Governing Cities for Growth

Land politics, financial mechanisms, and state entrepreneurialism in China

Song, Y.

DOI
10.4233/uuid:266da7d4-ebe3-441e-a7f1-3238961ee412

Publication date
2022

Document Version
Final published version

Citation (APA)
Song, Y. (2022). *Governing Cities for Growth: Land politics, financial mechanisms, and state entrepreneurialism in China*. [Dissertation (TU Delft), Delft University of Technology]. https://doi.org/10.4233/uuid:266da7d4-ebe3-441e-a7f1-3238961ee412

Governing Cities for Growth

Land politics, financial mechanisms, and state entrepreneurialism in China

YUN SONG

TU Delft Delft University of Technology

Governing cities for growth

Land politics, financial mechanisms, and state entrepreneurialism in China

YUN SONG

Governing cities for growth
Land politics, financial mechanisms, and state entrepreneurialism in China

Dissertation

for the purpose of obtaining the degree of doctor

at Delft University of Technology

by the authority of the Rector Magnificus, Prof.dr.ir. T.H.J.J. van der Hagen,

Chair of the Board for Doctorates

to be defended publicly on

Tuesday 17 May 2022 at 12:30 o'clock

by

Yun SONG

Master of Architecture, South China University of Technology, China

born in Guangzhou, China

This dissertation has been approved by the promotors.

Composition of the doctoral committee:

Rector Magnificus,	chairperson
Prof. dr. D. Stead	Delft University of Technology, promotor
Prof. dr. W.M. de Jong	Rotterdam School of Management, promotor
Independent members:	
Prof. D. Tyfield	Lancaster University, UK
Prof. M. Zhao	South China University of Technology, China
Prof. Y. Jing	Fudan University, China
Prof. dr. G.P. van Wee	Delft University of Technology
Prof. dr. V. Nadin	Delft University of Technology

This research was funded by the China Scholarship Council and Delft University of Technology.

Delft, the Netherlands

An electronic version of this dissertation is available at http://repository.tudelft.nl/.

CONTENTS

Table of Contents

Abbreviations

AI	Artificial Intelligence
CBD	Central Business District
CCCP	Central Committee of Communist Party
CNY/RMB	Chinese Yuan Renminbi/Ren Min Bi
CPC/CCP	Communist Party of China
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HSR	High-speed Rail
ICT	Information and Communication Technology
LGFV	Local Government Financial Vehicle
LIPC	Land Investment and Development Company
NDRC	National Development and Reform Commission
NHTIDZ	National High Technology Industrial Development Zone
PRD	Pearl River Delta
PRP	Poverty Reduction Programme
SEZ	Special Economic Zone
TCIG	Transport Construction and Investment Group
TAD	Transit Adjacent Development
TOD	Transit-oriented Development

Preface

This is a wide-ranging dissertation which is based on published articles. It aims to study the potential challenges and changes in the current land finance model adopted for municipal governments under urban pro-growth governance, which has been dominated for decades during China's rapid urban growth period but also is criticized as becoming increasingly problematic and unsustainable.

It is a wide-ranging study because it consists of four independent articles which are not confined to a specific region or certain tiers of cities, but vary from developed urban agglomerations, lesser developed medium-sized cities to national level new districts across China; nor to a specific type or form of urban development, but vary from new town development, TOD projects, urban and transport infrastructure, to technopoles. However the four independent articles are under an overarching topic, which seeks to examine how China's institutional mechanisms in urban growth works in different forms of practice, and how different actors, including different levels of governments, departments and private sectors, interact and form coalitions and strategies to implement their agenda in urban development. It is about the governance of urban growth, its challenges from recent policy narratives of sustainability and the implications to future urban development.

This study adopts state entrepreneurialism as a carrying concept. It can be seen as a Chinese version of David Harvey's urban entrepreneurialism which emphasizes 'planning centrality'

and ‘market instrument’ for the Chinese context. Like urban entrepreneurialism, state entrepreneurialism is also a highly abstractive concept which is often used as a theoretical foundation to understand urban governance in general rather than as a specific analytical framework for empirical study. It is also the case in this study, in which different articles adopt distinctive analytical frameworks. However, the empirical findings aim to reflect the changing state-market relations from different forms of urban practices and the respective discussion to the development of state entrepreneurialism.

‘Land finance’ is another concept that appears repeatedly throughout the following articles. Despite it is not a scientifically well-defined concept in urban studies, it is widely used to describe the dominated model that local governments have adopted in urban growth. ‘Land’ is at the centre of local politics. The discussion on urban governance throughout the articles in this study is closely related to the challenges and changes of the land finance model. This is one of the reason why seemingly very different cases are selected and put together in this dissertation. From different tiers of cities and types of urban projects, how decision makers and actors involved in different situations and development processes utilise, innovate, and compromise with the dominated model of land finance can provide a more comprehensive understanding of the complexity of urban governance in China.

Introduction 1

1.1 Urbanisation and urban growth in China

Urbanisation, urban growth, and urban population growth are concepts that often appear together in literature (Cao et al., 2012), but these concepts need to be defined first to avoid misuse and causing misunderstanding in this study as they may have different definitions in different regions and situations. Urbanisation rate refers to the proportion of urban population, and urbanisation involves the population shift from rural to urban areas (Mcgranahan and Satterthwaite, 2014). China has a specific household registration system (*hukou*) that classifies each person as a rural or an urban resident. As a result there is often a significant gap between the urban population in statistics and the actual population living in urban areas, especially in the relatively developed cities that attract a large number of migrant

works from rural areas. Urban growth can refer to both the physical expansion of urban area and the general growth of population and urban area, but the latter one may cause confusion as shrinking urban population and growing urban area can happen at the same time (Long and Gao, 2019). In this study, urban growth refers specifically to the physical expansion as particular attention will be paid on the mismatch between physical urban growth and population growth.

China's great urbanisation and urban growth process establishes the research background of this study. Since its marketisation reform in the 1980s, China has witnessed increasingly high rates of urbanisation, and similar rates of urban growth are set to continue in the 21st century. Its urban population has grown from 302 million in 1990 to 848 million in 2019. In other words, 546 million people have moved to cities in 30 years (National Bureau of Statistics of China, 2020). There are currently 93 cities in China with a population of more than 1 million inhabitants, 30 cities with a population above 3 million, and 6 cities with a population above 10 million[1] (Chinanews, 2021).

China's urbanisation is accompanied with great urban growth process, which has not only facilitated China's industrialisation and its development towards a global manufacturing base; it has also fostered technological innovation and industrial upgrading. As such, urban

[1] The urban population mentioned here refers to population of the 'urban area'. Sometimes urban population can also refer to the population of the 'administrative area' of a city in Chinese texts. Some texts contend that China has dozens of cities with more than 10 million inhabitants as it also includes people from all county-level towns, counties, and hundreds of thousands of square kilometres in rural area within the administrative area of a city.

growth has become one of the most important motors, if not the most important one, of China's economy. Real estate and related businesses have grown from creating 414 billion (RMB) GDP (4% of national GDP) in 2000 to 6,963 billion (RMB) GDP (7% of national GDP) in 2020, with an astonishing 78% annual growth rate over the past 20 years (Sohu News, 2021). Moreover, local government revenue by leasing land to developers is not even included in this calculation, so the actual number of real estate GDP and its influence on China's economic system and governmental behaviours is much bigger. According to the Ministry of Finance, the total revenue generated from leasing land use rights by all local governments is 8,414 billion (RMB) in 2020, which represents 30% of all fiscal revenue from central and local governments (National Bureau of Statistics of China, 2020). In other words, urban growth is an essential driver of China's economic development.

Similar to other countries, China's great urban growth has also brought a series of risks and challenges. Financially, there is a trend of local governments overspending on urban infrastructure: local leaders often see urban development as an important economic and political priority and adopt 'entrepreneurial' approaches to promote urban development (Xu and Yeh, 2005). The phenomenon of 'ghost towns' depicts an almost surreal picture when cities and towns create oversupply and hundreds or thousands of hectares of the city are left unoccupied and uninhabited. Overdevelopment of cities has increased the financial structural risks of local governments as well as China's overall economic system. Socially, the soaring housing prices, especially in China's first-tier cities such as Beijing, Shanghai, Shenzhen and Guangzhou, have decreased the housing equity and justice significantly, thereby aggravating social conflicts and violence during land acquisition, demolition and relocation processes.

Environmentally, one major side-effect of rapid urban growth has been the loss of open land. The central government imposed a restriction ('red line') of 120 million hectares basic open land in 2006, but then reduced this restriction to 100 million hectares in 2017. Despite these restrictions, the loss of open land has always been a national issue as it increases the risk of national food security. Furthermore, air pollution has also become another key environmental issue in Chinese cities. The largest cities in China have some of the worst air pollution in the world in terms of PM2.5 (small particles less than 2.5 μmin size). These issues indicate the underlying risks and challenges of the current urban growth model, despite an official splendid image of urban achievements with countless high-rise towers and brand-new highways.

In response to these problems, China's central government has put forward a series of overarching national policies and narratives asking for better governance to achieve sustainable urban transition. Under this rather general and vague goal, a series of new policies have been put forward. For example, 'eco-civilisation' is hailed as central government policy idea aiming to 'build a beautiful China' and 'form a new pattern of modernisation in which human beings live in harmony with nature'(Central Committee (CPC) & State Council, 2015). 'New-type urbanisation' is an operational policy under eco-civilisation in pursuit of a green, sustainable, circular, people-centred and environmentally friendly pathway for future urban development and redevelopment (Chen, Liu, & Lu, 2016; Li & de Jong, 2017). Optimisation of urban governance has become one of the core missions in these national policies aimed at a sustainable transition, as well as emphasized in another

party-state narrative that focuses on ‘governance modernisation’ (Hebei News, 2020; Li and Zhang, 2019).

Such concepts and policies have depicted an ideal image of a sustainable urban future, as well as quite specific technical requirements in terms of sustainable development. However, it is not so clear how or in what direction China’s urban governance should be improved and optimised. What kind of changes are to be made in the state-market relationship to achieve these sustainable development goals? What is the role of society in urban development? These questions are understudied not only on the central policy level but also in academia. In fact, there are still many debates in the current literature regarding as to how China’s urban growth and urban governance can be understood. Can it be explained with conventional urban theories or is it exceptional and does it require new urban theories based on its specific political and economic systems? In order to gain a thorough understanding of the particularities of urban growth mechanisms and governance in China, there is a need to review the theoretical development in explaining how urban growth takes place.

