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Spatial Distribution of Economic Growth in the City Cluster of Chengdu-Chongqing: How the Chinese government pursues it to promote the cluster in East Asian International Production Networks
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**SPATIAL DISTRIBUTION OF ECONOMIC GROWTH
IN THE CITY CLUSTER OF CHENGDU-CHONGQING (CHINA)
HOW THE CHINESE GOVERNMENT PURSUES IT
TO PROMOTE THE CLUSTER IN EAST ASIAN INTERNATIONAL PRODUCTION NETWORKS**

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**THESIS AS PART OF THE MASTER'S PROGRAM IN INTERNATIONAL RELATIONS
(GLOBAL POLITICAL ECONOMY TRACK) AT LEIDEN UNIVERSITY, FINAL VERSION (2021-2022)**

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RESEARCH QUESTION:

How does the Chinese government employ the pursuit of equitably distributed economic growth within the Chengdu-Chongqing city cluster in promoting the cluster in East Asian international production networks (IPNs)? A case study on the change in per capita gross regional product differences within the cluster from 2014 to 2018.

1. Introduction

The issuing of the National Urban System Plan (全国城镇体系规划 Quanguo chengzhen tixi guihua) in 2006 and the National New-Type Urbanization Plan (国家新型城镇化规划 Guojia xinxing chengzhenhua guihua) in 2014 emphasize the ambitions of the Chinese government in further developing cities in China. In its Thirteenth Five-Year Plan for the period 2016-2020, the government explains how the further development of city clusters across regions is vital in the country's urbanization. The development of these clusters should be based on the promotion of the 'industrial division of labor, infrastructure, ecological conservation, and environmental improvement between cities'.¹ On January 3, 2020, president Xi also stressed the importance of promoting the construction of what he calls the Chengdu-Chongqing Economic Circle, addressing the Central Financial and Economic Affairs Commission. The successful development of this economic circle – one out of a total of nineteen officially defined city clusters – is believed to be beneficial to creating a growth pole for economic development in Western China. It is suitable here to note that the city cluster in the context of Chinese economic policy is a translation of the Chinese '城市群 chengshiqun' (literally: city group). The cluster is however a well-known concept in urban studies applied to phenomena across borders, and is also known as an *agglomeration dynamic* as explained by Dent. He explains it as a place where "spatial concentrations of firms and their activities confer particular competitive advantages".² Important to know here is that China actively pursues city cluster policies, whereas clusters in general do not necessarily have to be shaped by proactive cluster policy.

This Masters' thesis aims to answer the research question of how China employs the

¹ The People's Republic of China, *The 13th Five-Year Plan for Economic and Social Development of the People's Republic of China, 2016-2020*, Beijing: Central Compilation and Translation Press (under the Central Committee of the Communist Party of China): 2014,

https://en.ndrc.gov.cn/newsrelease_8232/201612/P020191101481868235378.pdf.

² Christopher Dent, *East Asian Regionalism* (Oxfordshire: Taylor & Francis, 2016), 64.

pursuit of equitably distributed economic growth within the Chengdu-Chongqing city cluster (or shorter: Cheng-Yu cluster) in promoting the cluster in East Asian international production networks (IPNs). The hypothesis is: equitably distributed economic growth is pursued by the Chinese government in the Chengdu-Chongqing (Cheng-Yu) cluster in such a way that it effectively promotes the cluster in East Asian IPNs. An assessment of how this pursuit is employed also attempts to contribute to an understanding of China's attitude and behavior within and towards IPNs, a concept further analyzed and explained in Section 2 (the Literature Review). The contribution to this understanding by way of the assessment will be attempted with the help of the theory laid out in the theoretical framework.

The aim and contributions of this thesis can be of interest to the reader, because the internal dynamics at play in the development of late Chinese city clusters are given relatively little attention in academia, both in English and in Chinese, while I argue that this lack of attention is unwarranted. With internal dynamics I refer to the spatial differences in terms of development (similarities and disbalances) *within* city clusters. In the literature review, I do discuss how different Chinese scholars have illuminated the obstacles and challenges to city cluster development in general and for the Cheng-Yu cluster specifically. This research largely takes Chengdu and Chongqing as two units while the cluster consists of an aggregate of many more large and small cities and towns. I argue that this lack of attention to the developmental differences within the cluster is unwarranted. In fact, a proper and efficient division of labor across multiple locations – when well managed and guided by the government – factors significantly in the success of the city cluster, which is itself part of the aforementioned IPNs that make up a significant portion of the regional economy and might have a significant influence on regional geopolitics. This thesis intends to fill a part of that gap by looking precisely at the geographic differences in terms of development within the Cheng-Yu city cluster.

In Section 2, I will review the literature on the position of city clusters within IPNs in East Asia. I will include a brief exploration of the trade-to-GDP ratios of a few Chinese cities and provinces (including Chongqing and Sichuan, of which Chengdu is the capital) to give an idea of how different the extent of embeddedness within international trade networks is for every city and province.

In Section 3 (the theoretical framework) I will lay the theoretical foundation for the empirical study. The gap in the research on city clusters highlighted above – there where the

internal spatial differences in terms of development are concerned – have led to the formulation of the main research question as it is. In this section, I will further clarify the meaning of the research question. Furthermore, I will explain and discuss the theory that I use as a basis for my empirical research. The theory is also discussed in the literature review, but its value to my own research will be stated explicitly in the theoretical framework. The theory concerned is that of Marion Werner on regional disinvestment. In brief, she argues that governments tend to stimulate disinvestment in certain regions within a country, even if not explicitly done so, to have the country remain embedded in IPNs. This theory serves as one to which I will test the statistical results obtained from my empirical research and additional statistics about the cluster in order to contextualize these findings. The theory also helps in answering the question of how the relative differences in economic development can be understood in the light of spatial differences in investment.

In Section 4 (the empirical section), I look at how equitably distributed economic development measured by differences in the change of GRP per capita had been within the Cheng-Yu cluster across counties (municipalities, districts) *and* cities for the years 2014-2018. The way in which I made two different measurements (one taking counties/municipalities/districts as units, the other taking cities as units) exposes the flaw and subjectiveness in using only one measurement to calculate relative differences in economic development and draw conclusions from it, as Li et al. have done (explained in the literature review). For these measurements, I use statistical data from Sichuan province and the provincial-level city of Chongqing. This statistical analysis of the cluster's internal GRPs is accompanied by an analysis of the most relevant policy documents from the Chinese government to help interpret and explain these statistics, including *The Plan for The Chengdu-Chongqing Economic Zone* (2011) and *The Chengdu-Chongqing City Cluster Development Plan* (2016). I am thus taking a mixed-methods approach: the statistical analysis of GRPs per capita is the main quantitative research and the analysis of policy documents constitutes the qualitative research. The test of additional statistics that I carry out against Werner's theory constitutes quantitative research as well. The empirical section starts with an explanation of the methodologies used, followed by the analysis of the policy documents and the outcomes of the statistical research.

In Section 5, I look at the implications of the findings on the extent of equitability of economic development distribution for the further development of the cluster that Chinese

government institutions are facing up to and trying to deal with. Discrepancies between government plans and ambitions on the one hand and the reality on the other hand are addressed.

The conclusion follows the first five sections, figures as a wrap-up of the research carried out, and constitutes a final answer to the main question based on the combined primary and secondary source research in the preceding sections. I also link the preceding sections to our understanding of China's attitude and behavior within and towards IPNs, as mentioned before.

2. Literature Review – On the position of the cluster within East Asian IPNs and the appeal of cities and clusters generally within IPNs and GPNs

The main question of this thesis comprises two components. The first one concerns the equitability of economic development distribution and the pursuit thereof. The second one relates to the promotion of the cluster in IPNs. The first affects the latter. The literature review that follows is thematically organized and shows parallels with these two components.

In the first part of the review, I illuminate the scholarly – China-based – discussions of obstacles and challenges faced by the Chengdu-Yu cluster. One such challenge is indeed the equitability of economic development distribution.

In the second part, on a more theoretical level, I highlight how scholars have in different ways identified key determinants of profitability for firms (firm-level analysis) and key determinants of appeal to FDI for cities (city-level analysis, through the presence of MNEs) embedded in IPNs and/or global production networks (GPNs).

Discussions of obstacles and challenges faced by the Chengdu-Chongqing cluster

The ways in which economic integration takes place within city clusters in China are widely studied by Chinese scholars. One article that addresses challenges faced vis-à-vis other clusters in China was written by Zhang and Li. They studied the large differences in competitiveness between different city clusters in China and have on the basis of their analysis on the causes of the differences in competitiveness argued that city clusters in an earlier development stage lack certain traits that characterize more developed clusters. They refer particularly to the barrier created by division among administrative units. In other words, two cities within one cluster must not exclusively compete with each other, but try to

become more competitive together by furthering integration.³ Their analysis suggests that better coordination between cities within a cluster comes with time. However, Zhang and Li do not give clear suggestions on how to overcome this barrier.

Coming to similar conclusions, Zhao and Bai assessed the development of 10 Chinese clusters, and Wu and Cao looked specifically at specialization within the Chengdu-Chongqing cluster. Zhao and Bai as well as Wu and Cao argue that their respective objects of study lack specialization. Zhao and Bai emphasize that dividing politics results in Chinese city clusters with a high degree of internal competition within which core cities and peripheral cities are not specialized enough.⁴ Wu and Cao's assessment of the Cheng-Yu cluster attests to Zhao and Bai's findings and they argue that even if not entirely the same, the two cities share too many similarities in the structure of their industries and should specialize more so as to be complementary rather than conflicting⁵. Certainly, there are different roles to play for the central government to set policy, for local governments to coordinate their urban planning and for firms of the same sector to agglomerate geographically within the cluster to lower costs and reduce conflict within industries within the cluster. From the empirical section of this thesis it will be clear that the awareness at the government of these challenges is there, but that at the same time tackling these challenges is hard.

