priorities to improve performance in these rankings in a growing number of HEIs irrespective of the impacts on their long-term development. As the results of recent studies (e.g. Cai & Mo, 2020; Chen, 2022; Li et al., 2021; Han et al., 2023) suggest, the development strategies of HEIs are increasingly homogenous, with similar aims and focus on similar activities, different from the policy goal of Project DFC, which suggests diversified paths of development to be adopted by HEIs. Such a slippery policy outcome, as explained by Han et al. (2023), is the result of inconsistency between the policy objective and the interpretation by policy actors in practice. Since Project DFC is interpreted as an opportunity to acquire more resources rather than an opportunity to seek a distinctive path for long-term development based on their own strengths, to pursue short-term improvement in these ranking schemes to earn entry into Project DFC has become the first priority for many policy actors in HEIs. What is more, the strong emphasis on the STEM subjects of Project DFC has further increased the imbalance among subjects with disproportionate attention and resources being focused on STEM subjects (Zhou et al., 2022). The result therefore may be reduced diversity of HEIs in the Chinese system.

More importantly, by prioritising performance improvement in these rankings, there is a concern that the potential of HEIs to contribute to society may be undermined. This is because other activities of social relevance, such as engagement with local communities or local economy, may not lead to high scores in those ranking schemes and may be neglected. By focusing on their performance in the rankings, the attention of policy actors in regional HEIs may be shifted away from the actual needs of their local region and communities. This is why the case of Shenzhen is considered important in the current thesis. Shenzhen seems to advocate a different model of WCU development, which stresses the criticality of social

relevance to the local society. It is considered that this model not only has important implications in the Chinese context but also offers new insight on the discourse of WCUs, which is dominated by rankings.

### **7.1.2 A concept of WCUs emphasising social relevance**

The case of Shenzhen seems to diverge from the tendency of homogenous development of HEIs under the impacts of switching to a performance-based mechanism under Project DFC. Different from the observations in the recent studies (Cai & Mo, 2020; Chen, 2022; Li et al., 2021; Han et al., 2023), which suggest the development priority of HEIs may be changed to the short-term goals of performance improvement against the standard of selection in Project DFC, the situation seems a bit different in Shenzhen. Although improving performance in those rankings used by Project DFC is also targeted by policy makers in Shenzhen, it seems that the first priority of HEIs on their path towards WCUs remains reinforcing the engagement with and contribution to the local economy and society. The point that is being made here is not that the observations from Shenzhen can be identically derived from other places in China and thus, a conclusion that such a homogenous tendency does not exist can be drawn from the case of Shenzhen. On the contrary, it is considered that Shenzhen may be a peculiar case, the observations from which may not be equally acquired elsewhere. However, what can be learned from Shenzhen, which is the critical role played by regional government and the strong emphasis on connections with the local region in WCU development, may be the key to a more rational and sustainable approach for the development of a WCU with more expansive social values, as will be discussed in the following section.

At the heart of the idea of WCUs that is advocated by policy makers in Shenzhen is social relevance to the local region. The role of Shenzhen government is critical in the proposition of this model. Firstly, the strong financial position of Shenzhen and the willingness to invest in higher education development meant that the policy makers in Shenzhen government could supply extra funding for HEIs. Thus, unlike the observation by Han et al. (2023), which

suggests that Project DFC tends to be interpreted as an opportunity to acquire more resources, funding especially, the primary concern of earning upward mobility through Project DFC is not so much about funding for policy makers in Shenzhen HEIs, as the interviewees explained. Rather, it seems more of a means to access the best research talents and students through reputation building for better education and research outputs for the local region. Thus, although achieving better placement in the rankings is also an important goal for HEIs in Shenzhen, the first priority remains providing services to local economic and social development. This seems to suggest the pursuit of good ranking performance does not mask the value of social relevance to the local region. This is most evident in the rationale of participating in international activities and rankings. Global prestige, although tempting, is not the primary reason for HEIs to engage in international activities according to policy actors in Shenzhen. Rather, international engagement is seen as the path towards access to advanced knowledge and research talents, which may contribute to improving education and research outputs for better local economic and social development.

Secondly, the implementation of policy PDZ also encourages policy makers in Shenzhen to perceive HEIs as an organic part of the city and plan for WCUs development in relation to the long-term development of the city. Such an orientation also seems to contribute to prevent the single-minded pursuit of short-term improvement in the rankings and plan for HEIs' further development based on the needs of the region in reality. Regional HEIs in Shenzhen used to be education-focused HEIs with provision of a workforce for the region as the main social purpose. Under the pressure to achieve world-class status, they are oriented to embrace more social missions and perform a wider range of activities to serve the well-developed HSE more comprehensively. On the one hand, HEIs are encouraged to participate in and perform a wider range of activities apart from traditional research and education, such as international cooperation and knowledge transfer. On the other hand, HEIs are encouraged to enhance the social relevance of the outcomes of their activities to the local society, for example, by cooperating with local industries and incubating entrepreneur talents and ideas. Thus, it seems that, with reinforcing connections and relevance to local society as the core,

the intention to develop WCUs in Shenzhen has enabled HEIs to participate in a wider range of activities and make contributions to the local society in multiple ways.

This thesis argues that the strong emphasis on social relevance and the close relationship between HEIs and its local region in the Shenzhen case may have important implications for the discussion of WCU development not only in the Chinese context but also in the wider global environment.