1.2 Theoretical Framework

1.2.1 Theoretical development on urban growth

Following rapid urban growth in Europe and North America in the post-war period, especially during the 1970s and 1980s, a number of new theoretical frameworks were developed to explain the changing nature of urban growth in advanced capitalist countries. Examples include the theories of ‘urban entrepreneurialism’ (Harvey, 1989), the ‘urban

growth machine' (Molotch and Logan, 1987), 'urban regime' (Stone, 1989) and 'new urban politics' (Cox, 1995). They all mark a trend of cities becoming more and more entrepreneurial in the advanced capitalist countries, indicating a change in the mode of urban development making it increasingly similar to processes of capitalist development in general.

In the late 1980s and 1990s, a new political-economic paradigm (neoliberalism) was developed to explain and analyse the economic models for capitalist development in a globalised world. They were incorporated as a series of concepts analysing different pro-growth strategies of cities, such as 'civic boosterism' (Ashworth & Voogd, 1990), 'place marketing and promotion' (Kotler et al., 1990), 'prestige projects' (Loftman and Nevin, 1996), and 'mega events' (Hiller, 2000). Neoliberalism has provided a better theoretical explanation of capitalist societies' changing political and economic modes of actions against the background of globalisation, which is often described as "*the retreat of the state from social provision and the dominance of market exchange*" (Harvey, 2007). At the same time, 'neoliberal city' (Hackworth, 2007) has become one of the most cited concepts describing the closer-than-ever connections between capital markets and cities with continuing decentralisation and deregulation of the state and agencies.

The changing state-market relation emphasized in neoliberalism has been also applied to explain China's urban growth process. David Harvey once described China's urbanisation as "*a particular kind of neoliberalism interdigitated with authoritarian centralised control*" (Harvey, 2007: p.34). Some other radical urban researchers like Zhang (2013) describe Chinese urban governance as "*neo-liberalisation manipulated by the state in stimulating*

massive commodification of labour and land, supressing all social grievances and unrest". Although it is highly debatable whether neoliberalism is applicable to the Chinese context, which has obvious state-led characteristics, the urban governance of China's rapid urban growth has been described as more and more entrepreneurial (Duckett, 1998; He and Wu, 2005; Shin, 2009; Wu, 2002, 2003, 2015b; Xu, 2009).

'Urban entrepreneurialism' (Harvey, 1989) has been heavily used in this literature on the change of urban governance in the Chinese context, and it is selected as the overarching theoretical carrier for formulating our understanding of China's urban growth processes. As a highly abstract concept, many researchers use urban entrepreneurialism as a preface rather than an analytical tool, because the concept itself is not easy to understand and apply methodologically (Wood and Brock, 2015). Hence, it is necessary to briefly introduce the theoretical characteristics as defined by Harvey before we apply it to examine China's urban development process.

1.2.2 Urban entrepreneurialism

David Harvey coined the concept of 'urban entrepreneurialism' (1989) describing a shift of urban governance from managerialism to entrepreneurialism. In governance of managerialism, allocating resources and services is a key task of the state to meet the political demands of the public, and urban politics is to a large extent centred on the struggles surrounding the distribution of such public services and resources (Castells, 1977, 1983). However, Harvey argues that in the 1970s and 1980s, there is a reorientation of governing cities towards a more 'entrepreneurial' form, in which local business elites had taken a

proactive role in urban decision-making. From managerialism to entrepreneurialism, the urban agenda has shifted from social reproduction to the accumulation of economic fortunes and the absorption of capital surplus. Such a shift is later recognised by Cox (1995) in the concept of "new urban politics" with local economic development appearing centre-stage in urban governance.

Three key distinguishing characteristics of urban entrepreneurialism are proposed to further describe the changing governance in detail. The first one is the emphasis on public-private partnerships. Harvey argues that urban entrepreneurialism is centred on '*the notion of a public-private partnership in which a traditional local boosterism is integrated with the use of local governmental powers to try to attract external sources of funding, new direct investments, or new employment sources*' (Harvey, 1989: p. 7). In using the term 'urban governance', a coalition of actors beyond the local state is emphasized in determining the future of the city. Similar to the concepts 'urban growth machine' (Molotch and Logan, 1987) and 'urban regime' (Stone, 1989), urban entrepreneurialism also recognises that local business elites have long been working on promoting their interests through urban growth. But what Harvey argues in entrepreneurialism is not about how local business elites developing such a concern, but rather on how their concerns and interests are realised through the incorporation and mobilisation of the power of the local state.

The second major characteristic of urban entrepreneurialism is the speculative nature of the activities of these public-private partnerships, especially the distribution of the related risks. Harvey argues that the risks of speculative activities are commonly borne by the local state

and public agencies, which distinguishes urban entrepreneurialism from the earlier phases of 'civic boosterism' (Boyle, 1997). This feature of urban entrepreneurialism has opened the door to a large amount of subsequent research focusing on examining different urban plans, schemes and vehicles of local states and public agencies through which they gain economic benefits and bear the risks of speculative investments. These studies also connect with the research tradition of examining the fiscal structure and health of local governments, including the studies of the bankruptcy of municipal governments.

The third characteristic of urban entrepreneurialism, and maybe the least specified one, is its focus on the "*political economy of place rather than of territory*" (Harvey, 1989: p.7). By 'territory', Harvey refers to the specific economic projects, such as housing, commercial, education, etc., which are developed to improve people's living and working conditions. Harvey argues that entrepreneurialism focuses on metropolitan-wide influence rather than merely on local immediate interests from property development or financial investments. However, place making and improvement of a territory in practice are often intertwined and the metropolitan-wide influence of projects is subjective and often hard to establish.

While the three key distinguishing features of urban entrepreneurialism provide an insightful perspective to unpack historical change in the governance of urban growth, another theoretical strength of urban entrepreneurialism is its flexibility in encompassing various types of public-private partnership activities promoting urban development and growth. Rather than providing specific types or examples of urban entrepreneurial practice, Harvey has proposed four broad options or strategies of place-based coalitions as a template to

examine how businesses elites mobilize state power for their urban agenda. The first strategy is to exploit particular local advantages for the production of goods and services for the globalisation market and competition, or in Harvey's words, to 'improve the competitive position within the international division of labour'. As the most commonly recognised strategy, it is often used to describe industrial park development taking advantage of low-cost labour, and science and technology parks on the basis of labour skills and knowledge rather than costs. The second strategy seeks to improve the competitive position of a place within the broader 'spatial division of consumption'. Cultural or tourist projects to attract investment and revenue into the locality are examples of this type. The third strategy seeks to acquire 'key control and command functions' of a city, including government, high finance, and the media, which often need expensive infrastructural provisions and investment. Last but not least, the fourth strategy aims to compete for the 'redistribution of surpluses' through upper-tier governments, such as competing for national military facilities and state-owned enterprises (Harvey, 1989; Wood, 1998; Wood and Brock, 2015).

Urban entrepreneurialism, as a widely cited theoretical framework, captures a number of historical changes in the nature of governing urban growth in advanced capitalist cities. Market power has become a crucial actor in the decision-making processes of what a city should be like, and the city has become a 'spatial fix' to consume capital surplus in capital circuits to avoid over-accumulation. It provides an insightful perspective for us to look at China's urban growth process and think about its state-market relations. However, in urban studies, there has been a significant gap between the importance attached to the concept and the empirical evidence of urban changes in actual case studies. This may be the case because

the nature of the concept of urban entrepreneurialism is highly abstract and its applications tend to provide a context for study rather than specific propositions used in empirical explorations. Studies often seek to examine how the concept works in different cases, instead of spotting the limits to the argumentative value of the concept with empirical data in hand (Wood and Brock, 2015). Thus, the study of China's urban growth process with urban entrepreneurialism should not only focus on the applicability of the concept within different contexts, but also focus on the changing nature of entrepreneurial governance with very different state-market relations.

1.2.3 Institutional mechanisms in China's urban growth

Before moving into the specific application of urban entrepreneurialism to China's urban growth, it is important to understand how the underlying institutional mechanisms of urban growth differ from the urban processes as explained by existing urban theories. North (1991) defined institutions as "*the rules of the game in a society and include the formal and informal constraints that shape human interactions*". In this study, institutional mechanisms are defined as the 'integrated systems of rules from political and administrative systems that structure social interactions'. This section illustrates a series of key changes in China's administrative systems in 1990s that caused a paradigmatic change of the approach of urban growth. We call these changes as institutional changes as they have fundamentally changed the state-market relations in urban development and laid the foundation of the land finance model.

China's fiscal decentralisation in the 1990s granted greater autonomy to local authorities. The 1994 tax-sharing reform regulated that local governments transfer a larger proportion of their local tax income to the central government. In exchange, they were allowed to keep all local land-leasing revenue through urban development (Peng, 2014). Local governments have since faced a growing gap between local tax income and public expenditure (Zheng et al., 2016). They have had to, and also want to, use land development as a major source to generate extra-budgetary revenue. In return, the increased fiscal responsibility of local governments also strengthened local decision-making power, especially in land politics, which made local government behaviour more firm-like (Walder, 1995). In short, the dynamics of fiscal decentralisation and land revenue generation laid a foundation for the later development of entrepreneurial behaviour among local governments (Tao et al., 2010).

Another key institutional setting is the monopolistic position of local governments in the land supply market. As a key part of economic reform to the market economy, China's land market was first established in Shenzhen in 1987. Local governments have been granted a monopolistic supply position in the primary land market and compulsory buying power in land acquisition, following the Land Administration Act. Their buying power also originates from China's socialist land and property ownership, defined as "*all urban land is state-owned, and all rural land is collective-owned*". Other public sector organizations as state bodies such as state-owned enterprises (SOEs) and the military are also legally allowed to own land like local governments (Hsing, 2010), which encourages local governments to develop rural land in suburban areas and circumvent complex expropriation practices in urban central areas.

Local governments' leadership of GDP-ism also contributes to the emergence of entrepreneurial behaviour. Under China's top-down cadre appointment system, local leaders are appointed by higher tiers of government. During economic reform, the major criterion for cadre performance evaluation shifted from political performance of class struggle to economic performance through GDP growth (Li & Zhou, 2005). Besides industrialization, urban spatial growth has become increasingly important in demonstrating economic growth performance, resulting in a developmental shift from industrial parks to suburban new towns (Lin, 2012; Sorace and Hurst, 2016). With industrial development and its spill-over effects in the generation of commercial and residential land value, local governments are incentivised to develop land and capture land value through their monopolistic control over the supply of land (Wu, 2018).