The research discussed above puts great emphasis on the competition between Chengdu and Chongqing that is perpetuated or even aggravated by the two administrations of the cities. This illumination is warranted. However, these researches take Chengdu and Chongqing as two units of a cluster that is much more complex than most of these researches suggest. Some of the smaller cities and towns develop faster than others and these differences cannot be seen in isolation from government policy. By zooming in on the developmental differences within the cluster and by explaining these with an interpretation of the policy documents, this thesis tries to fill a part of that research gap.

³ Zhang Xueliang and Li Peixin 张学良, 李培鑫, "Chengshiqun jingji jili yu zhongguo chengshiqun jingzheng geju" 城市群经济机理与中国城市群竞争格局 [The economic mechanism of city clusters and the competitive pattern of city clusters in China], 搜索与争鸣 Exploration and Free Views 2014 (9), 62-63, my translation.

⁴ Zhao Yong and Bai Yongxiu 赵勇, 白永秀, "Zhongguo chengshiqun gongneng fengong cedu yu fenxi" 中国城市群功能分工测度与分析 [Measuring and Analyzing the Functional Specialization of Chinese Urban Agglomeration], 中国工业经济 China Industrial Economy 2012 (11), 18-30, authors' translation.

⁵ Wu Wanxia and Cao Zhengyong 吴晚霞, 曹正勇, "Chengyu jingji qu chanye jiegou chongtu wenti shizheng fenxi" 成渝经济区产业结构冲突问题实证分析 [An Empirical Analysis on Industrial Structure Conflicts in Chengdu-Chongqing Economic Zone], 广西财经学院学报 Journal of Guangxi University of Finance and Economics 2013 (5), 19-25.

A different argument on the cluster is made by Hu and Zhang, who stress the continued importance of not only inward FDI for the Chengdu-Chongqing cluster's economic development.⁶ Their analysis attaches equal importance to the role of human capital in furthering economic development. As we will see among the discussions of what makes firms and cities appealing within IPNs and GPNs in the final part of the literature review, this point that Hu and Zhang raise resonates with the way in which Dent explains the importance of "competitive locational advantages of nations in *qualitative* terms" and with how Gereffi reiterates Porter in establishing that the relative abundant availability of human and physical capital leads to the development of comparative advantages in capital- and skill-intensive industries.^{7,8}

Yet another kind of claim is made by Liu and Wen, who studied the relationship between the increased concentration of 11 Chinese city clusters in the period 2000-2014 on the one hand (where concentration is determined by the amount of capital relative to other production factors, i.e. by capital density, within the city cluster) and economic growth (measured in throughput, i.e. production that is actually sold) on the other hand. They found that in general, at first, increased concentration tends to slow effective production before accelerating it, to finally bring it in a phase of stable growth.⁹

Statistical research

Research that compares the development of the Cheng-Yu cluster with that of other Chinese city clusters and highlights the policy implications and bureaucratic obstacles that accompany it – most of the articles cited in this section so far – certainly helps to understand the challenges for and potentials of the cluster. However, this type of research does not suffice when looking to understand what is happening *internally* in the cluster, among cities and counties (县 xian) within the cluster. Therefore, I want to highlight two statistical

⁶ Hu Xiqin and Zhang Hongwei 胡锡琴, 张红伟, "Kongjian jingji shiyu xia chengshiqun FDI, fuwuye jiju de jingji xiaoying" 空间经济视域下城市群 FDI、服务业集聚的经济效应 [Economic Effects of FDI and Spatial Concentration of Service Industry in Urban Agglomeration from Spatial Economy Perspective], 中国地质大学学报: 社会科学版 2017 (5), 123-124.

⁷ Christopher Dent, *East Asian Regionalism* (Oxfordshire: Taylor & Francis, 2016), 56.

⁸ Gary Gereffi, "International trade and industrial upgrading in the apparel commodity chain", *Journal of International Economics* 48 (1), 1999, 39.

⁹ Liu Yueping and Wen Yuyuan 刘岳平, 文余源, "Chengshiqun jizhong yu chengshiqun jingji zengzhang" 城市群集中与城市群经济增长 [The Concentration of Urban Agglomeration and Economic Growth of Urban Agglomeration], *商业经济与管理* 2016 (11), 67, authors' translation.

researches rather in-depth.

In 2011 and 2016, the Chinese government issued *The Plan for The Chengdu-Chongqing Economic Zone* and *The Chengdu-Chongqing City Cluster Development Plan*, respectively. Li and Peng came with a critical perspective on the development of the Cheng-Yu cluster since the plan from 2016. For their assessment of the Cheng-Yu cluster's development, they apply the perspective of 'space of flows', a concept from sociologist Manuel Castells first coined in 1989 and further elaborated on by him in his book *The Rise of the Network* from 1996. Li and Peng argue that Castells' theory on the space of flows shifted the research of spatial organization of city clusters from a focus on their shapes and position in the administrative hierarchy, to their ability to attract flows of different factors including people and traffic, information and contact between businesses such as between headquarters and branches.¹⁰

Li and Peng focused their research on the inter-city flows of information between major cities in the Cheng-Yu cluster in 2015 and 2018. They attempted to relate the development of this perceived Cheng-Yu cluster information flows network to the government's layout of the cluster into the following format: one axis, two belts, a dual core and three areas, as proposed in the development plan for the cluster in 2016 (see the maps in the empirical section, page 27). For the research on information flows they used the Baidu Index to help them understand Baidu users' behavior and find out how much citizens from one city looked for information on a given other city in the cluster. As to be expected, in 2015 Chengdu was well connected in terms of online information flow to its nearby cities (such as Ya'an and Leshan to the south, Mianyang to the north and cities further east including Yibin and Luzhou, the latter two being closer to Chongqing). Chongqing was well connected to its nearby cities to its north as well in 2015 (Nanchong, Dazhou and Guang'an). In the period 2015-2018, however, Chongqing's information flow connections to cities less well connected to Chongqing in 2015 took off: its connections as measured by information flow to Yibin and Luzhou increased, as did even its connection to Mianyang, which for Chongqing is a remote city further northwest and much closer to the core of Chengdu.¹¹ What this relative increase of information flow connection between Chongqing and Sichuanese cities (Mianyang, Yibin

¹⁰ Li Shuai and Peng Zhenwei 李帅, 彭震伟, "Xinxi liu shijiao xia de chengyu chengshiqun kongjian zuzhi tezheng ji qi guihua shentao" 信息流视角下的成渝城市群空间组织特征及其规划探讨 [Spatial Organization of the Chengyu Urban Agglomeration and its Implications on Planning from the Perspective of Information Flow], 西部人居环境学刊 Journal of Human Settlements in West China 2020 (6), 50-51.

¹¹ Li and Peng (2020), 52-53.

and Luzhou in particular) says about the co-opetition (cooperation/competition) relationship between Chengdu and Chongqing is unclear from Li and Peng's analysis. It is therefore hard to pinpoint to what extent Chengdu and Chongqing have come to cooperate more in this research period. But the data on the dramatic increase of information flows between Chongqing and Sichuanese cities are congruent with the GRP statistics for cities within the cluster that Li and Peng use: those of the afore-mentioned cities Yibin, Luzhou and Mianyang – all well-connected to both Chengdu and Chongqing in terms of information flow toward the end of Li and Peng's research period – have far higher GDPs than all cities located virtually completely on the central axis (Ziyang, Meishan and Neijiang).¹² In fact, this is a point of critique they raise: the development of the main axis is severely behind that of the two belts and the three areas with the exception of underdeveloped Leshan.¹³

Here, the limits to the sort of research carried out by Li and Peng should be stated. They cannot be underestimated. Wang, Deng and Niu argued that in the last decades a new method of defining the reach of a city cluster or the extent to which a cluster has developed had come into being. In Chinese city cluster research, the application of this method can be traced back to 1992. This method, the 'modelling method' (模型法 *moxing fa*), can be opposed to an older method relying more on readily available data and indices called the 'empirical method' (实证法 *shizheng fa*, not in the traditional sense of the word). The younger modelling method makes more use of mathematics, further calculations and geometrical models to describe city cluster development. Wang et al. did research on the history and development of city cluster research in China for the period 1992-2016 and agree with Wang, Deng and Niu on the limitations of the modelling method. They do not deny the potential of information technology but argue that the methods of information technology used so far in academics to describe city cluster development are far from sufficiently developed.

In my analysis, therefore, Li and Peng's research is promising, but more in-depth research into information flows only can tell more about the nature of the information flows. It may be valuable to know how much citizens or netizens from one city search information about another city, but it is the nature of the information flows that will tell us more about the city

¹² Id. at 54.

¹³ Id. at 55.

cluster development. It is such limitations in research driven by information technology that Wang, Deng and Niu and Wang et al. highlight that complicates drawing in-depth conclusions in such research.

Statistical research of the economic integration and development of the Cheng-Yu Cluster after 2016 is scarce. More research has been done on the development of the cluster area prior to 2016. A research I want to shed light on here is from Li. et al. They made an in-depth statistical analysis of the difference in economic development across counties (municipalities, districts) located in the Cheng-Yu city cluster area based on differences between counties (municipalities, districts) in the change of GRP per capita for the period 2000-2014. They took the GRP per capita value of every county (or municipality, or district – the GRPs in the statistics are calculated for non-overlapping administrative units, but most of which are counties and some are municipalities or districts, yet all of them are below the city-level) included in the cluster from the yearbook statistics of the province of Sichuan and the provincial-level city of Chongqing. They did this for every year in the period 2000-2014. For every year the standard deviation (σ) of the aggregated GRP per capita values was calculated. However, the standard deviation says nothing about differences in economic development. The coefficient of variation (CV) does and Li et al. calculated this as well. This value is obtained by dividing the standard deviation by the mean (μ) of this ‘population’ of statistics. The formula is as follows:

$$CV = \frac{\sigma}{\mu} * 100$$

This gives a CV of 53% in 2014, compared to a CV of 82% in 2000.¹⁴ The much lower CV in 2014 compared to that of 2000 means that overall the separate GRP per capita values tended to be closer to the mean value *in relative terms* in 2014 than in 2000. In other words, the differences in GRP per capita became smaller across counties, municipalities and districts over time, *in relative terms*.