Firstly, by taking contributions to the local society as the core of WCU development, the case of Shenzhen seems to prevent short-sightedness in the pursuit of world class status. Against the globally pervasive impacts of the ranking schemes, there is concern that the single-minded pursuit of world class status may lead to irrational use of global rankings in higher education assessment (Boulton, 2011). Since rankings and their flawed methodologies usually fail to capture the nature of higher education activities, focusing on the improvement of performance in ranking schemes may hamper the long-term development of HEIs. As can be seen in the case of Shenzhen, the critical role played by Shenzhen government seems to reinforce the perception that social relevance remains the first priority of regional HEIs, rather than improved performance in rankings. The idea of WCUs that is advocated by policy makers in Shenzhen, at the heart of which is the strong emphasis on local engagement and contributions, seems significantly different from the concept constructed by rankings. Such a strong focus on 'localness' is absent in the assessment by rankings, which means efforts and resources that are devoted to local engagement are unlikely to contribute to the attainment of world class status in the rankings. Thus, although achieving higher placement in the rankings is also important for HEIs in Shenzhen, it seems that they are not taken as the ultimate goal but the path towards more meaningful engagement and contributions for the local region.

Secondly, the case of Shenzhen brings the connection between HEIs and its local region back in the discussion of the concept of a WCU, which is dominated by global rankings (Deem,

2008; Douglass, 2015; Nixon, 2020). Another concern related to the pervasiveness of rankings is that the concept of a WCU tends to be distortedly constructed in them, with too much attention being paid to an HEI's global impacts and reputation. Such a narrowly defined concept may limit the social purposes of HEIs and undermine their value to the society, especially to the local region, that nurtures them and gives them purposes (Deem, 2008; Douglass, 2015). However, social relevance to their local region should be fundamental to the functions of a university (Douglass, 2015; Rider et al., 2020). The roles played by HEIs in regional development by cultivating highly educated graduates with professional expertise and by reaching out to intellectuals and ideas from other places are irreplaceable (Stevens & Giebel, 2020). Thus, chasing world class status should not be at the expense of undermining HEIs' contributions to their local regions. The case of Shenzhen shows the possibility of integrating the goal of pursuing better performance in the rankings and the goal of strengthening HEIs' local connections and relevance. To recap, with contributions to the local region as the ultimate goal of HEIs, the intention to achieve world-class status not only encourages improvement in education and, especially, research by a changing focus from quantity to quality, but also encourages participation in a wider range of activities. It seems that in Shenzhen such an external pressure for global competition has been internalised in a strong force of improvement, which has enabled HEIs to embrace a more expansive notion of WCUs and contribute to the local development in more diversified ways.

Thirdly, by stressing the connections with the local region, it is considered that the case of Shenzhen may shed light on a more sustainable method of WCU development. On the one hand, a reciprocal relationship with the local region and engagement with local industry may contribute to the financial stability of HEIs. The increased social relevance of HEIs may be important against the background of the pervasiveness of excellence initiatives with additional public funding being invested in HEIs. This is because the implementation of these policies is based on the assumption that developing WCUs would contribute to national and local economic and social development (Salmi, 2009). Thus, engagement with local and national development contributes to maintain a reciprocal relationship with the local region, which

may contribute to the financial sustainability of HEIs in the forms of extra funding, as in the case of Shenzhen. Even though the strong financial support from local government as in the case of Shenzhen may not be equally acquired in other places, it is considered that engagement with local government and industries may increase the sources of funding for HEIs and therefore enhance their abilities to find diversified sources of funding. On the other hand, the better development of the local region in turn can influence HEIs' abilities to attract and keep intellectuals and students (Stevens & Giebel, 2020). Thus, maintaining a reciprocal relationship with the local region may suggest a more sustainable way for HEI development.

Fourthly, strengthening connections with the local economy may increase the diversity of HEIs. To recap, as the results of studies focusing on the excellence initiatives both in the Chinese system and other countries suggest, the employment of a performance-based competition, through which HEIs are compared against a single standard of excellence defined by the state or other agencies, may diminish the diversity among HEIs (Cai & Mo, 2020; Chen, 2022; Li et al., 2021; Han et al., 2023). It is considered that strengthening connections with local industries may enable HEIs in Shenzhen to adopt different paths of development, which contribute to a growing diversity in the system. The policy makers in Shenzhen made it clear in the interviews that they intentionally differentiate their regional HEIs from both the globally prestigious universities and the top national HEIs in China in their WCU development plan, based on the developmental needs of the local economy and society in reality. Under such orientation, it is possible that the development of HEIs and disciplines are directed by local demands for knowledge and human capital, more than the priorities defined by the national assessment or global rankings. As a result, distinct paths of HEIs development, which are combined with the characteristics of local industries and society, may be taken and, therefore, diverge from the other HEIs in the Chinese system.

Lastly, establishing social relevance is also important for the development of higher education itself against a background that the mode of knowledge production is changing (Dounglass, 2015; Guile, 2022). The expanded demands for knowledge due to its increasing application

deployment in all aspects of the society as a result of the ongoing socialisation of science has required accelerated changes to the traditional mode of knowledge production, which is undertaken solely by the academic community and tends to be curiosity-driven (Guile, 2022; Shaw, 2013). On the one hand, the requirement to accelerate knowledge production has diversified the sites of knowledge production and HEIs are no longer the only site of knowledge production (Guile, 2022). As in the case of Shenzhen, firms have become the primary site of knowledge production and laboratories, established by Shenzhen government to facilitate collaborative research among HEIs and firms, may also play an increasing role in knowledge production. On the other hand, the increasing desire to use scientific knowledge to solve real-life problems has encouraged the mode of knowledge production to be more problem-oriented than curiosity-driven (Hoffmann et al., 2017). The outcomes of 'blue-sky' research, which tends to be driven by the academics' curiosity, may not be directly applicable and provide straightforward solutions for real-life problems. Additionally, the multi-faceted and complex nature of many pressing real-life problems, such as climate change, as a result of the rapid societal or environmental transformation, requires the participation of non-academic stakeholders as the bridge between science and practice for more effective solutions (Hoffmann et al., 2017; Lawrence et al., 2021; Nurius et al., 2017).