All these significant institutional changes took place in the 1990s, and jointly led to a paradigmatic shift of urban growth mechanisms and governance towards entrepreneurialism. The biggest difference from the entrepreneurial urban governance in post-reform China and what Harvey described as urban entrepreneurialism in advanced capitalist cities is the role of the local state. In China, the local state, specifically the municipal government, has become the most powerful actor. It has the political and financial motivation to initiate urban growth, use land-related revenue to compensate local governmental fiscal expenditure, and utilise GDP growth and urban development as political performance indicators for its local leaders. Its monopolistic administrative power over land and property ownership and urban planning systems enables the local state to expropriate and accumulate land rather easily.

With various governmental financial instruments and loose constrains, local states have the financial power to initiate speculative activities and bear the related risks. Thus, the local state is the most powerful and significant actor, even a driving force, in the decision-making process of urban growth.

1.2.4 State entrepreneurialism: urban entrepreneurialism with Chinese characteristics

Marketisation and decentralisation reforms in the 1990s led to a rapid increase in urban growth in China. This paradigmatic change and the subsequent phenomenon of urban growth was first explained with urban entrepreneurialism, and neoliberal urbanism considered as a clear process to commodify land and privatise housing provision (He and Wu, 2009; Jessop and Sum, 2000; Walker and Buck, 2007). With the underlying fiscal incentives from land-related revenue and pro-growth aspiration embraced by local leaders, Wu (2015) identified such growth mechanisms and its concomitant urban governance as 'Chinese urban entrepreneurialism' with a 'land-driven fiscal regime', also widely known as the 'land-driven economy' (Wu, 2015b). Based on the neoliberal perspective, subsequent study has specified more feathers of Chinese urban entrepreneurialism, such as the role of local government in dispossession and speculative urbanisation (Peck and Tickell, 2002; Shin, 2016), entrepreneurial strategies of place promotion, marketing and boosterism (Berg and Björner, 2014), as well as many case studies of various types and scales of urban development projects (Chien, 2013; He and Wu, 2005; Liu and Yau, 2020; Shin, 2009; Wu, 2003). However, there has been a constant scepticism upon using neoliberalism as an appropriate

perspective to explain China's growth model (Galès, 2016; Ong, 2007). Local governments may not be so 'entrepreneurial' in nature with soft budget constraints and they tend to overspend for political purposes (Xu and Yeh, 2005).

Based on the criticism of the neoliberal approach of 'urban entrepreneurialism' in China, Wu (2017, 2018) proposed an alternative concept of 'state entrepreneurialism' to address China's political and economic particularities. The major difference from Harvey's 'urban entrepreneurialism' is that Wu's 'state entrepreneurialism' emphasizes the dominant role of the state in urban governance. It is not about how the market utilising the state power, but about how the state selectively utilises market instruments and mechanisms to achieve its agenda in urban growth. Wu further states that "*the state intervention is not a roll-out action to remedy the market defect, but rather using its dominant position to expand capital accumulation and achieve the political career of local leaders under the mechanism of elite selection and promotion*" (Wu, 2017). There are two key institutional premises of state entrepreneurialism: commodification and monopolisation. The former stresses the marketisation process of land and labour forces, the rise of housing and real estate as commodities, and the formation of 'market methods' of the state. The latter on the other hand stresses the monopolistic role of the state in leading urban governance and urban growth process in which the state has full control in land acquisition, supply, planning, and leasing. Through market methods, the state has the ultimate decision-making power over the outcome of development. These two premises were later further developed into two key characteristics of state entrepreneurialism as 'market instrument' and 'planning centrality' (Wu, 2018). State entrepreneurialism can be seen as Wu's adjustment of urban

entrepreneurialism to the Chinese context, or otherwise put, urban entrepreneurialism with Chinese characteristics (see Table 1).

Table 1. Urban Entrepreneurialism vs State Entrepreneurialism.

	Urban Entrepreneurialism	*State Entrepreneurialism*
Style of governance	Business-led pro-growth governance	State-led pro-growth governance
State-market relation	The market utilises state power, forming partnerships to achieve its urban agenda.	The state utilises market mechanisms, forming partnerships to achieve its urban agenda.
Role of city	City is seen as a 'spatial fix' to consume capital surplus in capital circuits to avoid crisis of over-accumulation.	City is seen as a 'spatial fix' for expanding investment outlet to maintain growth.
Main characteristics	• Public-private partnerships • Speculative nature and distribution of risks • Political economy of place rather than territory	On top of the characteristics of urban entrepreneurialism: • Planning centrality • Market as an instrument

The concept of 'state entrepreneurialism' has solved the problem of using the 'neoliberal city' to describe and explain the entrepreneurial urban development in China. State entrepreneurialism is more about the business model of the developmental state rather than issues of neo-liberalisation. While neo-liberalisation is to decentralise, deregulate and free the market from the constraints of the state, marketisation and commodification in China however have become instruments of the state to deploy and strengthen the role of the state in urban process rather than weakening it. State entrepreneurialism also recognises a shift from government to governance similar to urban entrepreneurialism; however the shift is not

forced by market power or a neoliberal ideology, but rather it is the state using market instruments to achieve their various strategic goals. The ultimate goal of state entrepreneurialism is to maintain state power. Nevertheless, the role of the city in state entrepreneurialism is similar to urban entrepreneurialism, and described as a 'spatial fix' by Harvey, (1989, 2007) as using space to consume capital surplus and solve the problem of capital overaccumulation (Wu, 2017). On top of that, urban growth is further seen as a way to expand investment outlets to offset the constraints imposed by the global market. In essence, the major difference between urban entrepreneurialism and state entrepreneurialism is not about 'urban' versus 'state', but about 'business-led' versus 'state-led' governance. It may be confusing when both concepts are used at the same time and put together side by side, but in the following chapters we tend to use the terminology as what it is first and reflect on it in the concluding chapter.

1.3 Research questions and research design

1.3.1 Overarching research aim and question

The concept of state entrepreneurialism, or urban entrepreneurialism with Chinese characteristics, provides a nuanced explanation and a deeper understanding of the state-market relationships and urban governance during China's rapid urban growth process. It is already known in the current literature that the urban governance of either state entrepreneurialism or urban entrepreneurialism in China is pro-growth in practice, which is also often identified and studied as pro-growth coalitions formed among municipal governments and private actors and put under the 'urban growth machine' thesis. The

political motivations of the state (and local states) in the urban process are consistent with the economic drivers felt by market players during this period so that the state is helping and even leading the process of dispossession, accumulation and social suppression.

However, it is less known in the literature what has changed or should be changed in the urban governance when sustainability, liveability, and the quality of the built environment are emphasized over economic growth. Especially now that sustainable development ideas are becoming increasingly significant on the central policy level, it is less known how the state, national and local, uses market instruments to address the needs of the new era that emphasizes quality over quantity. This study aims to fill these gaps by exploring the changing state-market relations and potential new forms of governance during the urban sustainable transition process, by examining the interactions and relationships among central and local states, public and non-public actors in the decision-making and development processes of sustainable urban development strategies and various levels of urban projects. More particularly, I study and examine the potential changes in the dominant land finance model adopted for municipal governments under urban pro-growth governance. Hence, we propose the overarching research question of this study as:

How has the state (i.e. national and sub-national government) sought to form and reform urban governance to achieve its agenda in urban development?

1.3.2 Research design and sub-questions

To answer this question, this study is based on a series of case studies to provide empirical evidence on the changing nature of urban governance and insights on China's land politics,

finance, and urban transformation. This study selects three different situations for the examination of urban development practice. (1) we aim to explore the economically relatively developed cities and see how the local states form new development models and partnerships to reach their urban sustainable development agenda with rather plentiful economic and political resources. (2) we aim to explore cities of average levels of development (subsequently designated as 'average cities' in the following text) to see how these local states operate when economic and political resources are limited. (3) we explore a high-profile (mega)urban project aimed at achieving the next generation urban quality and built environment, representing the future urban development model.

For these three different parts, four sub-questions were developed specifically to provide a deeper analysis of each part:

(1) In part 1, how do the local governments of developed cities implement their land finance and development model as overall strategies for of sustainable new town development?

(2) In part 1, how do local governments of the developed cities develop innovative governance and partnerships for more detailed project-based sustainable urban and transport development?

(3) In part 2, how do local governments of the average cities develop and implement their urban transport sustainable policies with rather limited resources?

(4) In part 3, what kind of new urban governance and sustainable land finance and urban development model is emerging in a high-profile national level mega-urban project representing China's future form of urban governance?

1.3.3 Case selection and data collection

Empirical cases are selected based on the above three parts as well as considering specific project fitness, research connections, and data availability. For part 1 which requires examination of economically developed cities, four cities from the Pearl River Delta (PRD) are selected, namely Guangzhou, Shenzhen, Foshan and Zhuhai. These four cities are all 'first and second tier cities'[2] in China and have experienced rapid urban growth in recent years, and are therefore suitable for examination in part 1. For part 2, medium-sized city Yongcheng[3] in Hubei province is selected. This is a typical medium-sized city that has average performance in almost every aspect and few people have ever heard of it outside the province. However, it is a good representative of the developmental situation and dilemmas hundreds of similar average medium-sized cities in China face. For part 3, Xiong'an New Area, the latest national level mega-urban project, is selected. Xiong'an is the most high-profile mega-urban project in recent years, and politically endorsed by President Xi Jinping (Liu et al., 2020; Noesselt, 2020), having in its midst not only all the latest technological

[2] The concept 'tiers of cities' is widely used in the Chinese context for an informal city ranking system in terms of city's size, population, regional importance, administrative ranking and overall development. The 'first-tier cities', which refers to Beijing, Shanghai, Guangzhou and Shenzhen, are better and widely recognized in media and literature, while the second, third, to even fifth tiers of cities are relatively vague and changing from time to time.

[3] Yongcheng is a made-up name to cover up the real name of the city. As this research project was closely linked to its local government, anonymity of its city name aims to protect interviewees from any possible negative feedback.

application, but also the political and financial power to test this next generation urban development model.