Still, this calculation gives a distorted picture. In fact, a calculation of the CV based on a statistical population (N) of cities gives an entirely different picture in comparison to a

¹⁴ Li. et al. 李崢荣等人, “Cheng Yu chengshiqun xianyu jingji chayi ji qi chengyin fenxi” 成渝城市群县域经济差异及其成因分析 [County economic disparity in Chengdu-Chongqing urban agglomeration], 世界地理研究 World Regional Studies 27 (3), 78.

calculation of the CV based on an N of counties (municipalities, districts). In the empirical section, I will illustrate the importance of making this distinction by comparing the CV of an N of counties (municipalities, districts) with the CV of an N of cities. Therefore, I use the GRP per capita values for the counties, municipalities, districts and cities of the Cheng-Yu cluster for the period 2014-2018.

Discussions of the appeal of firms and cities within IPNs and GPNs

The contribution of multinational companies (MNCs) to economic output in East Asia is significant. These outputs are an aggregate of different production activities throughout the region. It is the aggregate of these production activities throughout the region that are termed international production networks (IPNs). I will use Yun's definition of IPNs as a starting point for giving a brief review of insightful literature on the appeal of firms and cities within IPNs and GPNs. I use his definition because it describes the geographically and internationally spread activities of MNCs clearly for what they are. Yun defines IPNs as "an international division of labor, in which each function or discrete stage of a value chain is spatially or geographically relocated in the most efficient site, and undertaken by different firms including MNCs and local firms".¹⁵ Werner gives a definition of GPNs that overlaps with Yun's definition of IPNs. It may be obvious, yet it is important to realize that IPNs can be either regional or global (Dent speaks of IPNs all the time, but they refer mostly to East Asian production networks), while GPNs are by definition international. However, what is of more interest to this thesis is the way Werner highlights the (bidirectional) causal relationship between GPNs and uneven development, a relationship that is vicious at that: the two are both cause and consequence of the other according to Werner. Werner highlights three processes of uneven development that are ongoing, the most interesting to this thesis of which is the process of 'regional disinvestment'.¹⁶ Citing multiple examples of relocation of production within Turkey, Mexico and China, she illustrates how in order to have one's economy remain included in GPNs (and I contend that the following is equally valid for IPNs in general), governments may nurture uneven development with the active creation of conditions for competition.¹⁷ Competition is an obvious and integral part of markets, but

¹⁵ Chunji Yun, "International Production Networks and the Role of the State: Lessons from East Asian Developmental Experience", *European Journal of Development Research* 15 (1), 2003, 173.

¹⁶ Marion Werner, "Global production networks and uneven development: Exploring geographies of devaluation, disinvestment, and exclusion", *Geography Compass* 10 (11), 458.

¹⁷ Id. at 463.

when it nurtures uneven development, this development is more pronounced in countries where internal economic inequality (which can for example be measured with GRP per capita) is already high. While Werner gives examples of disinvestment on a regional scale for the sake of inclusion in IPNs, my own research on the internal economic development of the Cheng-Yu cluster presented in the empirical section shows that this concept or analytical tool may be well applied to the subregional level as well.

As for the question of what makes firms and cities appealing to MNCs and FDI within IPNs and GPNs, Dent mentions cost-effectiveness, locational advantages in qualitative terms and corporate risk spreading as the three main motives for setting up IPN operations.¹⁸ That being said, cities or clusters within IPNs can be cost-effective but still lag behind in qualitative terms, yet be attractive enough to be well-included in IPNs. This is my view on the differentiated development in the region, based on my reading of Yun's argument that economic development in East Asia has been rather heterogenous over the past few decades. Yun illustrates this by highlighting how South Korea and Taiwan have been successful at both import-substitution industrialization and export-oriented industrialization, whereas export-oriented industrialization was initiated in Southeast Asian economies after import-substitution industrialization failed, and this export orientation depends primarily on MNCs at that.¹⁹ I contend that when a country fails at import-substitution, this negatively impacts GDP growth as goods that could have been produced under successful import-substitution are now imported. This is a challenge that not only late developing countries face vis-à-vis more developed countries in the region – on the national level – but also one that can be faced on the subnational level and underneath. In the case of China, economic policy has had a pronounced bias towards the east coast initially, leaving the west with the challenge to catch up and on a lower level leaving less developed cities and counties with the challenge to catch up with more developed cities and counties, including within city clusters. I will come to illuminate and explain these discrepancies within the Cheng-Yu cluster in the empirical section. Here, I would already like to illustrate how even recently, the provinces of Sichuan and Chongqing have in terms of merchandise trade (import plus export) to GDP ratio lagged behind the cities of Beijing, Tianjin, Shanghai and Guangdong province – of which especially the latter three constitute regions that are well-incorporated in IPNs (see Table 1).

¹⁸ Dent (2016), 56.

¹⁹ Yun (2003), 172-173.

Although it is hard to measure exactly cities' and provinces' embeddedness in IPNs, the trade to GDP ratio is a good indicator of their involvement in international trade.

TABLE 1 – MERCHANDISE TRADE TO GDP RATIO FOR THE PROVINCIAL-LEVEL CITIES OF BEIJING, TIANJIN, SHANGHAI, AND CHONGQING, AND FOR THE PROVINCES OF GUANGDONG AND SICHUAN FOR THE YEARS 2017-2019									
	2017			2018			2019		
	Trade	GDP	Ratio	Trade	GDP	Ratio	Trade	GDP	Ratio
Beijing	8228,0	28014,94	29,4%	8385,9	30319,98	27,6%	7740,0	35371,28	21,9%
Tianjin	8240,0	18549,19	44,4%	9367,3	18809,64	49,8%	9394,9	14104,28	66,6%
Shanghai	30286,4	30632,99	98,9%	32052,3	32679,87	98%	32663,2	38155,32	85,6%
Guangdong	75410,4	89705,23	84,1%	79969,1	97277,77	82,2%	81674,2	107671,07	75,9%
Chongqing	3828,0	19424,73	19,7%	4505,9	20363,19	22,1%	5214,1	23605,77	22,1%
Sichuan	4503,7	36980,22	12,2%	6153,4	40678,13	15,1%	7201,3	46615,82	15,4%

Trade and GDP are in 100 millions of RMB

Source: Statistical Yearbooks of the years 2018, 2019 and 2020 from the National Bureau of Statistics of China, <http://www.stats.gov.cn/tjsj/ndsj/>.

3. Theoretical Framework

The main research question in this thesis has been stated, but I will repeat it once: how does the Chinese government employ the pursuit of equitably distributed economic growth within the Chengdu-Chongqing city cluster in promoting the cluster in East Asian international production networks (IPNs)? To be able to answer this question, one should first know what is meant by the terms used in the question. I have explained two key terms – city clusters and IPNs – in the introduction (on page 4) and in the literature review (on page 13), respectively. However, what do I mean by equitably distributed economic growth? As the reader can see from the analysis of the policy documents in the empirical section, the government assigned specific roles to so-called designated 'central cities' located throughout the cluster in *The Plan for The Chengdu-Chongqing Economic Zone* from 2011. Urban development should drive that of the peripheries and industrial development should drive that of agriculture (see page 22). There is thus an ambition to include all places and people and ensure equitably distributed growth: all cities or localities cannot grow at the same pace, but in the end every city, county, municipality and district should take part in the

growth. In this thesis I am assessing how the government pursues this equitably distributed economic growth to promote the cluster in East Asian IPNs and how the ambitions relate to the reality.

From the review of the literature one theory in particular is concerned with urban and economic development in such a way that testing the development of the Cheng-Yu cluster to this theory may give useful insight on the extent to which the cluster has developed and how it has done so in relation to growth distribution. Thereby, the theoretical basis should contribute at effectively answering the research question.

I am talking about Marion Werner's theory of regional disinvestment. It may be well applicable to the development of the Cheng-Yu cluster. The GRP growth rates of different cities within the cluster have been quite different across cities throughout the years according to official statistics. Is there a relation between these growth differences and the investments that the different cities received throughout the period of research? I will assess this in the empirical section using data from the statistical bureaus of Sichuan province and the provincial-level city of Chongqing for the period 2014-2018. My sub-hypothesis is that there is a relation. However, if there is such a relation, there may potentially be two explanations. The first one is that less developed cities that have to catch up have higher year-on-year investment growth rates than more developed cities, precisely because there is much room for growth. The second one is that already well-developed cities have higher year-on-year growth rates, precisely because they are more attractive and less risky for investors. I will test this sub-hypothesis in the empirical section. The value of testing this hypothesis is also in its function of helping to coming to an understanding of what is actually visible of the envisioned pursuit of equitably distributed economic growth within the city cluster. If the different growth rates can be related to differences in investments that are partly attributable to the government, Werner's theory on regional disinvestment would be applicable to the subregion of the Cheng-Yu cluster as well.

4. Empirical Section

Methodology

I take a mixed-methods approach of quantitative and qualitative research that I present in this empirical section. I will explain the exact methods used. Then I will illustrate the value of this approach.