All these changes call for a new mode of knowledge production of transdisciplinary research. This form of research is oriented to tackle real-life problems with high social relevance and involves non-academic stakeholders throughout the research process (Guile, 2022; Hoffmann et al., 2017; Lawrence et al., 2021). It is considered that, by involving both academics and practitioners, the aim is to transcend the boundaries of disciplines and put the concepts and methods under critical evaluation in the context of application to produce knowledge that contributes to both scientific learning and social practice (Nurius et al., 2017; Rigolot, 2020). By doing so, transdisciplinary research not only transforms the purpose and the process of traditional knowledge production, it also transforms the way of knowledge dissemination. In the traditional mode, which is mainly conducted in universities or in a context under the control of academics, knowledge as an outcome of research is mainly communicated through

academic publications and gatherings. The knowledge then tends to be disseminated within a limited audience (Nixon, 2020). The result of transdisciplinary research tends to be more diversified and accessible, for example, it could involve policy documents in relation to societal problems or a technological report when it comes to industrial problems. Thus, transdisciplinary knowledge may be disseminated to a wider audience and assert greater impacts.

However, since the global rankings, which are pervasively taken as informative tools of higher education evaluation that inform policy making, narrowly capture the meaning of research, the room to perform transdisciplinary research may be highly limited. Rankings tend to focus on HEIs' performance in internationally high impact journals and attainment of Nobel Prizes or Field medals, both of which tend to favour blue-sky research (Douglass, 2015). By taking upward mobility in the rankings as the goal of the pursuit of WCUs, it is highly possible that HEIs may be required to focus on research that may lead to articles in internationally high impact journals or the attainment of Field medals. Attention and, more importantly, funding might be drift away from transdisciplinary research. Research in these HEIs may then be trapped in the traditional mode of production, producing outcomes that usually circle within a limited audience of academics with highly limited relevance to the practical solution of pressing real-world problems.

The WCU model advocated in Shenzhen, against this background, may provide a fertile ground for transdisciplinary research. As can be seen in Chapter Six, although there is the intention to improve research quality by encouraging high impact publications to boost HEIs' placement in global rankings, serving the local economy and social development remains the primary goal of research activities. Great emphasis is placed on increasing the relevance of research to the local economy and society by grounding research in the actual needs of local industry and also facilitating collaboration between HEIs and local firms. Furthermore, policy makers in Shenzhen also express the plan to develop their own evaluation method with social relevance as an important criterion. With such orientation towards engagement with the local

economy and the clusters of high-tech industries in Shenzhen as a city at the cutting edge of the technological frontier, it is considered that Shenzhen may provide a fertile ground for transdisciplinary research, which may be constructive to the development of higher education itself since it embraces a new mode of knowledge that aims for a different audience and circulation.

### **7.1.3 The potential pitfalls in the Shenzhen model**

Although this thesis argues that the case of Shenzhen, by stressing the social relevance and economic engagement of HEIs may have new insights into the meaning of WCUs by showing a seemingly more sustainable way of WCU development, there are also some concerns with the model advocated by policy makers in Shenzhen.

#### **7.1.3.1 The challenges of transdisciplinary research**

The first concern is about the validity of transdisciplinary research. Although the idea of transdisciplinary knowledge has been put forward since the 1970s, the concrete procedure, methodology and evaluation standard are still under exploration and discussion. There are great challenges with transdisciplinary research, especially in terms of involving non-academic actors. Firstly, there is a risk in labelling all research in which non-academic actors simply participated as transdisciplinary research. It is important to ensure the intended quality of transdisciplinary research by maintaining a high level of involvement of non-academic actors throughout the process of research. Secondly, there are risks of misuse, intentionally or not, of the results of transdisciplinary research. Misinterpretation of the research may be disseminated and could lead to unintended social impacts when the results are presented wrongly or with biases. Thus, a set of robust evaluation and examination system should be developed beforehand to ensure the validity and credibility of transdisciplinary research.

### 7.1.3.2 The need for a more expansive notion of WCUs

Although this thesis argues that the case of Shenzhen expands the meaning of WCUs constructed by rankings by highlighting the relationship between HEIs and their local context, it is also concerned that the model advocated in Shenzhen may show a tendency of single-minded emphasis on utility to the local economy, which may in turn limit the functions and social purposes of HEIs.

The policy makers in Shenzhen show a great intention to make providing direct services for the local economy and society the first priority of all higher education activities. In their design, the higher education system, especially the WCUs, is the ‘engine’, the purpose of which is to produce the human capital and innovative ideas that cater to the needs of the economy and the society. In this design, the pragmatic value to provide outputs directly to serve the economy and society are seen as an end in itself. This idea looks similar to the Soviet model in its single-minded emphasis on the utility of the outputs. In the Soviet model, higher education was designed as a machine that functioned only as ordered for the pragmatic use for economic development (Smolentseva et al., 2018). A similar tendency to constrain higher education within the activities that can provide utility for the economy and society is also evident in the plan of Shenzhen. One example is the idea to set up order-based educational programmes, which are initiated to provide human capital that is tailored to the demands of local companies. For this purpose, the curriculum of these educational programmes may be constrained within the training of skills and dissemination of knowledge that are seen as necessary for daily work in the local companies. The scope of the curriculum, thus, may be highly limited and these educational programmes may show a tendency towards vocational training. A similar intention to set limits on research activities is also reported. There is an intention to limit the scope of basic research and focus on research, which produces outcomes to be used in practical industrial production and social development. Such an orientation also tends to constrain research activities within a highly limited scope of what is considered to be useful. Although this thesis argues that transdisciplinary research is important, it is also

considered that the traditional forms of disciplinary, interdisciplinary and multidisciplinary research are also playing irreplaceable roles in knowledge production. Transdisciplinary research should not be seen as a new mode of knowledge production that replaces the traditional mode, rather it should be seen as a new mode producing complementary knowledge to the traditional one (Lawrence et al., 2021). Setting limits to the scope of research thus may have undermining effects on knowledge production in Shenzhen.