Figure 1. Location of the selected cases

This study does not focus on a specific region or certain tiers of cities, nor on a specific type or form of urban development. The logic of case selection is to choose the representative cases for part 1 and 2 to have a more comprehensive understanding on both developed and lesser developed cities in urban growth practice; and to an unique case for part 3 to discover possible future changing direction in urban governance. For part 1 and 2, it does not matter

if cities from other regions are selected as long as they are representative enough. For part 3, the case of Xiong'an has its uniqueness and the findings cannot be replicable in other national level new districts.

To form a comprehensive understanding of governance in urban growth, it is necessary to dig deep into the decision-making processes which involve interactions of various actors. As for research methods, there is nothing better than the traditional face to face interviews with actors and field visits to observe the actual natural and social environments. Never the less this study is also based on second-hand data from various government reports, statistics, policy documents and plans. Different types of data collection methods were used including semi-structured interviews, unstructured interviews and focus groups. The specific research and data collection methods are listed separately in each section.

1.4 Dissertation structure

Chapters 1 and 6 function as an overarching framework to introduce and conclude the dissertation, wrapped around four independent journal articles (chapters 2 to 5). An illustration of the dissertation structure is presented in the figure below.

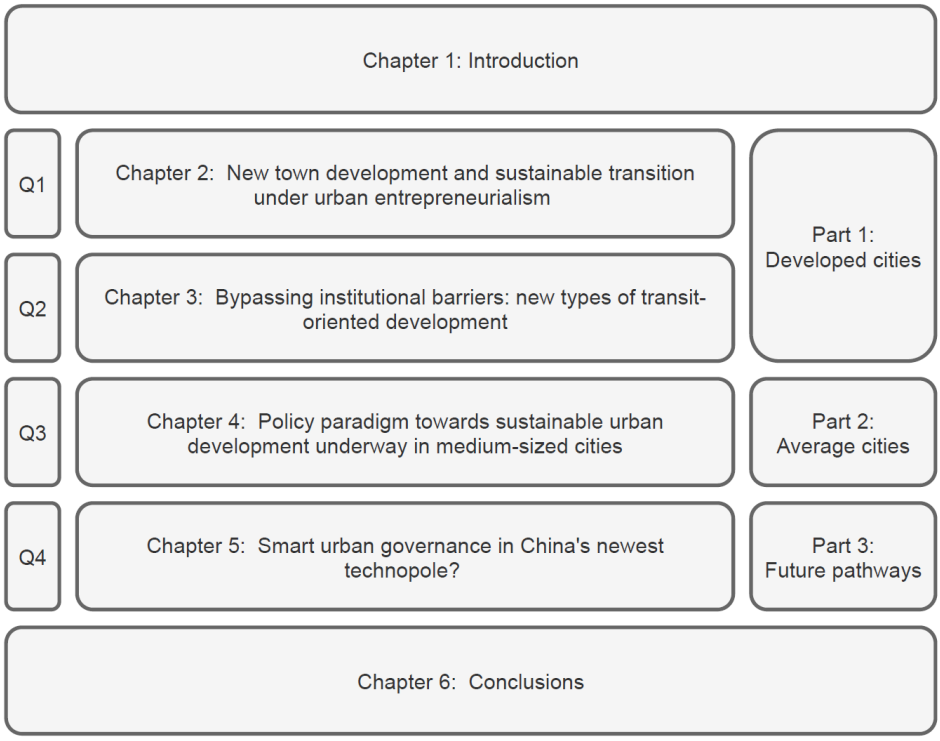

Figure 2. The structure of the dissertation

Specifically, chapter 1 introduces the whole research project including the overall research background, theoretical framework, overarching and specific research questions, and research design. Chapter 2 starts with the investigation of relationships between the land finance model and overall strategy of planning and development of new towns with sustainable and innovative objectives from four economic developed cities of Pearl River Delta (PRD). Chapter 3 further investigates two of the developed cities of PRD region for the examination of detailed and specific neighbourhood level urban and transport integrated development projects with different forms of governance. Chapter 4 expands our focus from the relatively developed cities to an average and modest medium-sized city to see how it

handles and tackles urban sustainable transition with rather limited resources: it is single case study Yongcheng, Hubei. Chapter 5 examines the high-profile new national mega-urban project of Xiong'an New Area as a testbed of the next generation urban development model with innovation in land finance, management and future forms of urban governance. Chapter 6 presents the key conclusions, reflections, and the limitations of the research, as well as suggestions for future research.

Developed cities: New town development strategies and land finance

2

This chapter is based on the following peer-reviewed article:

Song Y, Stead D and de Jong M (2020) New town development and sustainable transition under urban entrepreneurialism in China. *Sustainability (Switzerland)* 12(12):1-20.

2.1 Introduction

China has undergone high levels of urbanisation and economic growth for several decades since major economic reform in 1978, during which its urban population grew from 172 million to 831 million by the end of 2018 (Xinhua News, 2018). In the early part of the 21st century, the Chinese government announced its plan to build 20 new towns every year before 2020 (Fang and Yu, 2016; Shepard, 2015) and new town development has gradually become a key form of urban growth (Hsing, 2010). Various types of new towns have been planned and developed in recent decades including university towns, administrative new towns, high-speed new towns, financial city, smart city, eco-city, and low-carbon city (De Jong et al., 2015). New town development with progressive and sustainable urban concepts not only creates new economic development poles in the city, but is also used by city authorities to symbolise local urban and economic achievement, better quality of life, and innovative urban transitions.

The increasing popularity of sustainable urban concepts in China is due to intensive competition among cities (Han et al., 2018). Capitalist cities tend to compete with each other to increase their attractiveness to capital, talent, and visitors (Harvey, 1989; Jessop, 1998). Local governments have adopted pro-growth approaches through 'place making or promotion' (Kotler et al., 1990) 'civic boosterism' (Ashworth and Voogd, 1990), prestige projects (Loftman and Nevin, 1996) to stimulate local economic growth and increase their competitiveness. Similar entrepreneurial strategies have also been adopted in Chinese cities (Li and Wu, 2012; Wu, 2000; Young and Kaczmarek, 1999). Recently, various theories used

to explain pro-growth urban governance in capitalist cities, such as entrepreneurialism (Harvey, 1989), growth machine (Molotch and Logan, 1987), and urban regime (Stoker, 1995), have been applied to the Chinese context (Hsing, 2010; Wu, 2015b; Zhang, 2002).

In general, entrepreneurial governance in China is often led by local government and strongly influenced by the legacy of state socialism (Wu, 2000). There are several defining characteristics of China's 'entrepreneurial local state', such as the 1994 tax-sharing system reform (Peng, 2014), land property and market reform (Hsing, 2010), and cadre appointment system (Li and Zhou, 2005). Each of these characteristics encourage local governments to adopt pro-growth urban development strategies to increase extra budgetary revenue, and enhance local economic and political performance. Furthermore, local governments are also protected by 'soft budget constraints' (Xu and Yeh, 2005), which means that they are cushioned from financial losses if urban investments do not provide a return. This has generated a tendency for local governments to overspend and overdevelop (Jing and Zou, 2003). For instance, Long (2019) identifies 180 cities in China with shrinking populations, which are nevertheless making pro-growth urban master plans based on ambitions for population and urban growth in the near future (Long and Gao, 2019). In extreme cases, some new town projects have resulted in 'ghost towns' where urban expansion has far outpaced population growth (Sorace and Hurst, 2016).

New town or 'new city' (Hsing, 2010) development is China's main strategy of 'city making' (Governa and Sampieri, 2020), as new towns not only house residents and businesses, but also provide new centres of regional spatial reconfiguration (Xu and Yeh, 2010),

contributing to ‘a globalizing central area that formed a unified global city region’ (Wu, 2016). The increasing popularity of sustainable and innovative urban concepts like eco-city, low-carbon city, sponge city, smart city, and knowledge city in Chinese new town development illustrate the attempts of local governments to create global cities and boost their attractiveness through city branding and marketing (Han et al., 2018; Lu et al., 2020). Using sustainability as a ‘city branding’ tactic highlights that local government is not only a market regulator or a unique player, but it can use market instruments to achieve its hidden political agendas. De Jong (2019) argues that this ‘eco-civilisation’ and ’new-type urbanisation’ agenda is not likely to be genuinely implemented under its structural institutional mechanism encouraging the accumulation of land and power of local elites (de Jong, 2019; De Jong et al., 2015). Through the transition from rural industrialism to new urbanism, new town development generally embraces a regime of accumulation and legitimation from land value (Hsing, 2010), turning suburbs into spaces of capital accumulation (Shen and Wu, 2017). These observations suggest that new town developments are often a feature of local governments’ pro-growth strategies, which can lead to overspending and unnecessary investments, and potentially hamper the implementation of its sustainable and innovative urban objectives in the long run.

There is a large amount of literature on China’s new town development and its urban entrepreneurial mechanism. At the same time, there is a lack of empirical evidence on how local pro-growth strategies affect the planning and development of city-level new towns and the implementation of sustainable and innovative objectives. This article aims to fill the gap by examining local government rationales and strategies of new town planning, development, and the potential urban outcomes, and to contribute to a deeper understanding

of China's local politics and urban growth of new town development in both theoretical and empirical terms. The article is organized in six parts. Section 2 reviews urban theories that help to explain the cause and effects of land-driven economy and pro-growth mechanism in China's urbanisation and new town development. A conceptual framework is proposed to explore the linkages between urban growth mechanisms and urban outcomes. Section 3 outlines the methods used to select cases and gather data. Sections 4 and 5 examine and analyse the selected cases with the conceptual framework. Section 6 discusses the results and analysis from the examination of the case studies and Section 7 concludes on the main findings from the study.

2.2 Urban Entrepreneurialism in New Town Development

2.2.1 Urban Entrepreneurialism in China

Understanding China's urban governance and its urban transformation, including new town development, requires an understanding of its post-socialist state-market relation in facilitating urban growth (Yeh et al., 2015). As already illustrated above, two main paradigms of urban growth machine and urban entrepreneurialism are often used to explain China's growth mechanism (Harvey, 1989; Molotch and Logan, 1987). For example, drivers of urban development in Shanghai have been explained in terms of post-socialist pro-growth coalitions (He and Wu, 2005; Zhang, 2002). From the perspective of neo-liberalism and entrepreneurialism, post-socialist reforms have led to the creation of new local governments in China that are more 'entrepreneurial' in nature (Chien, 2013; He and Wu, 2009; Wu, 2015b), but lacking in financial discipline and public accountability, which promote urban

growth for political and economic objectives (Xu and Yeh, 2005). To understand how China's entrepreneurialism differs from that in other parts of the world, and the relations of its growth mechanism with new town development, it is first necessary to provide some more detail about the institutional context.