For the main quantitative research part, I gauge to what extent economic development in the Cheng-Yu cluster has been equitably distributed. I measure the equitability (or lack thereof) of this development by measuring how big the GRP per capita differences have been between counties (municipalities, districts) *and* between cities, for the period 2014-2018. I have not included data for 2017, because the statistical bureau of Chongqing published only indices of GRP per capita for its districts for 2017 in its statistical yearbook of 2018. No absolute numbers in yuan/renminbi were available for that year. This is also why I excluded data for 2015, to give a less distorted picture of the trend. Also, I have not included data from years after 2018, simply because there had been no statistical data of the years after 2018 available yet for Chongqing. Carrying out two measurements will illustrate that the subjective selection of data – either for counties (municipalities, districts) or for cities – highly impacts the results. This is an implicit critique of the fact that Li et al. have measured the GRP per capita differences only across counties, municipalities and districts, and not across cities. I use Li et al.'s formula stated in the literature review, but apply it to measure the CVs for both counties (municipalities, districts) and cities. I calculated the standard deviation (σ) of all GRP per capita values for the years 2014, 2016 and 2018. The coefficient of variation (CV) is then obtained by dividing the obtained σ by the mean of all the values for one year (μ):

$$CV = \frac{\sigma}{\mu} * 100$$

The higher the CV, the further away GRP per capita values have been from the mean (μ) overall – relatively – for a given year. The CV can be presented as a value between 0 and 1 or as a percentage.

However, to make real sense of the change in the GRP per capita differences in relation to the policy thanks to which or despite which the GRP per capita differences have changed over time, I will present an in-depth analysis of the relevant policy documents in which the central government explains its intentions with city clusters. This constitutes the qualitative research part, in which I thus analyze primary resources. I start with the *Twelfth Five-Year Plan for Economic and Social Development of The People's Republic of China (2011-2015)* and the Thirteenth Five-Year Plan that covers the period 2016-2020. These plans are comprehensive but do not enter into much detail. Nonetheless, the Chinese Communist

Party (CCP) propagates them as guiding documents for central and local governments and businesses. I will assess briefly what they tell us about the intentions of the Chinese government regarding city cluster development. After that, I will discuss the more specific cluster plans from 2011 and 2016, to finally arrive at the results of the CV calculations.

The value of this mixed-methods approach cannot be overstated. The value of this approach is in showing what the government envisions (through the qualitative analysis of the policy documents) and what is visible from its ambitions on the ground (through the quantitative, statistical analysis of GRP per capita trends and additional data). From my qualitative analysis of the four policy documents it follows that the government envisions equitable growth for cities and city clusters as a whole. In the recapping paragraphs after each of the four analyses of policy documents in the following results section, this is made clear again. However, the quantitative analyses show how complicated it is to realize equitably distributed growth.

Data selection

Both the qualitative and quantitative data used for the research of this thesis come from the central and local governments of the People's Republic of China. The statistical databases consulted in this thesis are those from the provincial-level cities Chongqing and Shanghai, and those of the provinces of Sichuan, Jiangsu, Zhejiang and Anhui. Although their databases are organized differently, they all include relevant data, including on GRP per capita (人均生产总值 renjun shengchan zongzhi), with indices (指数 zhishu). For Chongqing and Sichuan, absolute GRP per capita data were available for at least 2014, 2016 and 2018, in the statistical yearbooks of 2015, 2017 and 2019, respectively. These data are accessible through the website of each provincial-level city or province. The data on investments in fixed assets (固定资产投资 guding zichan touzi) as presented in Figure 4 on page 32 are available in the same databases as well. Links to these databases are given when they are discussed.

Although the databases are comprehensive, attention is warranted. Foreign and Chinese analysts have for years been cautious about the reliability of growth numbers. Domestic markets and investors would have to be kept calm and provinces may inflate numbers to look good to Beijing vis-à-vis other provinces with which they compete. This may make GRP per capita data less reliable, and this is a limitation, but there is no good alternative. Besides,

even the central governments must rely on provincial statistics for its policymaking on city clusters. Some degree of reliability must be assumed.

Results (analysis of policy documents and outcome of statistical analysis)

The Twelfth Five-Year Plan (FYP)

As is usual since the Ninth FYP – the first FYP for China as a socialist market economy – the Twelfth FYP was edited and formulated following proposals from the Central Committee of the Communist Party of China (CPC). The approval for the plan by the fourth session of the 11th National People’s Congress (NPC), considered widely in the west as a rubber stamp congress, came in March 2011. The first mentioning in the Twelfth FYP of what is at least remotely relatable to city cluster development is in Chapter 2, where the plan emphasizes the preconditions for substantial progress in transforming the economy.²⁰ These include building and extending a mechanism for sustained domestic demand, promoting a situation in which consumption, investment and export exist in harmony, strengthening the position of agriculture, improving the competitiveness of the manufacturing industries, developing strategic upcoming industries, accelerating service sector development, and pushing the economy to be reliant on a harmonious mix of the primary, secondary and tertiary sectors. In addition, sustainable forms of urbanization must be promoted, the project of the socialist new countryside (SNC) must be carried forward, and last but not least: the positive interaction between different regions must be promoted.

These ‘guiding principles’ (the name of the chapter in the 12th FYP) are phrased generally, but the reader gets a sense of how these five-year plans are introduced. The direction into which the party wanted to steer its policy back then builds on these principles. Furthermore, much emphasis was placed on how industry and agriculture should be mutually supportive. In this mutuality, agriculture modernization – more specifically the further building on the socialist new countryside (社会主义新农村建设 shehuizhuyi xin nongcun jianshe) – an important concept in Chinese national policy that I will, however, not elaborate on much for reasons of space – is the type of modernization that really should be ‘sped up’.²¹ This choice

²⁰ (Chinese) Central Government Web Portal 中央政府门户网站, “Guomin jingji he shehui fazhan di shier ge wunian guihua gangyao (quanwen)” 国民经济和社会发展第十二个五年规划纲要(全文) [The 12th Five-Year Plan for National Economic and Social Development], accessed 5 February 2021, http://www.gov.cn/2011lh/content_1825838_2.htm.

²¹ (Chinese) Central Government Web Portal 中央政府门户网站, “Guomin jingji he shehui fazhan”.

of words may imply that the party found that agricultural modernization was lagging behind. The FYP also stressed that large-scale development of China's western region should be given high priority and that the flow of production factors and industrial transfers should be facilitated (I elaborate more on industrial transfers later in this chapter, in the discussion of the Chengdu-Chongqing City Cluster Development Plan (2016)). Lastly, the gaps between rural and urban standards of living had to be narrowed.

This is just a brief summary of a plan counting 51 pages of Chinese characters, but there are three key elements to take away for this thesis. Firstly, agriculture and industry should be mutually supportive while agriculture must be modernized. As there has been a large and persistent income gap between urban and rural areas for decades in China, this suggests that the government wants to do something about it and in that sense make economic growth be more equitably distributed. Secondly, positive interaction between different regions must be promoted. It is likely that this interaction also concerns domestic production networks, in which less developed regions engage in relatively cheap manufacturing for firms that are active in more developed regions as well. Thirdly, the development of the tertiary sector must be accelerated.

The Thirteenth FYP

Striking in the language used in the opening chapter of the Thirteenth FYP is the stark emphasis on the achievement of goals set out in the Twelfth FYP. In relation to the guiding principles and policy objectives set out in the Twelfth FYP and discussed briefly above, Chapter 1 of the Thirteenth FYP reminds, inter alia, that "the disparity between rural and urban areas and between regions has been narrowing".²² Nonetheless, the party stresses later in the plan how it strives to bridge the rural-urban development gap and wants to facilitate rural-urban integration. In addition, the FYP really comes to the core of what the party envisions for city cluster development where it argues: "Megacities and supercities should (...) relieve their central areas as appropriate of functions nonessential to their roles, strengthen commuting efficiency and integrated development with neighboring towns and cities, and promote the establishment of metropolitan areas."²³ The places to absorb the

²² Central Committee of the Communist Party of China, *The 13th Five-Year Plan for Economic and Social Development of The People's Republic of China*. Beijing, 2016. Accessed April 9, 2021, https://en.ndrc.gov.cn/newsrelease_8232/201612/P020191101481868235378.pdf, 7.

²³ Id. at 92-95.

functions that the megacities and supercities are to be relieved of are the small and medium cities and ‘distinctive towns’ with characteristics that are individual to each one of them. As soon as small towns meet specific criteria that are to be set out by the party, they can be turned into cities. These rearrangements, the FYP stresses, have to be realized within a framework in which attention is paid to making cities green, and to making them capable of bearing the pressure on their environments – city planning should be eco-friendly. What is further striking, is that the party stressed the need to accelerate the rebuilding of ‘rundown areas’ and ‘dilapidated housing’.²⁴ The chapters on New Urbanization touch upon the improvement of the housing supply system and the promotion of coordinated urban and rural development. While the party gives the government and the market complimentary roles in providing basic housing and answering to multi-layered demand for housing, respectively, the party wants to ensure as well that residents unable to buy are supported financially by the government through subsidies. This policy is especially targeted at residents and families without urban residency. Furthermore, the party applies itself to promoting a balance between supply and demand on the real estate market, and to promoting a balance between supply and demand in rental housing, whereby more rental subsidies are to be granted.²⁵ Lastly, the party also details how it aims to relieve megacities and supercities of their nonessential functions. Indeed, specialized counties will be cultivated and developed, and they must take on functions and take over industries formerly performed by cities. In addition, they must lead rural development.²⁶

The key takeaway of the above to this thesis is that the government wants to relieve megacities and supercities of ‘functions nonessential to their roles’. Such a reallocation or redistribution of roles seems to be a potential for more growth in small and medium cities, and with that a more equitable redistribution of growth among megacities and supercities on the one hand and smaller and medium-sized ones on the other. However, how this reallocation should take shape is a difficult question to answer.

The Plan for The Chengdu-Chongqing Economic Zone (2011)

The Plan for the Chengdu-Chongqing Economic Zone (*Chengyu jingji qu yu gui hua* 成渝经

²⁴ Id. at 96-97.

²⁵ Id. at 98-99.

²⁶ Id. at 99-100.