Rather than seeing economic engagement as the only purpose of higher education, it should be taken as one of the important social purposes of HEIs. The engagement in economic development should not be traded for other equally important missions of a university, including the mission to provide socioeconomic mobility opportunity for the local or wider community. As mentioned in Chapter Six, in order to compete for the best-performing students nationwide for better performance in both education and research, HEIs in Shenzhen, the major role of which used to be satisfying the educational needs of local students, reduced the enrolment places for local students. As the places in local HEIs has reduced, students in Shenzhen may need to apply for places provided by HEIs in other cities of lesser quality. Thus, the rapid improvement of regional HEIs in Shenzhen may be at the expense of reduced access to and quality of higher education for local students. Reducing the opportunities for local students may intensify competition among students, the result of which may be reduced access to better quality of higher education for students from less privileged backgrounds. In emphasising the importance of social relevance, this thesis argues that accommodating educational needs and ensuring equal access to promote socioeconomic mobility in a massified system is an equally important social purpose of WCUs.

Thus, by prioritising the utility for the economy and society in WCU development, there is a concern that the model proposed by Shenzhen may have a similar problem with that constructed by the rankings: a concept of WCUs with limitations on the ways it contributes to its local society, which may hamper not only the development of HEIs themselves but also the sustainable development of their local region. Thus, it is considered that a more

comprehensive understanding of WCUs that embraces a wider range of social purposes and functions may be needed in Shenzhen.

## 7.2 Conclusion

### 7.2.1 The aim of the research

This thesis focuses on WCU development in the Chinese system and argues that the governance regime of central planning has been critical to the rapid improvement of the top HEIs. The WCU movement is a recent global trend of higher education development. In order to understand its manifestations in China, two commonly used theories for analysing global convergent trends of higher education development are employed: these are neo-institutionalism and cultural political economy theory. When applying both theoretical perspectives to analyse the empirical observations from the Chinese system, it seems that the history of following the Soviet model, which seems to have influenced the formation of the current system, has been left out by both accounts. Thus, it is considered that an alternative theoretical approach is needed. Therefore, the proposition of this new approach is to focus on a process of abductive inference (Danermark et al., 2002; Meyer & Lunnay, 2013). It builds on the critical reflections on the existing theories by focusing on the empirical observations that are not included in them and seeks to develop a theory that provides the best explanation for the empirical observations in focus.

The proposition of this new approach thus builds on the foundation constructed by both the neo-institutionalist approach and the cultural political economy approach. Both are highly influential and have given important insights into the field of comparative and international higher education research. Following this line of theory building, the approach proposed by this thesis uses North's (1991) idea of institution as the conceptual tool to analyse the forces that shape higher education development. Using the concept by North (1991), institutions that shape higher education development are rules that are designed on purpose to constrain

the possibilities of actions in higher education. In the proposed approach, higher education systems are shaped by the forces of both international institutions and national institutions. The nationally nuanced manifestations of the globally integrated trends of higher education development are then seen as the outcomes of the interplay between the global and the national institutions. Furthermore, it also acknowledges that the national institutions of the current system are conditioned by historical decisions, which means that they are path-dependent (Béland, 2010; Campbell, 2012; Hogan, 2019; Mahoney, 2000; Pierson, 2000; Sydow & Schreyogg, 2015). Using the path dependence perspective, this thesis traced the history of higher education development in the Chinese system and analysed how the institutions that were constructed during the learning from the Soviet model period have been changed, abolished and reinforced. As a result, how they have asserted influence on the formation of the Chinese system can then be better understood.

Using such a historical perspective to trace the path of the formation of the current Chinese higher education, it seems that the central planning governance, which was introduced originally from the Soviet model, has been critical to the formation of the Chinese system, especially in terms of the development of the top HEIs. In the Soviet model, the higher education system is integrated as a part of national planning and the arrangement of resources distribution, and production in higher education is conducted via central planning to maximise its utility to the nation state. Thus, which HEI produces what in such a system is strictly designed by the nation state. Following a rationale of central planning, one important feature of the Chinese system was a purposefully designed hierarchy among HEIs. The creation of a hierarchy among HEIs was in fact a national strategy of resource allocation so that the majority of the critical resources was intentionally concentrated on the top-tier HEIs, which were designated to serve the urgent needs of the nation state for economic and social development. Such a hierarchy among HEIs, which was created by design under central planning, has been stably maintained in the Chinese system and has been critical to the rapid development of the top HEIs, especially after the implantation of national WCU projects.

However, the recently implemented Project DFC seems to suggest an intention to change this stably maintained hierarchy. More importantly, by claiming to use a performance-based competition mechanism to replace previously state order-based HEI selection, this new national WCU project seems to suggest a transformation of the state planning governance, which has been critical for the development of the top HEIs in the Chinese system. Thus, research was designed to investigate whether such a reform, which changes the previously central-planning-based distribution to a performance-based distribution, is in effect under the implementation of Project DFC. In order to examine the real impacts of Project DFC, this research uses a policy trajectory approach and focuses on the case of Shenzhen to answer four research questions: (1) What is the policy design of Project DFC at national level? (2) What is the policy design of WCU development at Shenzhen government level? (3) How has the policy been reframed? (4) To what extent has a competition-based mechanism been established to inform the HEI hierarchy under the implementation of Project DFC?

### **7.2.2 The policy design of Project DFC at national level: answering research question one**

Chapters Four and Five combined together are designated to answer the first research question and to present the policy design of Project DFC at national level. The overall policy design of Project DFC seems to suggest that it is a refined governing device. It expands the influence of the national policy to a much wider range of HEIs to produce the desired outputs by national policy makers, with minor changes to the national institutions of higher education. These changes are mainly reflected in two elements of the policy design, the goal and the value, and the rules and these are illustrated in Chapter Four.