China's 1994 tax-sharing system reform is a key foundation of the land-driven economy and its concomitant governance. The goal of the reform was to increase tax revenue of the central government from lower tier governments. After the reform, local municipal governments had to transfer a larger share of their tax revenue to the central government, but in return they had more decision-making power in local urban development and were allowed to keep all revenue by leasing land to developers (Peng, 2014). However, there is a gap between local tax income and public expenditure. In 2018, for instance, local governments collected 53% of the 'general public budget revenue' (tax revenue), but were responsible for 85% of total tax expenditure. Although the 'transfer payment' system has enabled provincial and central government to allocate tax revenue to facilitate those local governments in severe deficit, local governments in general have to seek extra budgetary revenue to support local development, and the revenue by leasing land has become a major source (which is also known as 'government-managed funds revenue'). The tax-sharing reform resulted in a decentralization of decision-making power in land politics, which made the behaviour of local government more firm-like (Walder, 1995). The fiscal decentralisation not only laid the foundation for its formation of pro-growth urban development mechanisms, but also provided a new motivation for local governments to lead and promote local urban development projects.

Another significant institutional change is the shift in China's cadre appointment and evaluation system, which generates local leaders. Under China's cadre appointment system, local leaders are appointed by upper-tier governments. Since 1978, the economic performance of cities became a key criterion for evaluating the suitability of local leaders for positions in upper-tier governments (Li and Zhou, 2005). Urban growth, especially new town development, became a preferred way for local governments to demonstrate local economic growth and modernization achievements after an extensive wave of industrialization (*kaifaqu*) in 1990s (Hsing, 2010). Thus, local leaders are often zealous in promoting conspicuous local economic growth in order to secure career promotion in China's administrative hierarchy (Zhu, 2004). For key local officials, like those in megacities, urban achievement is often more about prestige and less about functionality or sustainability (Cartier, 2002).

Land and housing reform is another key factor in shaping local government's pro-growth approach. The establishment of a land leasehold market and the enacting of the Land Administration Law and Planning Act in 1998 made the previously strictly state-owned land and properties tradeable (Yeh and Wu, 1996). Local governments therefore have the legitimate right in land requisition, leasing out to developers, and retaining most income. Soon thereafter, local governments, as *de facto* owners of land within their jurisdictions, were not solely land suppliers but also major market players (Xu and Yeh, 2005). Local governments became more willing to initiate and lead urban projects to inflate local economic and political performance through local state corporatism (Oi, 1995), local state

entrepreneurialism (Duckett, 1998), and private–public partnership with developers (Zhao, 2015).

After the above institutional reforms, local governments acquired significant autonomy in the disposal of land and finance, two vital resources in urban development (Xu and Yeh, 2005). From an urban governance perspective, local governments rely on non-public investors and form coalitions as it is not financially feasible to undertake large projects alone (Wu, 1999). A pro-growth approach is therefore adopted, which has heavy reliance on the property sector to promote economic and urban growth (Wu, 2002; Zhu, 2004). According to such pro-growth approaches, infrastructure projects and property-led development have become an essential mechanism to restructure urban areas, build a good city image, and attract investment. However, it has also been criticised for resulting in a diversion of public resources from social needs (Xu and Yeh, 2005), lacking public accountability and social goals (Wilson, 1995), and causing overheated property booms. The approach also creates a reliance on land-driven revenue (*tudi caizheng*) of local governments, especially of the relatively developed cities. Due to the increasingly strict regulation and macroeconomic control in first-tier cities like Beijing, Shanghai, and Guangzhou, pro-growth strategies based around maximising land revenue have become more prevalent in second-, third-, and even fourth-tier cities in recent years (Li, 2018). In other words, pro-growth approaches have become a default mechanism for many local governments in China when planning urban development. The nature of this pro-growth mechanism is the focus of analysis in this paper.

2.2.2 New Town Development

New town development in China is the main strategy of 'city making', and is the main form of urban development, which is closely connected to the formation of China's pro-growth mechanism. According to Wakeman (2016) "new towns are not a novelty, but have an established history and well-known experiences" (Wakeman, 2016), and this is also the case in China. New towns or 'new cities'(*xin cheng*) began to gain importance and popularity in the late 1990s, marking the major transition from industrialism to urbanism (Hsing, 2010). The history of new town development in China reflects the evolution of national land politics. The new towns of early 2000s reflected the efforts of local governments to consolidate their territorial authority over urban fringe and rural hinterland where rural governments used to enjoy a high degree of decentralised land control of *kaifaqu* (development zone, usually refers to industrial parks) during the 1980s and early 1990s (Hsing, 2010). Around this time, new towns tended to act as multifunctional satellite or commuter towns constructed to accommodate the rapid growth of the urban population (or university towns for the expansion of universities from late 1990s). However, as intercity competition intensified, the nature of new towns gradually shifted and increasingly became sites for spatial reconfiguration of the city and its wider region. Innovative and sustainable urban concepts such as financial city, eco-city, low-carbon city, smart-city, and knowledge city were used to justify (or simply to label) new town projects. These justifications or labels were designed to tap into the international urban discourses to increase global urban competitiveness and attractiveness.

In China, the term new town covers a wide range of urban development. It can be used to describe new communities, new towns, new districts, and new cities (Chan, 2010), from urban centres, urban fringes, to rural hinterlands. The ambiguity of new towns is not merely a linguistic problem; new towns in China are difficult to explain in terms of a single discourse, urban tradition, or historical era (Governa and Sampieri, 2020). In practice, various actors, from municipalities to private developers, use the term 'new town' on their projects, from city-level urban projects up to tens of square kilometres, to neighbourhood-level gated communities. In this article, we only look at new town projects initiated by municipalities to see how local governments shape urban outcomes from a political economy perspective.

The study employs a conceptual framework with a two-step approach to explore the linkages between urban growth mechanisms and urban outcomes (Figure 1). In the first step, the dependency on land-leasing revenue in city's fiscal structure is examined, since this is the key indicator of urban growth process as capital accumulation. Chinese local governments have two major sources of revenue: Tax revenue and land-leasing revenues. To measure the dependency of land-leasing revenue, the ratio of land-leasing revenue to total revenue is measured (R). Where a city's land-leasing revenue is equivalent or even surpasses its tax revenue ($R \geq 0.5$), then this city relies on land-leasing revenue and can be regarded as high dependency. As a reference, in 2018, the total tax revenue of all local governments in China is 7595 billion yuan, and the total land-leasing revenue is 6291 billion yuan (National Bureau of Statistics of China, 2019). The R of all local governments is therefore 0.45. Using this as an average figure and considering the fact that most Chinese cities adopt pro-growth strategies, it is assumed that cities with R from 0.3 to 0.5 have medium dependency on land-

leasing revenue and cities with R less than 0.3 have low dependency on land-leasing revenue. The assumption of distinguishing low, medium, and high dependency on land-leasing revenue is not generated through strict quantitative analysis (which is not the goal of the paper). Where a city has far more revenue from tax than from land-leasing, then this city no longer bound by the mechanism of urban growth to boost local fiscal revenue. Thus, it is likely that the main purpose of urban development of the city gradually changes from quantity to quality. This is then examined in more detail by referring to the overall strategies and urban outcomes of the new town projects of these cities. Cities with a high dependency on land-leasing revenue are likely to develop new towns for quantity growth both fiscally and physically. Cities with land revenue as priority have higher risk of overdevelopment and urban sprawl, and those new towns branded with sustainable and innovative concepts, if any, are unlikely to be implemented as they are subject to city branding for capital accumulation. Cities with medium dependency on land-leasing revenue may evolve a mixed growth pattern. For these cities, land-leasing revenue still matters, but they may not rely on massive spatial growth to sustain its land-leasing revenue growth. They may try to focus more on the quality of urban environment as it enhances city's attractiveness in the long run, but the implementation process is likely to be constantly challenged by the need to boost land revenue, especially in new town projects. Finally, cities with low dependency on land-leasing revenue should also have low dependency on spatial growth. New town projects in these cities are likely to aim for urban quality growth such as sustainable urban transition.

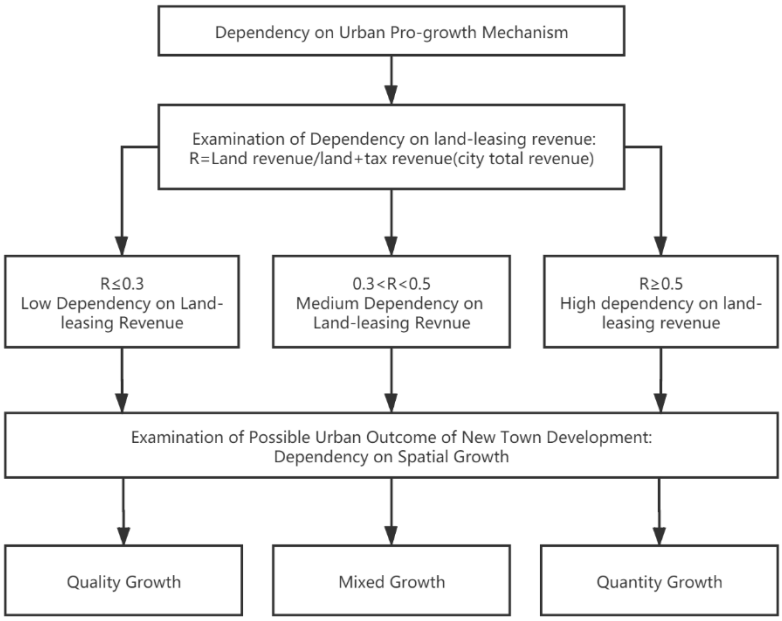

Figure 3. Conceptual framework with a two-step examination of dependency on pro-growth mechanism to possible urban outcomes.