济区区域规划) was issued in 2011 to function as a basis for reform and development of the Chengdu-Chongqing Economic Zone (*Chengyu jingji qu* 成渝经济区, English abbreviation: CCEZ). This plan can be rightfully considered a milestone in the history of the economic development of Chengdu and Chongqing. Prior, in 2008, Sichuan province and the provincial-level city of Chongqing signed the Framework Agreement on Deepening Economic Cooperation between Chengdu and Chongqing (*Guanyu shenhua chuanyu jingji hezuo kuangjia xieyi* 关于深化川渝经济合作框架协议), but the plan of 2011 marks the Sichuanese capital and Chongqing as two cores of a single economic zone and an important growth pole (*zengzhangji* 增长极).

The party states how it requires, inter alia, to promote Chongqing and Chengdu as demonstration areas (示范区 *shifanqu*) of a durable system (literally: a system with long-term effects, 长效机制 *changxiao jizhi*) in which the development of urban areas drives the development of peripheries and the development of industry drives the development of agriculture (以城带乡, 以工促农 *yi cheng dai xiang, yi gong cu nong*).²⁷ Chapter 4 on the General Planning of Urban and Rural Development (统筹城乡发展 *tongchou chengxiang fazhan*) reaffirms the importance of further developing the SNC, which should happen in complementarity with urbanization. This is to be done by opening up the peripheries of the two core cities – Chengdu and Chongqing – and optimizing the functional division between Chengdu and Chongqing, but also between sub-areas within the two core-cities. Furthermore, urbanization and the concurrent development of the SNC should happen in a way that concentrates industries geographically (产业集聚 *chanye jiju*) and causes people to move efficiently (合理流动 *heli liudong*).²⁸ The importance of urban-rural integration is stressed multiple times. In the whole context of urban-rural integration there are, however, a number of cities that should function as central cities to specific areas (区域性中心城市 *quyuxing zhongxin chengshi*) are identified. Their role includes leading different industries into forming industrial parks. The following table drawn from the Plan for the CCEZ lists the central cities with each their starting position for development.

²⁷ PRC National Development and Reform Commission 中华人民共和国国家发展和改革委员会, “Chengyu jingji qu quyue guihua” 成渝经济区区域规划 [The Plan for The Chengdu-Chongqing Economic Zone], 6.

²⁸ Id. at 11.

TABLE 2 – CENTRAL CITIES WITH THEIR STARTING POSITION FOR DEVELOPMENT	
Assigned central city or city districts	Starting position for development (industrial potential)
<i>Chongqing</i>	
Wanzhou 万州	Energy and chemicals, new materials, ‘light, textile and food’, mechatronics, trade and logistics base, central city of the economic zone’s northeast, important traffic node and port city.
Fuling 涪陵	Natural gas and fine chemicals, biopharmaceuticals, mechanical manufacturing, ‘light, textile and food’, trade and logistics base, central city of the economic zone’s east.
Changshou 长寿	Chemical engineering of oil and gas, metallurgy and materials building, building materials, regional logistical node city.
Jiangjin 江津	Advanced manufacturing, energy sector materials, food processing, trade and logistics, travel destination, important port city.
Hechuan 合川	Energy sector materials, mechanical manufacturing, electronics and information, ‘light, textile and food’, important logistical node and travel destination.
Yongchuan 永川	Equipment manufacturing, electronics and information, trade and logistics, travel destination, vocational education city.
<i>Sichuan</i>	
Deyang 德阳	Important heavy equipment manufacturing base, fine chemicals, food processing, modern industrial city.
Mianyang 绵阳	Electronics and information, scientific research and production, central city of the economic zone’s northwest and national science and technology city.
Meishan 眉山	Locomotives manufacturing, metallurgy and materials building, fine chemicals, special agricultural products processing base, grain storage base, important traffic node city.
Ziyang 资阳	Important national locomotives manufacturing and export, automotive and components manufacturing, energy saving products, food products distribution, conferences and exhibitions, travel destination, city of emerging industries.
Suining 遂宁	Fine chemicals, electronics and information, foods and beverages, trade and logistics base, important traffic node city.

Leshan 乐山	Green energy, new materials, metallurgy and materials building, travel destination for ecotourism and culture.
Ya'an 雅安	Agricultural products processing, green energy industry base, traffic node and ecotourism destination.
Luzhou 泸州	Beverages and food, gas and coal chemical industry, energy, equipment manufacturing base and trade and logistics center, important traffic node and port city.
Zigong 自贡	Brine chemical engineering, mechanical manufacturing, new building materials, logistics and distribution base, modern industry city.
Yibin 宜宾	Beverages and food, energy, light industry and textiles, mechanical manufacturing and trade and logistics base, important traffic node and port city.
Neijiang 内江	Agricultural products processing, metallurgy and materials building, automotive components manufacturing, comprehensive use of renewable resources, important trade and logistics node city.
Nanchong 南充	Oil and gas fine chemicals, automotive and components, 'light (industry), textiles and clothes', organic agricultural product processing, energy base and trade and logistics center, central city of the economic zone's north, important traffic node and port city.
Guang'an 广安	Fine chemicals, new energy, new materials, non-ferrous metal processing, automotive components, processing and supply of special agricultural products, red (communist) travel destination, important traffic and logistics node and port city.
Dazhou 达州	Gas, phosphorus and sulfur chemical engineering, metallurgy and materials building, agricultural products processing base, important trade and logistics node city.
<p><i>Source: PRC National Development and Reform Commission 中华人民共和国国家发展改革委员会, "Chengyu jingji qu quyu gui hua" 成渝经济区区域规划 [The Plan for The Chengdu-Chongqing Economic Zone] (2011), 13-15.</i></p>	

This plan from 2011 thus shows that the government has been very conscious about the assignment of different roles to the central cities. However, a glance at the table and even the original plan will also make one understand that the description of roles is rather general and broad, which could have its implications.

The Chengdu-Chongqing City Cluster Development Plan (2016)

In the Plan for the CCEZ (2011) the word ‘city cluster’ (the common translation of the Chinese ‘城市群 chengshiqun’) was mentioned eleven times. In the Chengdu-Chongqing City Cluster Development Plan (2016), it is mentioned 115 times. The city clusters referred to in the plan from 2011 include those of Chongqing and Chengdu separately. In the plan from 2016, they are replaced by one ‘成渝城市群 Chengyu chengshiqun’: the Chengdu-Chongqing City Cluster or, abbreviated, the Cheng-Yu City Cluster. It is the conception of what was formerly the CCEZ and it figures in the plan’s title. The plan aims at developing a cluster that helps improving the connection between China’s northwest and the southwest, but also improves the interaction between the One Belt One Road initiative (now phrased as the Belt and Road Initiative) and the Yangtze River Economic Belt to connect the strengths of the domestic and foreign economies.²⁹

Strikingly, the plan from 2016 is – notwithstanding the strengths present in the city cluster – much more elaborate on the shortcomings in the development of the cluster than the equivalent sections on challenges in the Plan for the CCEZ from 2011, where the shortcomings of the development of the cluster were discussed only very briefly.³⁰ This difference in discourse is likely to be related to the fact that the plan from 2011 had no direct precedent, while the plan from 2016 does have the plan from 2011 as its precedent. The discrepancy between goals or expectations for a given period (2011-2016) and actual progress made becomes clear at the end of the period. This discrepancy then leads to dissatisfaction that is easily formulated.

The party wants to establish the Cheng-Yu cluster as one that competes internationally (it must have become a cluster of international importance by 2030) and one that speeds up what has been conceptualized by the party in 2014 as ‘new-type urbanization’ (新型城镇化 *xinxing chenzhenhua*).³¹ This concept that the CCP first coined in 2002 is juxtaposed to traditional industrialization. The party explains that in comparison, the main characteristic of new-type industrialization is its stress on the concurrence of economic development and

²⁹ PRC National Development and Reform Commission 中华人民共和国国家发展和改革委员会 and the Ministry of Housing and Urban-Rural Development (MOHURD) 中华人民共和国住房和城乡建设部, “Chengyu chengshiqun fazhan guihua” 成渝城市群发展规划 [The Chengdu-Chongqing City Cluster Development Plan], 2.

³⁰ Id. at 3-5.

³¹ Id. at 5, 8-9.

environmental protection, unlike traditional forms of industrialization. Big data as an essential production factor, the internet and renewable energy technologies, inter alia, are all important components in a new round of scientific and technological reforms to change traditional ways of developing economy and society.³² The party also wants to make sure that urban and rural areas become more integrated in a way that does not ‘rid’ the countryside of its typical characteristics or ‘deruralize’ China.³³ Well before the plan from 2011, in 2007, the party had designated Chengdu and Chongqing simultaneously as two separate reform pilot areas for the comprehensive planning of urban and rural areas.³⁴ The deputy mayor of Chongqing highlighted that “the comprehensive planning of the urban and the rural is a difficult problem the country faces, but one which has to be solved”. The rhetoric of the Cheng-Yu City Cluster Development Plan affirms that this problem is still current and the development disparity the deputy pointed out not dealt with definitively.

The driving forces of Chengdu and Chongqing must be used to strengthen the main axis running between the two cores. The whole cluster should further be developed along the geographical framework of ‘one axis with two belts and a double core with three areas’ (一轴两带、双核三区 *yi zhou liang dai, shuang he san qu*).³⁵ Figure 1 on the next page is a map of this framework. There is one main axis linking Chengdu, Chongqing and their peripheries from northwest to southeast (shown in red), two belts running from north to south crossing the two cores (purple) and three areas with relatively high concentrations of towns (in yellow).

³² Shi Dan 史丹, “Xin fazhan jieduan zou hao xin xing gongyehua zhi lu” 新发展阶段走好新工业化之路 [Following through with new-type industrialization the correct way in a new development phase], *Economic Daily 经济日报*, April 9, 2021, http://paper.ce.cn/jjrb/html/2021-04/09/content_441416.htm.

³³ “Guojia xinxing chengzhenhua gui Hua” 国家新型城镇化规划 [National New-Type Urbanization Plan], The Central People’s Government of the PRC 中华人民共和国中央人民政府, Accessed August 18, 2021, <http://www.gov.cn/zhuanti/xxczh/>. ‘Deruralize’ is my own translation of the Chinese ‘去乡村化’.