First, the underlying value of Project DFC is to provide social services for the nation state. Driven by this value, an idea of a WCU, which is constructed by two conflicting intentions, is articulated as the goal of Project DFC. On the one hand, Project DFC is designed to enhance the international competitiveness of Chinese HEIs with a three-stage goal to significantly

enhance their performance in the international league tables. On the other hand, Project DFC shows a stronger intention to reinforce Chinese HEIs' social service functions to the nation state. Such an idea of a WCU initiates three changes in the rules of HEI selection. The first change is the introduction of global rankings as part of the selection criteria. This change in the criteria reflects the strong force of global rankings, which tend to take the multiversity as the norm of WCUs, as an international institution in influencing the development of Chinese HEIs. As can be seen in Project DFC in China, using global rankings as part of the criteria for selection indeed drives HEIs to automatically learn from the top-ranking western universities.

The second change by Project DFC confirms its intention to reinforce social service for the nation state by using the performance of disciplines, rather than institutional performance, as the unit for HEIs' comparison. Using discipline as the unit for comparison encourages HEIs to concentrate on certain disciplines, whose performance are most likely to be enhanced rapidly, so that they can enter or maintain their positions in Project DFC, rather than investing resources in all disciplinary areas. On the one hand, a disproportionately high percentage of HEIs entered Project DFC in the first round due to their excellent performance in STEM related disciplines. This seems to indicate that developing these disciplines may lead to a higher possibility of upward mobility for HEIs. Thus, this change may effectively orient Chinese HEIs to concentrate on the disciplines that are perceived as more useful for the economic development of the nation state. On the other hand, taking disciplinary performance as the unit for comparison seems to indicate the difficulty to compete with the higher strata HEIs in Project DFC has been reduced for HEIs in the lower-strata. With the third change, which is to use performance-based competition among HEIs for selection, Project DFC seems to indicate a much greater possibility of upward mobility for the lower-strata HEIs. Thus, the impact of Project DFC has expanded to a much wider range of HEIs and encourages them to automatically alter their actions according to the standards set by policy makers at national level to produce the outputs that are considered constructive to the nation state. With these minor changes, Project DFC functions as a refined governing device which enables greater control of more HEIs by the nation state in the Chinese system.

However, irrespective of the introduction of the performance-based competition mechanism, it seems that central planning remains in the Chinese system. This means which HEI gets what, to a great extent remains to be determined by the decisions and plans of the central authority rather than the outcomes of HEIs' competition. The national institutions which have been constructed to enable central planning distribution remain in force in Project DFC and they are illustrated in Chapter Five as the element of the policy tools, implementation structure and the rationale of the policy design at national level.

That central planning is more efficient for distribution in higher education seems to be the assumption on which the Chinese system functions. This is most evident in educational activities. Provision of education in each HEI, including the subjects to be provided and the enrolment of students, technically speaking, is centrally controlled and distributed through the national institution of the subject catalogue, which is devised by the State Council Academic Degree Committee. Similarly, Project DFC, which is a national strategy for resources distribution and thus is closely related to who gets what in the system, also adopts a rationale of central planning. This can be seen in its policy tools and implementation structure.

There are two types of policy tools identified in Project DFC. The first policy tool is a capacity building instrument. Since WCU development is a long-term policy goal, concentrating resources on selected HEIs to reduce the possibility of impediments due to insufficient resources is considered necessary. Thus, the resources distribution among HEIs in the Chinese system shows a tendency to differentiate the national HEIs from other HEIs so that the majority of resources can be concentrated on them. Firstly, with the decentralised financing system in place, both central government and provincial government are freed from financing the majority of the HEIs. This financing institution makes the fiscal funding from both the central government and provincial government concentrated on national HEIs. As a result, this group of HEIs, which occupy the positions in the top-tier of the hierarchy, tend to be overwhelmingly advantaged in funding compared to non-national HEIs.

Secondly, with another authority-based policy instrument focused on aspects of autonomy in place, this group of HEIs tend to have more advantages in the competition over other resources, including best students, research staff and government-granted research projects. They are allowed more autonomy for self-regulation and decision making in relation to research level education against a background, where postgraduate education in the majority of HEIs is centrally controlled through the national institution of subject category and the authorisation system through the three-tier governance structure. Being granted greater autonomy to enable self-determination with respect to research level education gives them more advantaged in the competition over the best students and research faculty, which are critical to an HEI's research performance in the Chinese system.

Combined with the implementation structure of a three-tier governance, which enables the power of decision making in the Chinese system to be centralised to the central authority, a redistribution mechanism which facilitates the concentration of resources on the top-tier national HEIs is established. Thus, it seems that the policy design of Project DFC shows an intention to maintain the previously established hierarchy among HEIs since the advantages of the top-tier HEIs in terms of resources distribution remain securely protected. Thus, on the one hand, the introduction of the performance-based competition mechanism expands the impacts of the new WCU project to a much wider range of HEIs in the Chinese system. On the other hand, the existing hierarchy by design can be maintained without being subjected to major changes. Although Project DFC indeed allows mobility in the hierarchy, the extent to which the existing hierarchy can be substantially changed via the performance-based competition mechanism is rather limited with the above-mentioned policy instruments in place. Thus, Project DFC is a refined device not only for WCU development and but also for governance, which in fact follows a highly similar rationale of central planning as the previous WCU policies with a tendency to concentrate on the same group of HEIs.

### **7.2.3 A reframed policy design in Shenzhen: answering research question two and three**

The intention to maintain the comparative stability of the hierarchy, however, seems to conflict with the intention of policy makers in Shenzhen to develop its regional HEIs rapidly, driven by the policy PDZ. This conflict initiates the reframing of the policy design for WCU development in Shenzhen. Chapter Six illustrates the reframed policy design and how it has been reframed in Shenzhen. The ambiguously articulated policy document, the intention to enhance regional HEIs' accountability, interpretation of the policy PDZ as a requirement to reform WCU development and reflections on the reality of higher education development in Shenzhen initiates reframing of two elements of the policy design in Shenzhen: the goal and the value, and the policy tools.