2.3 Research Methods and Data Collection

The paper draws on empirical evidence from four cities in the Pearl River Delta (PRD) of Guangdong province: Guangzhou, Shenzhen, Foshan, and Zhuhai. They represent the four wealthiest cities in the PRD in terms of GDP per capita, but are very different in terms of city size and population (Table 1). Guangzhou and Shenzhen are first-tier cities and have similar levels of population and GDP, but Guangzhou's land area is much bigger than Shenzhen (i.e., Shenzhen has much higher population density). Zhuhai and Shenzhen have similar levels of GDP per capita but Zhuhai is a much smaller city than Shenzhen with a much lower population density. Foshan has the lowest GDP per capita of the four cities, and

around the same level of population density as Guangzhou. They are also different in terms of administrative arrangements: Guangzhou is the provincial capital city of Guangdong province; Shenzhen and Zhuhai are special economic zones (SEZ) while Shenzhen is directly under the central government; Foshan is an ordinary city.

A major reason for comparing these four cities is they are all located within one highly competitive regional urban system: The Pearl River Delta. It is widely recognised that these cities are often in competition with each other (Begg, 1999; Cheshire, 1999; Kresl and Singh, 1999). According to Porter's competitive city concept (Porter, 1990), cities compete with each other and their competition does not fundamentally differ from national level competition. Thus, the competitiveness of a city is determined rather by indigenous factors than external ones, among which its local socio-economic environment works as an indispensable source of growth dynamics (Xu and Yeh, 2005). Guangzhou and Shenzhen are in competition for the leading role in the PRD region in terms of urban economic development, while Zhuhai as a much smaller city is competing with other megacities for urban environment, liveability, and sustainability. Foshan, on the other hand, as the neighbouring city of Guangzhou, is competing with its lower level of living costs and looser controls on industry. If intercity competition motivates cities to pursue more innovative and sustainable urban development to attract investment, residents, and visitors, then examining cities that interrelate within a highly competitive urban network can provide a richer understanding of the rationale of new town development strategies, how their growth mechanism works, and what this implies for urban sustainability.

Table 2. Basic information of Guangzhou, Shenzhen, Foshan, and Zhuhai and their rankings in the Guangdong province.

	Guangzhou	*Shenzhen*	*Foshan*	*Zhuhai*
Administrative Land Area (sq.km)	7434	1997	3798	1736
Population (2018)	15,305,900 (1st)	13,026,600 (2nd)	7,905,700 (4th)	1,891,100 (21st)
Density of Population (Person/sq.km)	2059	6522	2082	1089
GDP (billion yuan; 2019)	2363 (2nd)	2693 (1st)	877 (3rd)	344 (6th)
GDP/capita (yuan; 2019)	156,427 (3rd)	203,489 (1st)	117,985 (4th)	177,550 (2nd)

Source: Statistic Year Books of Guangzhou (Guangzhou Bureau of Statistics, 2019)*, Shenzhen* (Shenzhen Bureau of Statistics, 2019)*, Foshan* (Foshan Bureau of Statistics, 2019) *and Zhuhai* (Zhuhai Bureau of Statistics, 2019).

New-town projects in each of these cities were mapped (see Figure 2). The following rules for selecting new town projects were applied: (1) All new town projects mentioned in the urban master plans; (2) new town projects planned by district governments, but not included in urban master plan; (3) national districts emphasized in the urban master plans. Although some gated communities are also labelled as 'new towns', they are not included in this study. In very rare cases, some other public actors like state-owned enterprises also develop new towns. For example, the Guangzhou Iron and Steel Group developed Guanggang, a new town on its abandoned industrial site, but as it is closer to a gated community project, it is not included either.

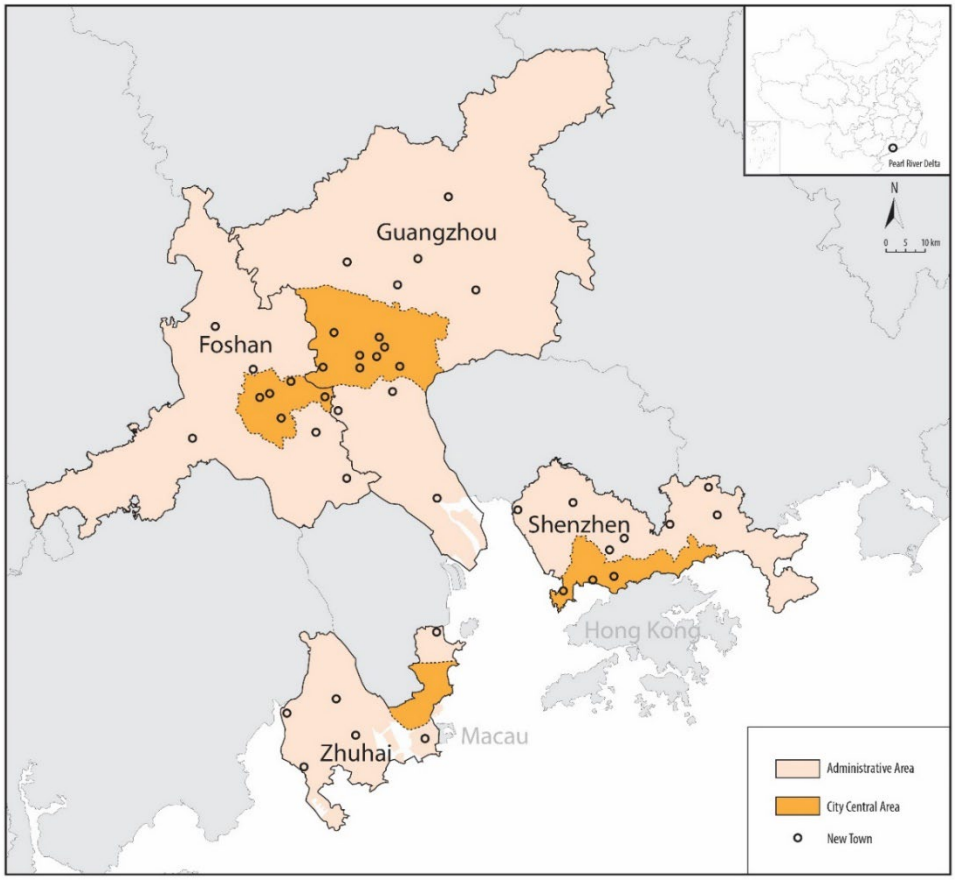

Figure 4. Guangzhou, Shenzhen, Foshan, and Zhuhai in Pearl River Delta (PRD) region and their new town projects.

Based on these selected cities and new towns, the following data to support the case studies were collected: (1) City-level fiscal data including tax revenue and land-leasing revenue from city-level statistic year book and budget performance reports; (2) the latest version of urban master plans; (3) basic information of each new town project including their size, concepts, locations, and initiating actors. In addition, interviews were conducted with local university researchers and urban planners to gather supplementary background information

regarding new town development in these four cities. Lastly, field work was conducted on some new town projects to examine how they were implemented in practice.

Clearly, this contribution (and its approach) is not without its limitations, which are briefly outlined below. First is the limitation of the underlying conceptual framework. The assumed healthy fiscal revenue structure with a low dependency on land-leasing revenue only applies to relatively developed and prosperous cities. Underdeveloped cities (not represented in the selection) may experience very low shares of land-leasing revenue simply because they are in a recession or debt crisis. This situation is growing more common since in recent years the central government has begun to control the scale of local debts and curbed the growth mechanism by limiting the application of certain policy instruments. These cities relied heavily on land revenue before, and their sudden fall in land revenue certainly does not stimulate high-quality growth. Second, this study focuses more on the overall strategies of cities in new town development. In-depth empirical study on urban outcomes of these strategies is needed to further illustrate the physical impact of pro-growth mechanism.

2.4 Examination of Dependency on Land-Leasing Revenue

In this section, the dependency on land-leasing revenue of four selected cities is examined. According to data from 2008 to 2018, land revenue has clearly played an increasingly important role in each city's fiscal revenue structure (Figures 3 and 4). For instance, the ratio of land revenue to total revenue in Guangzhou rose from 0.26 in 2008 to 0.49 in 2018, meaning that the growth rate of Guangzhou's land-leasing revenue significantly surpassed the growth rate of tax revenue. Thus, Guangzhou has become increasingly dependent on

land-leasing revenue. With almost half of its fiscal revenue from land leasing, Guangzhou has become a city with medium to high dependency on land-leasing revenues. Urban development in Guangzhou is not only a means to enhance its competitiveness but also a way of accumulating capital because of the economic revenues generated during the development process.

Shenzhen's fiscal revenue structure is quite different than that of Guangzhou. As illustrated in Figure 3, the ratio of Shenzhen's land-leasing revenue to its total fiscal revenue never exceeded 0.3 between 2008 and 2018, which represents a low level of dependency on land-leasing revenue of Shenzhen's local government. In general, Shenzhen has far less reliance on the economic contribution of land development. This can be partially explained in terms of land scarcity, which is an important concern in Shenzhen: Its population density is three times higher than Guangzhou. Because Guangzhou has medium dependency on land-leasing revenue, its overall approach to urban development might be assumed to be a combination of both quality and quantity growth criteria (according to the analytical framework presented above). Meanwhile, Shenzhen's relatively low dependency on land-leasing revenue is likely to result in an emphasis on the quality of growth (more than quantity) in its urban development strategies.

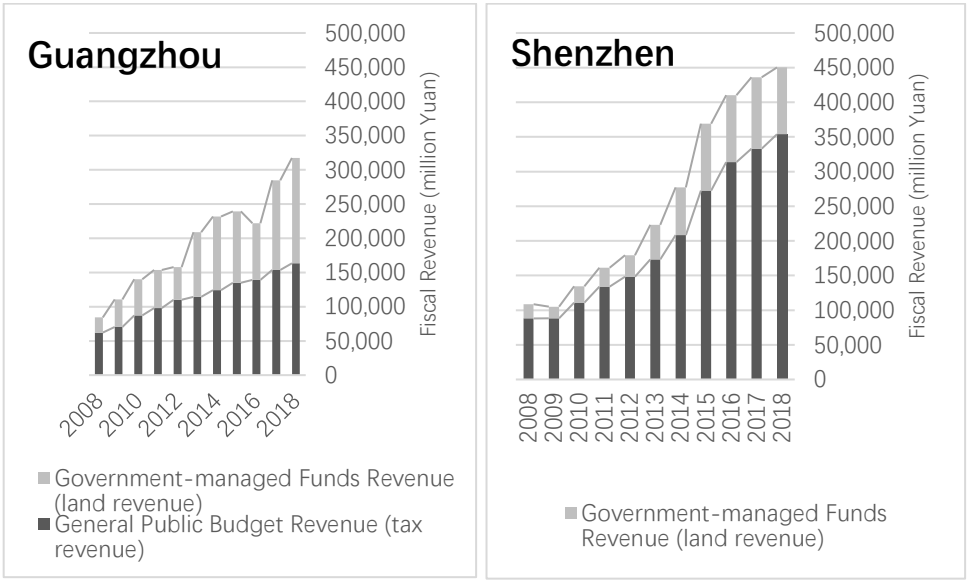

Figure 5. Land revenue versus tax revenue in Guangzhou (left) and Shenzhen (right) from 2008 to 2018. Sources: Statistic Year Books and Budgetary Reports of Guangzhou (Guangzhou Bureau of Statistics, 2019) and Shenzhen (Shenzhen Bureau of Statistics, 2019).