³⁴ The State Council Information Office of the PRC 国务院新闻办公室, June 18, 2007, “Quanguo tongchou chengxiang zonghe peitao gaige shiyanqu gongzuo qidong qingkuang” 全国统筹城乡综合配套改革试验区工作启动情况 [Launching the National Reform Pilot Area for the Comprehensive Planning of Urban and Rural Areas], <http://www.scio.gov.cn/xwfbh/gssxwfbh/xwfbh/chongqing/Document/317422/317422.htm>.

³⁵ PRC National Development and Reform Commission, “Chengyu chengshiqun fazhan gui Hua”, 10.

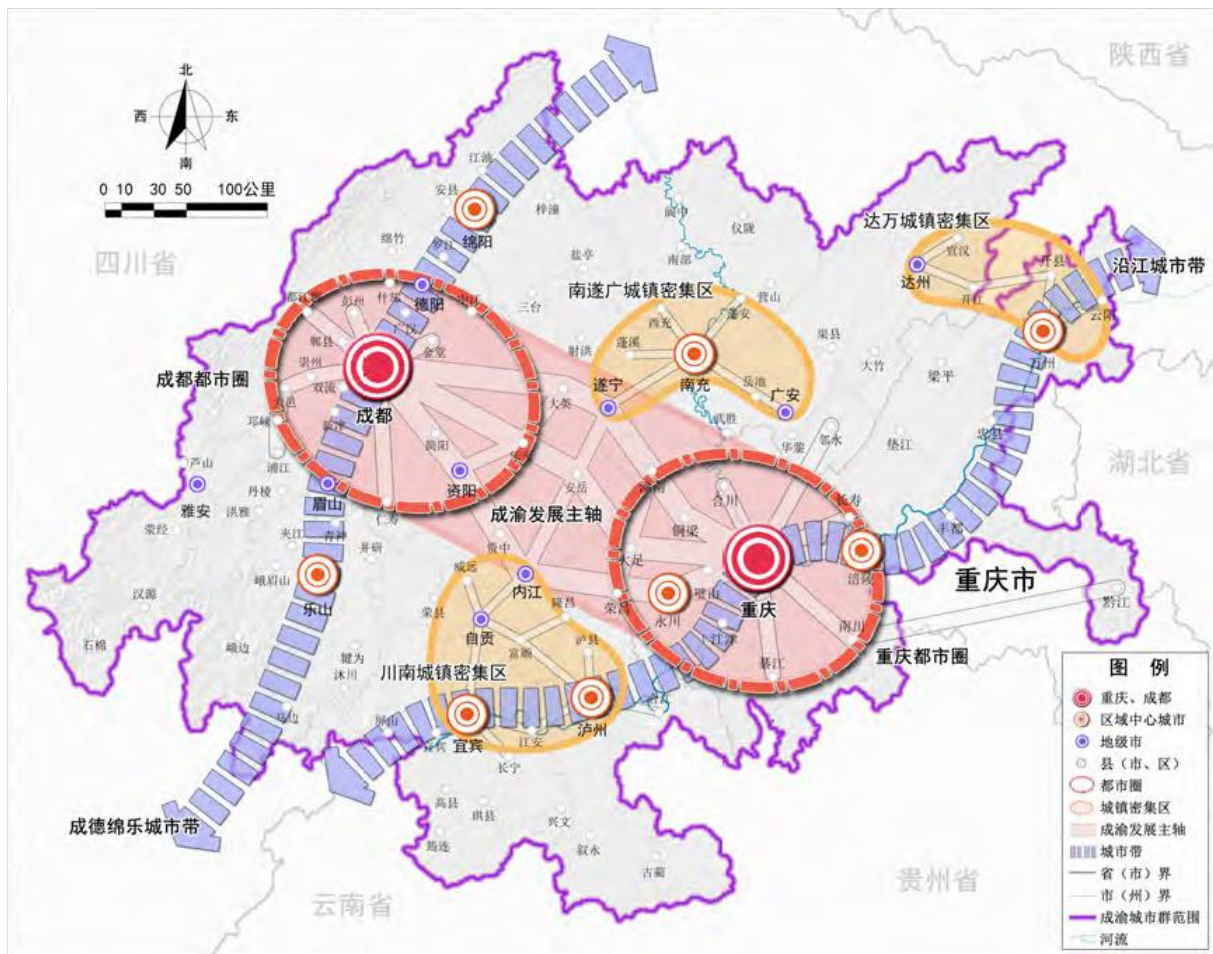


Figure 1 – The Cheng-Yu City Cluster: one axis with two belts and a double core with three areas' (一轴两带、双核三区 *yi zhou liang dai, shuang he san qu*) (source: PRC National Development and Reform Commission, “Chengyu chengshiqun fazhan guihua”, 11)

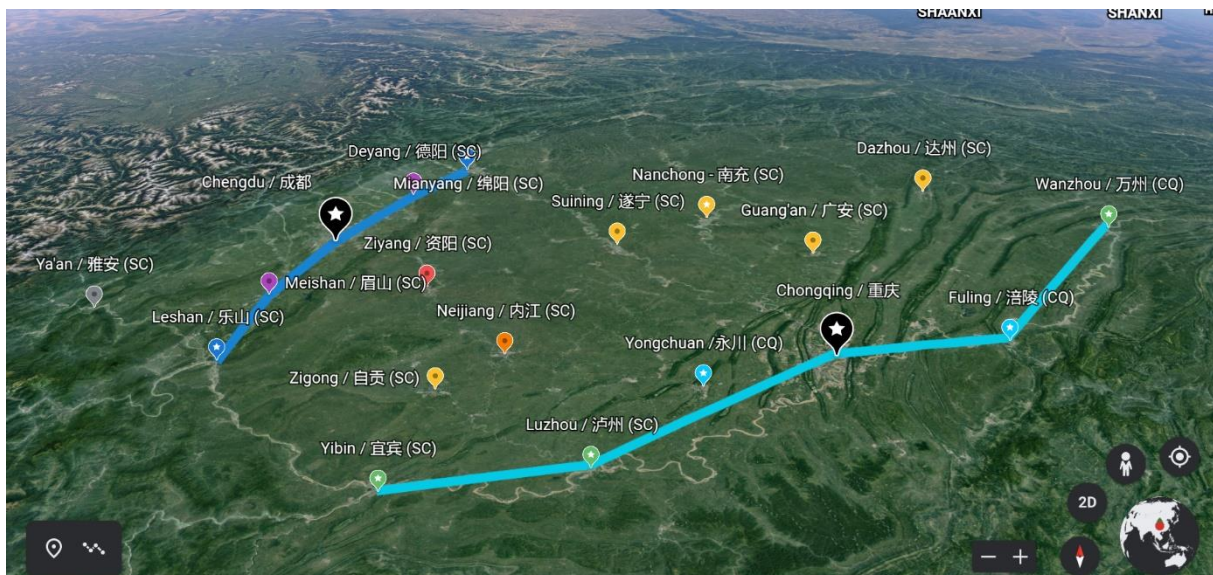


Figure 2 – The geographical layout of the Cheng-Yu City Cluster including the cores (Chengdu and Chongqing, labelled with stars), the central cities as defined in the Cheng-Yu City Cluster Development Plan from 2016 (labelled with white dots), and prefecture-level cities (labelled with black dots)

Here a striking departure is made from the plan from 2011: the party redefines the central cities and they are brought down to seven where they totaled twenty in the plan from 2011.

The central cities defined in the plan from 2016 include Wanzhou, Qianjiang, Mianyang, Leshan, Nanchong, Luzhou and Yibin. They should share functions in service of the two core cities.³⁶ In addition, a total of 27 cities must be further developed in ways that make use of their specializing potentials. Each city has a different starting point for further development.

The plan also details how industrial clusters within the Cheng-Yu cluster must be further developed based on the comparative advantages that different cities or groups of cities together are boasting. The industrial clusters to be developed or enhanced because of their advantageous positions are those in equipment manufacturing, in strategic upcoming industries, specific industries for the processing of natural resources into products (for example, salt processing and glass production), industries engaged in the production of agricultural or forestry products and the hospitality industry.³⁷

Here I would like to highlight a distinctively Chinese phenomenon mentioned in the plan, which is that of domestic or internal 'industrial transfers' (产业转移 *chanye zhuan yi*). They are defined by the Chinese government as a way of "optimizing the spatial layout of production and shaping paths for a well thought-through system of functional divisions".³⁸ What it more clearly refers to in the context of Chinese economic development, as Ang explains, is the migration of manufacturers from the coastal provinces to the central and western regions of China since the early 2000s. What makes the Chinese domestic transfers quite unique is that they are domestic, while in the past industrial transfers in East Asia were more across borders, from factories in economies that had come to be more developed with time (the Asian Tiger economies) and therefore had to shed their 'low-cost, labor-intensive, export-oriented manufacturing' to be carried out in new places to which cheap labor was available, the Chinese east-coast.³⁹ The western and central regions of China are then to the east-coast what the east-coast used to be to the developed Asian Tigers in the past.

The plan also takes the whole cluster to the macro-level and affirms the importance of cooperation with other city clusters within the country and the importance of learning

³⁶ Id. at 13-14.

³⁷ Id. at 18.

³⁸ (The) Central People's Government of the PRC 中华人民共和国中央人民政府, "Guowuyuan guanyu zhongxibu diqu chengjie chanye zhuan yi de zhidao yijian" 国务院关于中西部地区承接产业转移的指导意见 [Guiding opinions of the State Council on central and western regions carrying on industrial transfer], accessed 31 August 2021, http://www.gov.cn/gongbao/content/2010/content_1702211.htm, my translation.

³⁹ Yuen Yuen Ang, "Industrial transfer and the remaking of the People's Republic of China's competitive advantage" (working paper, Asian Development Bank Institute, 2017), 1-2, <https://www.adb.org/sites/default/files/publication/335981/adb-wp762.pdf>.

lessons from and replicating the benefits accrued in pilot free trade zones (FTZs) elsewhere in China. And indeed, in 2017, the Chongqing FTZ was established. But in addition, the Cheng-Yu cluster ought to be integrated in the Belt and Road initiative.