A slightly different idea of WCU as the goal of the policy is constructed. Also focusing on the instrumental values of higher education, what the policy makers in Shenzhen propose to develop are WCUs which take serving local needs as the purpose of higher education. Thus, different from the design at national level, which prioritises the interests of the nation state in WCU development, the recipient of social service has been changed to the city in the design in Shenzhen. In order to develop local-serving WCUs, further decentralised governance to Shenzhen government is seen as the necessary policy tool. This is because the national institutions, which are designed to achieve concentration on the top-tier national HEIs, are considered to inhibit the rapid development of regional HEIs. The choice of policy tool, thus, shows a clear distinction from the ideas held by national policy makers. On the one hand, the intention to maintain the existing hierarchy among HEIs of national policy makers leads to continuous adoption of a capacity building instrument and an authority-based instrument. On the other hand, the desire for more local control by policy makers in Shenzhen results in a choice of decentralisation as the necessary policy tool. The need to maintain the hierarchy under centralised control by the central authority thus contradicts the desire of decentralised governance by policy makers in Shenzhen. The rejection of the decentralised governance as the policy tool by the central government, further confirms the intention to maintain a

centralised controlled and planned governance, as it is reflected in the analysis of the policy design at national level.

#### **7.2.4 Central planning remains the major mechanism for distribution and its path-dependence in the Chinese system: answering research question four**

The intention to maintain the existing hierarchy, which is reflected in the policy design at national level and also in the experience of Shenzhen, indicates that central planning remains in the Chinese system. The redistribution mechanism constructed by the three-tiered governance structure and the policy instrument suggests which HEIs get what in the Chinese system, to a great extent, is determined by authoritative decisions rather than the outcomes of competition among HEIs. This is most evident in the adoption of the authority-based policy instrument. The decision over which HEIs are granted more autonomy for self-governance is not informed by HEIs' performance-based competition. Rather it seems more like a purposeful arrangement since it depends on the authoritative decision of the central authority. With these intentionally designed institutions in place, the advantages of the top-tier national HEIs are effectively maintained and resources are continuously concentrated on them. Even though competition has been introduced via Project DFC, it seems that the possibility to initiate substantial changes to the existing hierarchy is rather small. Thus, it seems that central planning remains the major mechanism for distribution. Although a competition mechanism has been used in Project DFC and it allows mobility, the extent to which the existing hierarchy can be changed by it seems highly limited.

#### **7.2.5 Contribution of the thesis**

The case of Shenzhen has implications for the discourse of WCUs, which is dominated by global rankings (Benner, 2020; Deem, 2008; Douglass, 2015). The concept of WCUs constructed by rankings seems to provide a distorted idea of a university with only limited

activities and social purposes of higher education in focus. This thesis argues that rankings along with their uncritical yet pervasive use in global policy making may hamper the sustainable development of HEIs by emphasising a so-called ‘global vision’, which is constructed by global reputation, productivity of high-impact journal articles and attainment of Nobel Prizes or Field medals (Douglass, 2015). The WCU model advocated by policy makers in Shenzhen seems to suggest an alternative understanding by emphasising the importance of social relevance to the local region, which is absent from the rankings. This thesis argues that by emphasising the engagement with and services for their local and national context, the Shenzhen model seems to offer an alternative path towards WCUs, which is more sustainable not only for the development of HEIs themselves but also for higher education in a wider meaning.

On the one hand, the case of Shenzhen brings the connection between HEIs and their local region back in the discussion of WCU development. Refocusing on HEIs’ relevance to their local region may help to prevent the single-minded pursuit of high scores in the rankings. Activities associated with local engagement and contributions are usually not included in the proxies of global rankings, which tend to place disproportionate emphasis on the ‘global’ dimension of an HEI (Nixon, 2020). With social relevance to the local region taken as part of the functions of HEIs, thus, they may be encouraged to take up a wider range of activities and social purposes. Also, emphasising the engagement with and contributions to the local society may contribute to a mutually reciprocal relationship between HEIs and the local community, which may not only be beneficial for the local society since HEIs play irreplaceable roles by providing opportunities for social mobility and connecting with the wider knowledge community, but also contribute to more sustainable development of HEIs themselves. Moreover, strengthening connections with local industries and society may encourage HEIs to seek differentiated paths of development that are based on local needs and characteristics in reality and therefore, prevent convergence from imitating the norm of the multiversity stressed by rankings.

On the other hand, reinforcing connections with the local economy and society may enable HEIs to participate in transdisciplinary research. Global rankings have a strong focus on HEIs' research performance in terms of publications in internationally high-impact journals or Nobel Prizes and Field medals, which focus on research in the traditional mode of knowledge production. In order to pursue placement in rankings, research attention and funding may be concentrated on the traditional mode of research. The result may be a limited scope of research and failure to adapt to the expanded demands for knowledge production and application for HEIs. Participation in transdisciplinary research may enhance HEIs' capabilities to respond to pressing real-life problems and create new knowledge complementary to that produced by the traditional mode.

Although there may be some potential pitfalls in the WCU plan advocated by Shenzhen policy makers, by emphasising the critical importance of social relevance to the local region, this thesis argues that the case of Shenzhen may have pointed out the possibility of a more sustainable path of development for the majority of HEIs to live with the rankings, whose growing impacts in the global sphere seem inevitable.