Foshan and Zhuhai, as lower-tier cities than Guangzhou and Shenzhen, have a higher dependency on land-leasing revenue in general. Foshan's land-leasing revenue was 42–52% of its total revenue between 2010 to 2016. In 2017, 60% of Foshan's fiscal revenue was from land-leasing (Figure 4). As such, Foshan is very dependent on the revenue through land development. The city's reliance on urban growth can be further observed in its strategies to develop new town projects. Zhuhai also witnessed significant increases of land-leasing revenue despite its smaller size. Apart from some missing data (the annual budgetary report of Zhuhai in 2013 is missing on its government website; Zhuhai began to release its budgetary report from 2011 so that land revenue data before that are missing), it can be seen that Zhuhai's land-leasing revenue surpassed its tax revenue in recent years. In 2014, 64% of total fiscal revenue was derived from land-leasing (Figure 4). The latest data for Foshan

and Zhuhai show that both cities have more than 60% of their fiscal revenue was from land-leasing, which can be described as high dependency on land revenue according to the conceptual framework (Figure 1). According to the analytical framework presented above, both cities are likely to emphasise the quantity (rather than the quality) of growth in their urban development plans and practices. In the following section, the new town development plans and practices in each of the cities are examined to see whether their urban development strategies match the above propositions.

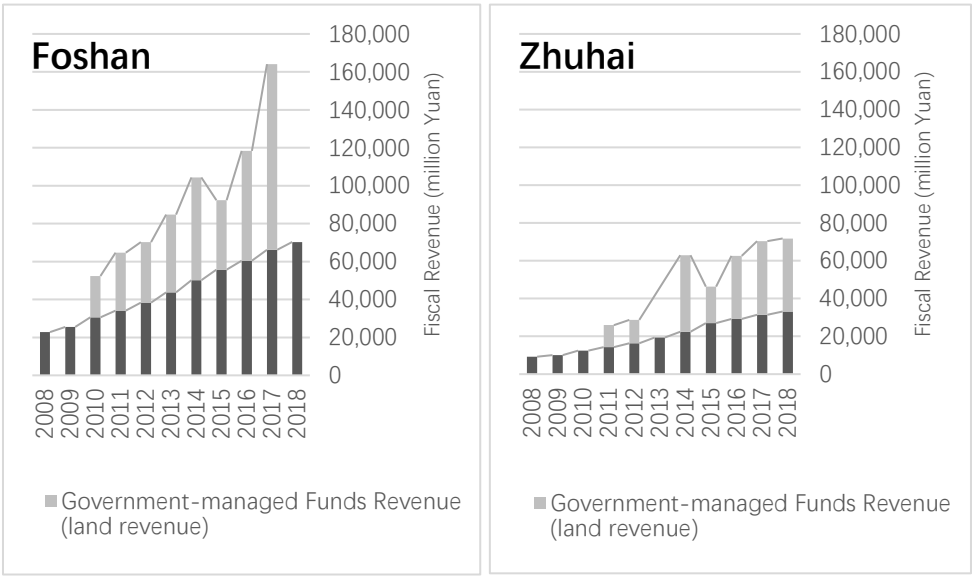

Figure 6. Land revenue versus tax revenue in Foshan (left) and Zhuhai (right) from 2008 to 2018. Sources: Statistic Year Books and Budgetary Reports of Foshan (Foshan Bureau of Statistics, 2019) and Zhuhai (Zhuhai Bureau of Statistics, 2019). Note: The government-managed funds data of Foshan in 2008, 2009, and 2018 are missing, and the Foshan government change statistical calibre in 2016; the government-managed funds data of Zhuhai in 2008, 2009, 2010, and 2013 are missing.

2.5 Examination of New Town Development Strategies

In this section, new town development in each city is compared. The history of the urban development process is analysed to understand the role and significance of new town in the urban development process. The town projects are placed in the context of the urban development narrative to illustrate how local entrepreneurial governance affects new town development in practice.

2.5.1 Guangzhou

Guangzhou, the capital city of Guangdong province, is the political and economic centre of the PRD region. It played a key role in China's development as its historical southern gateway (Xu, 1985) but now faces similar challenges as many other hub cities, and is becoming overshadowed by the rapid growth of nearby Shenzhen. Nevertheless, Guangzhou has strong decision-making powers and economic resources for urban development, and the idea of developing large urban projects and deploying pro-growth strategies for enhancing its competitiveness can be easily justified.

In the process of urban development, new towns have played an increasingly important role in Guangzhou. The concept of new town appeared in the early 2000s when the city government initiated its university town and Zhujiang new town project (Figure 5 and Table 2). At that time, the concept of university town had just became popular, and the university town in Guangzhou was essentially an experimental project on the urban fringe (Li et al., 2014). Zhujiang new town was regarded as the core of the new city central axis of

Guangzhou. The municipal government was quite cautious about this new town project and had several rounds of plans and revisions for almost a decade. The 2010 Asian Olympic Games was the event that pushed the development process of Zhujiang new town and finally implemented the project. Zhujiang new town soon became the most prestigious and successful urban project in Guangzhou. With several landmarks constructed, including the Guangzhou Opera House designed by the famous architect Zaha Hadid, Zhujiang new town demonstrates Guangzhou's latest urban achievement as the so-called 'city living room'. On the other hand, hosting the Asian Games also brought huge amount of debt to the local government due to lavish spending on landmark developments (e.g., Guangzhou Tower and Haixinsha Island where the Asian Games opening ceremony took place), sport stadiums, public transport facilities, and urban beautification projects (Wu, 2018).

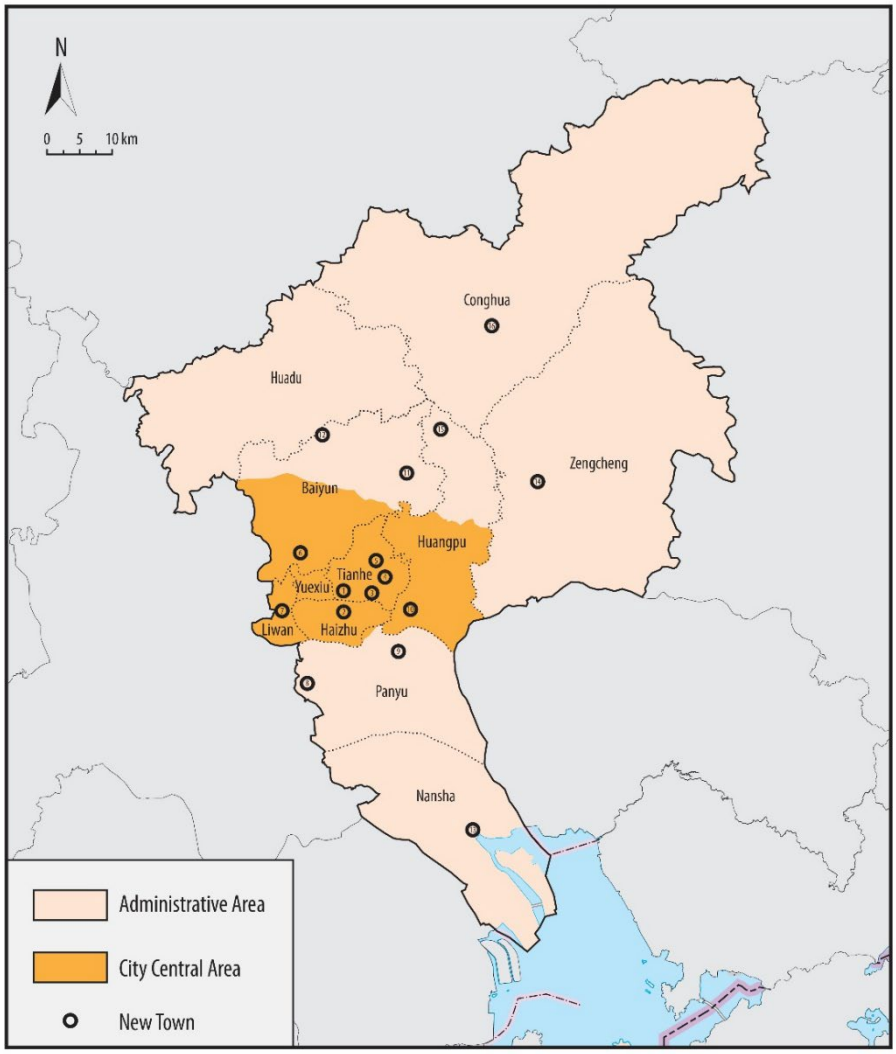

Figure 7. New town projects in Guangzhou.

Table 3. Information of new towns in Guangzhou.