The most important takeaway of this plan from 2016 to this thesis is the reallocation of the roles as central cities. The number of central cities has been brought down from twenty in the plan from 2011 to seven in the plan from 2016. Particular attention – a political choice – is thus focused on specific cities.

The coefficient of variation (CV) for the ‘populations’ of GRP per capita across counties (municipalities, districts) and across cities for the Cheng-Yu cluster for the period 2014-2018

As said before, the results of the calculations of the CV across counties (municipalities, districts) and across cities would follow right after the analysis of relevant policy documents. In the table, the CVs for the populations across counties (municipalities, districts) and across cities are given for the years 2014, 2016 and 2018.

TABLE 3 – Coefficient of variation (CV) for statistical populations of GRPs per capita within the Cheng-Yu city cluster	2014	2016	2018
Across counties*	53%	51,9%	51,8%
Across cities	32,9%	32,0%	33,9%
*including municipalities and districts at the administrative level of the county Source of statistics/datasets on which the calculations are based: Statistical Yearbooks of the years 2015, 2017 and 2019 from Sichuan province and the provincial-level city of Chongqing, http://tjj.sc.gov.cn/scstjj/c105855/nj.shtml , http://tjj.cq.gov.cn/zwgk_233/tjnj/ .			

First of all, the results indicate that the CV values for the same year can differ starkly when measured across counties and when measured across cities. This indicates that there is a much larger variety in the population (N) of GRP per capita values for counties than for cities. In other words, there are much larger differences in relative terms in GRP per capita within cities, than between cities.

Secondly, the results indicate that the CV for counties and the CV for cities can be so different, that it is possible that according to a measurement across counties, the CV has become smaller (-0,1 percentage point) while the CV has become bigger according to a

measurement across cities for the same period (+1,9 percentage point from 2016 to 2018!).

It is appropriate to emphasize here that these CVs are not calculated to claim that there is a relatively high degree of inequality in the distribution of economic growth, compared to other city clusters. On the contrary, even the CV calculated for the cities of a more developed clusters as the Yangtze River Delta (comprising 27 cities including Shanghai and others in the provinces of Jiangsu, Zhejiang and Anhui) can be relatively high compared to the CV calculated for the cities of a less developed cluster area such as the Cheng-Yu cluster. The CV calculated for 2018 for the 27 cities of the Yangtze River Delta as defined in the Yangtze River Delta Integration Plan from 2019 (长江三角洲区域一体化发展规划纲要 Changjiang sanjiaozhou quyu yitihua fazhan guihua gangyao), for example, is 37,1%.⁴⁰ One must be aware that the CV percentage does not take into account the fact that some cities are more populated than others, and that while the CVs of different clusters can be comparable as a measurement of the equitability of growth distribution, it says nothing about the height of the GRPs per capita. Indeed, GRPs per capita for the cities in the Yangtze River Delta are generally much higher than those for those in the Cheng-Yu cluster.

When one wants to know to what extent economic development within a region or cluster has been equitable over a given period, based on a measurement of the change in GRP per capita differences within that region (or cluster), the discrepancies in statistics as shown in Table 3 can be problematic. On the other hand, they may just illustrate and highlight that inequality can become smaller across counties and bigger across cities at the same time (and potentially vice versa). This reality has implications for policymakers. Before going to these implications, I contextualize the findings of the CV calculations across counties and across cities with additional statistical analyses.

⁴⁰ Source of statistics/datasets on which the calculations are based: Statistical yearbooks of 2019, from the provincial level city of Shanghai and the provinces of Jiangsu, Zhejiang and Anhui: Shanghai Statistical Yearbook 2019 2019 年上海统计年鉴, Shanghai Municipal Bureau of Statistics 上海市统计局, <http://tjj.sh.gov.cn/tjnj/20200427/4aa08fba106d45fda6cb39817d961c98.html>; Jiangsu Statistical Yearbook 2019 2019 年江苏统计年鉴, 江苏省统计局 (statistical bureau of Jiangsu province), <http://tj.jiangsu.gov.cn/2019/nj20.htm>; Zhejiang Statistical Yearbook 2019 2019 年浙江统计年鉴, Zhejiang Provincial Bureau of Statistics 浙江省统计局, https://zjjcmspublic.oss-cn-hangzhou-zwynet-d01-a.internet.cloud.zj.gov.cn/jcms_files/jcms1/web3077/site/flash/tjj/Reports1/2020%E7%BB%9F%E8%AE%A1%E5%B9%B4%E9%89%B420200929/2019%E5%B9%B4%E7%BB%9F%E8%AE%A1%E5%B9%B4%E9%89%B4%E5%85%89%E7%9B%9820200929/indexch.htm; Anhui Statistical Yearbook 2019 2019 年安徽统计年鉴, Anhui Provincial Bureau of Statistics 安徽省统计局, <http://tjj.ah.gov.cn/oldfiles/tjj/tjjweb/tjnj/2019/cn.html>.

Analysis of investment trends in comparison with GDP changes for the period 2014-2018

While the CV for GRPs per capita calculated across counties has continued to become smaller from 2014 to 2018, after having become smaller over the period 2000-2014 as Li et al.’s cited research indicated, the CV for GRPs per capita calculated across cities has not: from 2014 to 2016 it went down by 0,9 percentage point (while across counties, it went down by 1,1 percentage point) but after that it went up again, with 1,9 percentage points to 33,9% in 2018. A logical explanation would be that the GRP trend over the years (not divided by the population, i.e. not per capita) across cities has been distinctively different. Some cities may have experienced slowing growth while others have experienced accelerated growth. To make this presumption more plausible, I show the GRP growth trend for the period 2014-2018 for the seven central cities as defined in the cluster plan from 2016 in Figure 3.

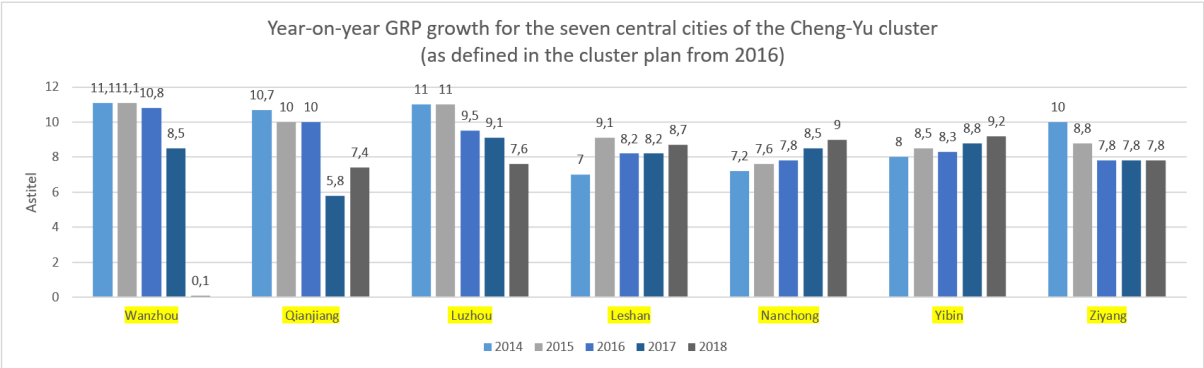


Figure 3 – Year-on-year GRP growth for the seven central cities of the Cheng-Yu cluster (as defined in the cluster plan from 2016), source of GRP data: Statistical Yearbooks of the years 2015-2019 from Sichuan province and the provincial-level city of Chongqing

The bar chart from Figure 3 shows clearly that the seven central cities have experienced different growth rates from 2014 to 2018. The cluster’s central cities of Wanzhou and Qianjiang (officially districts of Chongqing) both show stark growth rate declines in 2017 and Wanzhou’s growth even stagnated in 2018. Luzhou’s growth rates have continued to falter in the same period, while Nanchong and Yibin have kept growing steadily (Yibin’s growth declined slightly only in 2016).

To try to gauge the applicability of Werner’s theory of regional disinvestment discussed earlier to the subregion of the Cheng-Yu cluster, I include another bar chart on the growth trend of investments in fixed assets in the same seven cities for the same period in Figure 4 on the next page. Fixed assets are constituted by so-called property, plant and equipment (PP&E), which are tangible assets used for the generation of income through production.

Investments in fixed assets will ideally pay off in companies’ and enterprises’ outputs and turnovers eventually. GDP and GRP statistics reflect the value added to these outputs.