## **7.2.6 Limitations and implications for future studies**

### **7.2.6.1 Reflections on the single case approach**

The current research design adopted a single case study approach for multiple reasons. Firstly and most importantly, it is considered that Shenzhen is the case from which the most can be learnt about the implementation of Project DFC. Due to the implementation of the national policy of PDZ, Shenzhen has been turned into an extreme case, which shows unique circumstances for the development of regional HEIs. On the one hand, the requirement to accelerate WCU development by the policy PDZ suggests that the commitment to and the

investment in regional HEIs by policy makers in Shenzhen can be ensured. On the other hand, it is considered that the implementation of the PDZ policy intensified the conflict between the central authority and the regional government in terms of higher education development. Thus, the tension between the perceived need by the central authority to maintain centralised control and the rapid development of regional HEIs desired by regional policy makers may be most clearly seen in the case of Shenzhen. The set of national institutions which shape the Chinese system then can be identified.

Secondly, access to the necessary data is another reason for using Shenzhen as the single case. In order to understand these national institutions and how they impact on regional HEIs development, interviewing policy makers to get into the policy making process at regional level is necessary. However, access to these policy makers is almost impossible as a PhD candidate and using Shenzhen as a case study access is possible using my personal *guanxi*. Thus, it is considered that by focusing on Shenzhen rather than spending time in other cities, where I may not get access to the necessary data, the most in-depth information can be gathered. Thirdly, the decision to focus on Shenzhen only was due to the constraint of time. As a PhD project, the time available for field work was limited and it was seriously interrupted by the COVID-19 pandemic. Soon after my fieldwork started, the pandemic broke out in China in early 2019. The regulation to ban face-to-face interactions during fieldwork by the University and the strict restrictions on travel due to the measures to control the pandemic in China caused serious interruption to the fieldwork and there was not enough time to collect data in multiple cities. Thus, it is considered that using Shenzhen as the only case was the optimal choice for the current project and a single case design was adopted.

However, it is also considered that using a multiple-case study approach may enhance the validity and credibility of the findings. Using a multiple-case study design that investigates multiple cities, the findings derived from Shenzhen can be tested and refined based on cross-case analysis. On the one hand, including other cities may present a more comprehensive account of the national institutions in the Chinese system because the findings

from other cities may complement the findings from Shenzhen. For example, compared to Shenzhen, the less advanced financial status of regional government in other cities may generate data that give more details about the national institutions for public funding arrangement, which may not be a major concern of policy makers in Shenzhen. On the other hand, policy makers in other cities may offer different accounts of the national institutions that are mentioned in the Shenzhen case. For example, investigating cities, such as Shanghai and Beijing, where higher education development is considered to benefit from the arrangement by national institutions, may generate different accounts. These differences may offer valuable insights into the persistence of these national institutions, which may not be learned in Shenzhen. In a multiple-case study design, comparison and analysis of the convergence and divergence among cases contributes to better internal validity. Thus, it is considered that a multiple-case study design may be a better option, given that there is enough time and possibility to access the necessary data. In terms of access, establishing cooperative relationships with universities, especially the prestigious national universities in the cities that are selected as cases may be a good solution. Using the social network of the universities and their researchers in the local area may significantly reduce the difficulty in accessing the policy makers. Access via the network of the universities in the local area may also reduce the wariness of the potential participants and make it easier to build up a rapport with them.

#### 7.2.6.2 Including participants from different perspectives

Although the intention to reinforce local control on higher education in Shenzhen may bring actual benefits for the development of regional HEIs to some extent, for example the fiscal funding from Shenzhen government is likely to increase, it is also considered that the tension between HEIs and local government is likely to be intensified since greater limitations may be placed on HEIs' activities to ensure that they contribute directly to local development. However, the interviews of the policy actors from HEIs in the current research seem to suggest

a highly consistent account that agrees with that of the policy makers in Shenzhen government, and perceive regional HEIs should be closely connected with and correspond to the local needs. The reasons may be twofold.

Firstly, this may be a result of the low representation of the academic staff, who are not at administrative positions in HEIs. Since the aim of investigation in Shenzhen was to understand how the regional policy for WCU development was made, this research adopted a purposive sampling and in HEIs the focus was placed on interviewing academic staff, who participated in the decision-making process. The majority of this group of staff were administrators of individual HEIs. Although non-administrative staff were also included, they were under represented in the sample of the current research. Including more of the non-administrative academics in the sample, a different account of the local-serving WCU devised in Shenzhen may be acquired.

Secondly, including regional HEIs, which receive comparatively less funding from Shenzhen government, may help to get a more comprehensive picture of the local-centric model of WCU. The regional HEIs that were included in the current research tended to receive more funding from Shenzhen government because they had better performance in achieving the goals and producing the outcomes desired by policy makers in Shenzhen government. In other words, they benefit the most by serving the perceived needs of the city by the policy makers in Shenzhen government. Conversely, there may be regional HEIs, which are less likely to conform to the local-centric model of higher education development and therefore, receive less funding as a result. Including these HEIs as case studies, it is considered that a more comprehensive account of the local-centric WCU model and its impacts on higher education in Shenzhen as a whole may be acquired with participants from different perspectives being included.

### 7.2.6.3 Considerations of future research on culture and its impacts

By questioning the cultural political economy account of the formation of the Chinese system, the aim of this thesis is not to deny the impacts of culture on shaping higher education development. However, it is considered that in the discussion of the impacts of cultural traditions, extra care should be taken and substantial evidence should be given. Firstly, although due to constraints of access and time, investigation of the policy making process at national government level of Project DFC was not included in the current research, it is considered that more in-depth investigation at national level may provide better understanding of the impacts of traditional culture. To do so, investigation of Project DFC should have begun as it emerged as part of the policy agenda to track the whole policy process from when it was proposed to when it was reviewed and adjusted based on its first round of implementation. The emphasis should be placed on the formulation process at national government level to see whether the force of culture is at work in the discursively framing process of the policy.