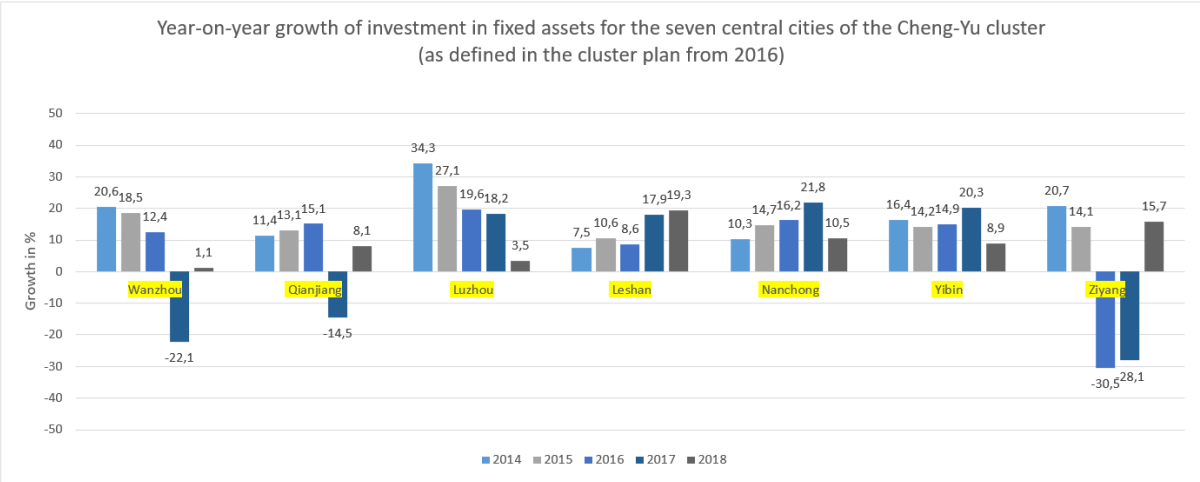


Figure 4 – Year-on-year growth of investment in fixed assets for the seven central cities of the Cheng-Yu cluster (as defined in the cluster plan from 2016), source of investment data: Statistical Yearbooks of the years 2015-2019 from Sichuan province and the provincial-level city of Chongqing

A clear relationship can be seen between the GRP growth rates and growth rates of investments in fixed assets. For Wanzhou and Qianjiang, the sudden steep decline in investments in 2017 concurs with the distinctively lower GRP growth rates in the same year. The faltering GRP growth rates of Luzhou throughout the period concur with faltering fixed assets investment growth for the same period. Nanchong’s GRP growth rate has increased throughout the period, as has the fixed investment growth rate throughout the period, with the exception of 2018. The trend is similar for Yibin. These pronouncedly lower investment rates are likely attributable to the breakout of the China-US trade war. For Ziyang, the relationship between the GRP growth trend and the fixed assets investment growth rate is less easily pinpointed.

In the theoretical framework, I already hinted that if a relation between the growth trend of investments in fixed assets and the growth trend of GRP would be observable, there may hypothetically be two reasons: either less-developed cities have more growth potential and show stronger growth trends, or more developed cities, because of the lower risk of investments there, show stronger growth trends. Interestingly, the least developed city in 2014 (measured as the city with the lowest GRP per capita) was Nanchong with a GRP of

22.639 yuan per capita, but it has shown the most stable upward trend from 2014 to 2018.⁴¹ Table 4 shows that Wanzhou and Qianjiang, as the two among the seven central cities with the highest GRP per capita in 2014 (48.201 and 40.960 yuan in 2014, respectively), showed the poorest growth trend, together with Ziyang. Luzhou, always experiencing lower growth year-on-year in the period 2014-2018, was the least developed city in 2014 with a GRP per capita of 29.655. See the following table for the GRPs per capita for the seven central cities at the start (2014) and at the end (2018) of the period under research.

TABLE 4 – GRPs per capita in yuan for the seven central cities of the Cheng-Yu cluster as per the Chengdu-Chongqing City Cluster Development Plan (2016)	2014	2018
Wanzhou 万州区	48.201	59.853
Qianjiang 黔江区	40.960	51.439
Luzhou 泸州市	29.655	39.230
Leshan 乐山市	37.125	49.397
Nanchong 南充市	22.639	31.203
Yibin 宜宾市	32.318	44.604
Ziyang 资阳市	33.592	42.112
Source of data: Statistical Yearbooks of 2015 and 2019 from Sichuan province and the provincial-level city of Chongqing, http://tjj.sc.gov.cn/scstjj/c105855/nj.shtml , http://tjj.cq.gov.cn/zwgk_233/tjnj/ .		

Although overall, it seems more plausible from these numbers that the less developed cities show higher growth rates, the case of Luzhou contradicts this and the sub-hypothesis that less developed cities show higher growth rates is plausible but cannot be convincingly proven.

5. Implications of the findings

Already in the cluster plan from 2011, the Chinese government stated its ambitions to make the Cheng-Yu cluster develop in a way that includes not only urban areas, but also peripheries, and not only involves industry, but also agriculture. Yet city development must

⁴¹ Sichuan Statistical Yearbook 2015 四川统计年鉴 2015, Sichuan Provincial Bureau of Statistics 四川省统计局, <http://tjj.sc.gov.cn/scstjj/c105855/2001/12/13/ab52d4462353434b9d2e0842e21cd9a1/files/4b2e6d556a6f48d39fd076dc89665d4f.rar>, accessed December 10 2021.

drive development of the peripheries and industrial development must drive agricultural development (以城带乡, 以工促农 *yi cheng dai xiang, yi gong cu nong*), as indicated in the discussion of the plan from 2011 (page 21).

As highlighted in the discussion of the plan from 2016, the party had been vocal about the shortcomings in the development of the cluster. Two of the shortcomings highlighted were the “withdrawn development of the two core cities” (核心城市背向发展 *hexin chengshi beixiang fazhan*, with reference to Chengdu and Chongqing) and the “lack of development of the secondary cities” (次级城市发育不足 *ciji chengshi fayu buzhu*).⁴²

The statistical findings in the empirical section confirm that there are secondary cities (large cities, but smaller than Chengdu and Chongqing) lagging behind. However, what the plan from 2016 does not refer to is how divergent the growth trends are for different cities. Yet, this divergence in the growth trends factors significantly in the deepening of relative differences in economic development in the cluster. In addition, the fixed asset investment chart shows how virtually all seven central cities have responded to the breakout of the China-US trade war in 2018. Among the seven central cities, only Leshan saw the growth rates of investment in fixed assets continue to increase since 2016.

All in all, the two main implications of the findings are the following.

Firstly, relative differences in economic development cannot automatically be considered to have shrunk, merely by a calculation of the CV of aggregated GRPs per capita for counties for a given period. A calculation of the CV of aggregated GRPs per capita for cities for the same period may indicate the opposite, and such a calculation has indeed indicated the opposite in the research on GRPs per capita for the period 2014-2018 in the previous section. The calculation of the CV of aggregated GRPs per capita for cities indicates that relative differences in development have become larger over the period 2014-2018 by 1 percentage point, contrary to how the Chinese government envisions inclusivity of growth. Note that the CV calculation for cities is based on GRP per capita data from core city Chongqing taken *as a whole* (thus including, among other districts, the districts of Wanzhou and Qianjiang), core city Chengdu, the five Sichuanese central cities, and also Zigong, Deyang, Mianyang, Suining, Neijiang, Meishan, Guang’an, Dazhou and Ya’an.

Secondly, there is a clear relationship overall between the growth trend of investments in

⁴² PRC National Development and Reform Commission, “Chengyu chengshiqun fazhan guihua”, 4.

fixed assets and the growth trend of GRPs for the seven central cities as per the cluster plan from 2016. As could be expected, the increased investment growth tends to concur with high year-on-year GRP growth rates, while faltering investment growth tends to concur with lower year-on-year GRP growth rates. This being said, I argue that the size of investments in fixed assets is very likely to impact GRP growth, as could be expected. The challenge laid down before the Chinese government is that of ensuring that equitably distributed economic growth as aspired to in its plans is realized in reality. The plans are testimony of the government's ambitions for equitably distributed and inclusive growth. Central cities are also assigned to lead their peripheries in development. Peripheries cannot be led in development, however, when central cities themselves are experiencing investment downfalls. An argument that could be put forward as an optimistic explanation of faltering investment growth is that cities within the cluster are simply experiencing slower growth as their economies become more mature with a growing service sector – growth rates fall, but the growth is sustainable. This well-known argument from Beijing to explain decreased growth for the country as a whole does not hold as strongly for cities within the Cheng-Yu cluster, however, as it may do for cities in the more developed clusters along the coast (notably the Beijing-Tianjin-Hebei cluster, the Yangtze River Delta, and the Pearl River Delta).

6. Conclusions

By 2030, the Chengdu-Chongqing city cluster must have become one of international importance, the cluster plan from 2030 highlighted. Eight years away, it is not impossible that the cluster will have become so. However, the phrasing 'of international importance' is vague. Phrased this way, it is a goal that is difficult to measure. Nonetheless, it cannot be otherwise than through the incorporation into IPNs and GPNs that the cluster becomes one of international importance, irrespective of the way in which it is measured. What is certain is that the Cheng-Yu cluster has a long way to go in ensuring equitably distributed economic growth. In 2016, the government laid a new foundation on which to steer further development with the 'one axis with two belts and a double core with three areas', but the effectiveness of this layout remains to be proven.

The research in this thesis has shown the extent of the differences in economic development across cities. In answering the research question, I argue the following: the Chinese government envisions the promotion of the Cheng-Yu cluster in East Asian IPNs

through the pursuit of equitably distributed economic growth by way of assigning roles to specifically defined cities, but the allocation of roles is very broad and a more well-defined distribution of roles may benefit the equitability of growth distribution and the effective incorporation in IPNs. At this point, the hypothesis that equitably distributed economic growth is pursued by the Chinese government in the Cheng-Yu cluster in a way that it effectively promotes the cluster in East Asian IPNs cannot be proven, but this is not to say that it cannot be in the future. Furthermore, I contend that even if the government has grand ambitions with the cluster and the growth in different cities is undeniable, it takes policy that targets slowing growth (which has shown to tend to concur with disinvestment) or at least tries to make growth more sustainable in several cities to make growth be more equitably distributed.

For the government to address the relative differences in economic development between cities, more research into the nature of the differences can prove to be helpful. In order to target slowing growth or at least ensure sustainable growth, the reasons for the faltering growth rates – for example in Luzhou, Ziyang, Wanzhou and Qianjiang – must be found and compared to the reasons for the increased growth rates – such as in Nanchong and Yibin. In-depth case studies would have the potential to pinpoint these differences exactly, both on the city-level and even the firm-level. Clearly explained comparisons of a city or firm with faltering growth and a city or firm with increased growth could tell more about the complimentary roles that cities and firms (both domestically invested and foreign-invested) may play in order to contribute to the equitably distributed growth aspired to. Further research that adds to the relative scarcity of research on the Cheng-Yu cluster could also be helpful in gauging in which direction it is heading and to what extent economic growth becomes more equitable (or inequitable). The availability of data on Chongqing after 2018 would make it possible to look for trends over the longer term.

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