Secondly, whether traditional culture should be considered as a set of ideas that are unchanged over a long period of time is questionable. For example, whether the traditional culture that impacts on the current Chinese society should be considered as a set of ideas that were proposed by Confucius is questionable. It is considered that the so-called traditional culture itself may also be evolving and therefore, its impacts are ever changing. Traditional culture is a constant theme in national policy documents related to higher education in the Chinese system. In most occasions, it seems that this term is used to make the assertion to build a collective national identity under nationalism. For instance, in the Overall Plan for DFC, it claims to 'strengthen the research, promotion on excellent Chinese traditional cultures and the Core Values of socialism, take the essence of traditional cultures and traditional thoughts, discard the dross, inherit and transform innovatively to fully use them in education' (MoE, 2017a). It seems that what is being asserted is to use traditional culture in education to create a collective Chinese identity. In order to construct a collective identity that is suitable for

contemporary Chinese society, to what extent the meaning of the traditional cultures that are being emphasised in this policy document are identical to that proposed by Confucius, one of the major aims of which was to restore the integrity of the ritual system in ancient China more than 2000 years ago, is questionable. It is highly likely that the ideas of Confucius have been adapted. In order to understand traditional culture itself and its impacts on the current society, it is considered that genealogy may be a possible methodology to analyse traditional culture from history to the present for future studies. This may involve documenting, first, how traditional culture has been changed from the past to now and, secondly, how its impacts on society and also higher education have changed along its adaptation, may provide a solid analysis in terms of the impact of culture. In order to examine the impacts of traditional culture, comparative research on the different institutional choices for higher education governance of the Chinese system compared to the higher education systems in post-Soviet countries, some of which show a great tendency to reverse the Soviet model by reforming towards the European models (Huisman et al., 2018), may be a potential topic for future research as well.

## Appendix A. Participant Information Sheet

Title of study: Exploring the implementation of Project Double First-Class and the impacts of the Pioneer Demonstration Zone on higher education institutions in Shenzhen

Contact information about the researcher

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Introduction of the research project

Project Double First-Class is an important national policy for higher education development in our country in the new era. The purpose of the study is to investigate its implementation process in and the impacts on higher education institutions in Shenzhen. Meanwhile, the recently announced *Opinions on Supporting Shenzhen in Building a Pioneering Demonstration Zone for Socialism with Chinese Characteristics* by the State Council also mentions accelerating the development of first-class higher education. How is this substantiated in Shenzhen and how has higher education development in Shenzhen been influenced by it are also the part of the research focus. Thus, the interview will focus on two themes: 1) the implementation of Project Double First-Class and its subsequent provincial project 2) the impacts of the Pioneering Demonstration Zone on higher education development

Your participation in the research is voluntary and you can withdraw at anytime. The interview will be audio recorded for the convenience of data analysis. Your approval will be confirmed before the interview starts. All the data collected in the current study will be only used for the thesis of my PhD degree or subsequent reports, presentations or other outputs for academic purpose. Your interview data will be anonymised and no personal information will be revealed. Anonymity can not be promised since this research focuses on Shenzhen

only. But this research only aims to understand how Shenzhen develops first-class higher education and it is unlikely that there is any potential harm. If there are further concerns or questions, feel free to communicate.

#### Themes of interview

1. How to understand the implementation of Project Double First-Class and how is it implemented in Shenzhen/in the university?
2. Guangdong Province announced to implement the provincial project of High Level Universities right after Project Double First-Class was announced. How to understand the provincial project and how is it implemented?
3. Universities in Shenzhen have achieved great performance in the provincial project, how did they achieve this? What are the action plans for the provincial project and how were they made?
4. How to understand the *Opinions on Supporting Shenzhen in Building a Pioneering Demonstration Zone for Socialism with Chinese Characteristics*? How is it implemented in Shenzhen? What are the influences on higher education development in Shenzhen?

## Appendix B. The result of disciplinary ranking by the MoE in chemistry in 2012.

Source: China Academic Degree and Education Development Centre

The result of disciplinary ranking of chemistry by MoE 2012		
1	Peking University	94
2	Nankai University Nanjing University	90
3	Jilin University Fudan University	88
4	Tsinghua University University of Science and Technology of China Xiamen University	87
5	Zhejiang University	84
6	Wuhan University Sun Yat-sen University	82
7	Beijing University of Chemical Technology Hunan University Sichuan University	79
	Beijing Normal University	
8	Shanghai Jiao Tong University Shandong University Lanzhou University	77
9	Fuzhou University	75
10	Northeast Normal University East China Normal University Soochow University	74
11	Huazhong University of Science and Technology Central China Normal University Northwest University Shaanxi Normal University	73
12	Tongji University Zhengzhou University	72
13	Beijing Institute of Technology Hebei University Heilongjiang University Nanjing Normal University Anhui Normal University Shandong Normal University Xiangtan University South China Normal University Southwest University Yunnan University	70
	University of Science and Technology Beijing Shanxi University Inner Mongolia University Anhui University	
14	Northwestern Polytechnical University Northwest Normal University Xinjiang University Yangzhou University China University of Petroleum	69
15	Renmin University of China Shanxi Normal University Liaoning University Shanghai Normal University Sshanghai University	
	Zhejiang Normal University Henan University China University of Geosciences Hubei University Guangxi Normal University Xi'an Jiaotong University	
	Tianjin Normal University Liaoning Normal University Yanbian University Harbin Normal University	
16	Jiangsu Normal University Zhejiang Sci-Tech University Hangzhou Normal University Wenzhou University South-Central Minzu University	66
	Hebei Agricultural University Shenyang University of Chemical Technology Shenyang Pharmaceutical University Changchun University of Science And Technology Gannan Normal University	
17	Ludong University Hubei Normal University Sichuan Normal University China West Normal University Yunnan Normal University Dalian University Ningbo University	65
18	North University of China Liaoning Petrochemical University Bohai University	63

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