	Name	*Initiative*	*Branding*	*Overall/Starting Area*	*First Planned*
1	Zhujiang New Town	Municipal	CBD	6.44 km^2	1993
2	Haizhu Ecological City	Municipal	Eco-city	92 km^2/8.9 km^2	2013

3	Guangzhou International Financial City	Municipal	Financial city	17.2 km^2/1.32 km^2	2011
4	Tianhe Smart Vally (Olympic New Town)	Municipal	Smart city	15.2 km^2	2018
5	Tianhe Smart City	Municipal	Smart city	63 km^2/20.69 km^2	2012
6	Baiyun New Town	Municipal	Second-CBD	9.3 km^2	2004
7	Huadi Ecological City	Municipal	Eco-city	3 km^2	2013
8	Southern High-speed Railway Station Business District	Municipal	High-speed rail new town	36 km^2/4 km^2	2013
9	Guangzhou International Innovative City (University Town)	Municipal	Knowledge city	5.67 km^2	2013
10	Huangpu Harbour Business District	Municipal	Second-CBD	25.04 km^2	2013
11	Guangzhou International Healthcare City	Municipal	Healthcare	33.1 km^2	2013
12	Huadu Airport Economic District	Municipal	Airport city	-	2011
13	Nansha New District	Central government	-	-	2011
14	Guangzhou Education City	District government	Knowledge city	10.79 km^2	2014
15	Sino-Singapore Knowledge City	Municipal	Knowledge city	5.86 km^2	2011
16	Conghua New City	District government	-	39 km^2	2013

However, the increased debts did not slow down the development of new towns, instead accelerating the process. Guangzhou's local government initiated and announced nine new

town projects in 2013 alone (No. 2, 3, 5, 7, 8, 9, 10, 11, 12 in Table 2). Every new town in this set of projects had a 'world-class' vision and multifarious urban progressive concepts such as eco-city, financial-city, smart-city, knowledge city, healthcare city, and airport city. All these new towns carried the ambition of transforming Guangzhou's urban and industrial environment over the long term. However, the fiscal data in the same year (Figure 3) indicate a drastic increase of land-leasing revenue, more than double compared to one year before. It is highly likely that the sudden increase of land-leasing revenue was due to the release of nine new town projects and their subsequent land transaction from land market. Taking the example of Guangzhou international financial city (No.3), after its detailed plan completed by the end of 2012, Guangzhou local government leased out four parcels of land of the 'boosting area' of the financial city in February 2013, gaining 13 billion CNY revenue, which was equivalent to one-third of the total land-leasing revenue of the year before (Liu, 2013). In Chinese media, these land transactions were called the 'king of land deals' (*diwang*). Soon after, criticisms emerged accusing the Guangzhou local government for using new town projects as a means to 'sell land' (i.e., adopting a 'land-driven economy'). These new town projects continued to act as local government financing vehicles (LGFVs), attracting property investments and generating capital through the land market (He and Wu, 2005).

Many new town projects were hastily planned under entrepreneurial principles, resulting in problematic implementation. First, there were duplications of urban concepts. Tianhe smart valley (No. 4) and Tianhe smart city (No. 5) not only followed very similar development concepts, they were also in close proximity to each other. There are three other knowledge

cities (No. 9, 14, 15), two second-CBD projects (No. 6, 10), and two eco-cities (No. 2, 7). Some of them adapted these concepts based on local conditions, like the former university town turning into international innovative city (No. 9), but some of them had nothing to do with their labels, such as Huadi ecological city (No. 7). This also relates to a second problem: Their planning lacked empirical justification. For example, Tianhe smart valley used to be branded as Olympic new town for a city-level sport stadium located there. But this place turned into 'Guangzhou eastern ecological and liveable district' later, and then it transformed again into a 'smart valley' for technological and innovative industries. It is hard not to question the scientific basis underlying these several plan versions. This reflects the negative effects of seeing entrepreneurial considerations outweigh urban transition targets in new town projects.

Two main observations can be made in light of the above analysis of new town practices in Guangzhou. First, the size of new town projects varies greatly depending on the function and location of the new town. Most new towns are located within or near the urban central area (Figure 5), and their starting areas are planned in details. Suburban expansion is not the major objective of new town projects in Guangzhou; they are more focused on small-area urban renovation and upgrading. However, Guangzhou is still highly dependent on land-leasing revenue, which is closely linked with new town projects. The sudden release of many new town projects and the subsequent increase of land-leasing revenue immediately follow each other. However, because of high property and land prices, Guangzhou can generate a large amount of land revenue by small-area development in the urban centre, rather than large area suburban growth. Second, the urban pro-growth approach in Guangzhou is driven more by

land-driven income than spatial growth. Pro-growth approaches have resulted in several planning problems in new town practices, including redundant functions, duplication of activities, and weak linkage to urban master plans.

2.5.2 Shenzhen

Shenzhen is the youngest and the fastest growing megacity in the PRD. Before China's economic reform in 1980s, Shenzhen was a small fishing village. Because of its proximity to Hong Kong, it was chosen as a special economic zone (SEZ) to learn from and experiment with Hong Kong's capitalist market economy. Shenzhen has a unique urban structure defined by its borders with both Hong Kong and the mainland, known as the two-line borders (*erxianguan*). Shenzhen's SEZ was strictly confined to protect the socialist system in mainland China, which deeply influenced Shenzhen's urban structure. The central four districts Nanshan, Futian, Luohu, and Yantian, formed the original SEZ area (called '*guannei*') and later became the city's central area, while Baoan, Guangming, and Longgang were the buffer areas (called '*guanwai*') and now form Shenzhen's suburban area (Figure 6). The hard border between '*guannei*' and '*guanwai*' was removed in 2010 and Shenzhen's administrative area increased fivefold from 395 km^2 to 1948 km^2. In 2012, the redevelopment of land surpassed the new construction land, which marked the end of expansion era, and urban redevelopment and renovation became the main theme in Shenzhen's urban planning.

Figure 8. New town projects in Shenzhen.

Shenzhen's low dependency on land revenue and urban growth mechanism is also reflected in its new town development strategies. Unlike Guangzhou, which launched a number of new town projects that were not contained in its urban master plan, new town projects in Shenzhen are generally in alignment with its master plan, as most of them were listed and mapped on the 'key development area and projects in the near future'. In the urban central area, there are only three main new town projects (No. 1–3 in Table 3). Xiangmihu new financial centre (No. 1) and super headquarter base (No. 2) are the latest urban upgrade projects in the dense and developed urban centre. They have a small amount of land to

redevelop, and aim to use it efficiently using very high floor area ratios. Qianhai (No. 3) is a long-developing free trade zone and harbour city in Shenzhen.

Table 4. Information of new towns in Shenzhen.

	Name	*Initiative*	*Branding*	*Overall/Starting Area*	*First planned*
1	Xiangmihu New Financial Centre	Municipal	Financial city	4.9 km^2/1.9 km^2	2018
2	Shenzhen Bay Super HQ Base	Municipal	CBD	1.2 km^2	2013
3	Qianhai Central Zone	Municipal	Free Trade Zone	14.92 km^2	2012
4	Shenzhen North Station Business District	Municipal	High-speed Railway city	6.1 km^2	2014
5	Banxue Science and Technology City	Municipal	Smart city	21.9 km^2 + 10.88 km^2	2016
6	Shenzhen Airport City	Municipal	Airport city	95 km^2	2014
7	Guangming Phoenix City	District government	District centre	14.89 km^2	2006
8	Dayun New Town	District government	District centre	15.93 km^2	2006
9	Pingshan New Town	District government	District centre	-	2006
10	Shenzhen International Low Carbon City	Municipal	Eco-city	53 km^2/1 km^2	2012

In suburban areas, there are seven new town projects (No. 4–10). Three of them (No. 7–9) are new district centres initiated by district level governments. Normally, the main goal of these new towns is to accommodate the increasing population. Shenzhen north station

business district (No. 4) is a typical high-speed rail station area development, which can also be found in Guangzhou and Foshan. The smart city of Shenzhen called Banxue science and technology city (No. 5) is also located near north station to fully make use of transport benefits, thus forming a transport and technology urban cluster. Lastly, the Shenzhen airport city (No. 6) and the international low carbon city (No. 10) are the two remaining special ones. They are located on the border area of Shenzhen where there is plenty of land to use and they are the biggest new town projects. Although sustainability is not the core value in Shenzhen's urban development, it remains as an important experimental base for ecological technologies.

Several characteristics of new town development in Shenzhen are apparent. First, most of the new town projects in Shenzhen are located in the suburban area (in Guangzhou most of them are located in central urban areas). However, it cannot be simply interpreted as Shenzhen having more suburbanisation and urban growth than Guangzhou. These two megacities have very different urban structures, as Guangzhou should be regarded as basically a network of cities. The central area of Shenzhen is denser and more urbanised than of Guangzhou. The land price of central areas in these megacities is much higher than it in suburban areas. Cities like Guangzhou and Shenzhen no longer need to develop large amounts of suburban land to generate capital, as small-scale projects in central areas may be more profitable. Thus, Shenzhen has small-scale new town projects in its central area for urban renovation and upgrading, mid-scale new towns in district cores as new development poles, and large-scale new towns in suburbs. Second, although similar urban concepts and functions are used in new town development in Shenzhen and Guangzhou, a much more organized and planned pattern of new towns can be observed in Shenzhen. The local

government tends to have a more cautious attitude towards property development. Rather than boosting land-leasing revenue, the main goal of new town projects in Shenzhen is to build a leading model of innovative and sustainable urban development in the PRD region. The increase of competitiveness and attractiveness by prestigious projects outweighs the sheer economic benefits from land development.

2.5.3 Foshan

Foshan is the closest neighbour of Guangzhou. The two cities not only share common borders, but their urban areas are closely linked. Foshan's urban development history is similar to that of Guangzhou as Foshan also incorporated four independent cities (Shunde, Nanhai, Sanshui, and Gaoming) in 2003 (Figure 7). Like Guangzhou, its urban structure can be also regarded as a network of cities. However, the local government of Foshan is much weaker than Guangzhou. Foshan municipal government has less control over the former-city districts compared to Guangzhou, resulting in the fact that Foshan's district governments have higher levels of autonomy when it comes to the deployment of land and capital. As a result, Foshan district governments have more decision-making powers regarding urban development, including new towns. This is apparent in the case of Shunde, which became a special district level government directly under the administration of Guangdong provincial government. Thus, Foshan and Shunde, even after their integration, are still independent from each other and have separate fiscal and budgetary systems. As such, Foshan's municipal government has little administrative power over Shunde.

The local government of Foshan has two main goals in the area of urban development: To strengthen the urban development of central area; and to build closer relationship with

Guangzhou for more cross-border business and communications with the concept of 'Guangzhou and Foshan as one city' (*Guang Fo tongcheng*). New towns play a key role in Foshan's urban development and are the main mechanism to achieve the two goals outlined above. By mapping new town development in Foshan, one of the noticeable differences between Foshan, Guangzhou, and Shenzhen is that Foshan's new towns are generally much bigger in size. Many of them are as big as the largest ones in Shenzhen and Guangzhou, and the average size is several times bigger. This suggests that Foshan is more ambitious in land development and urban expansion.

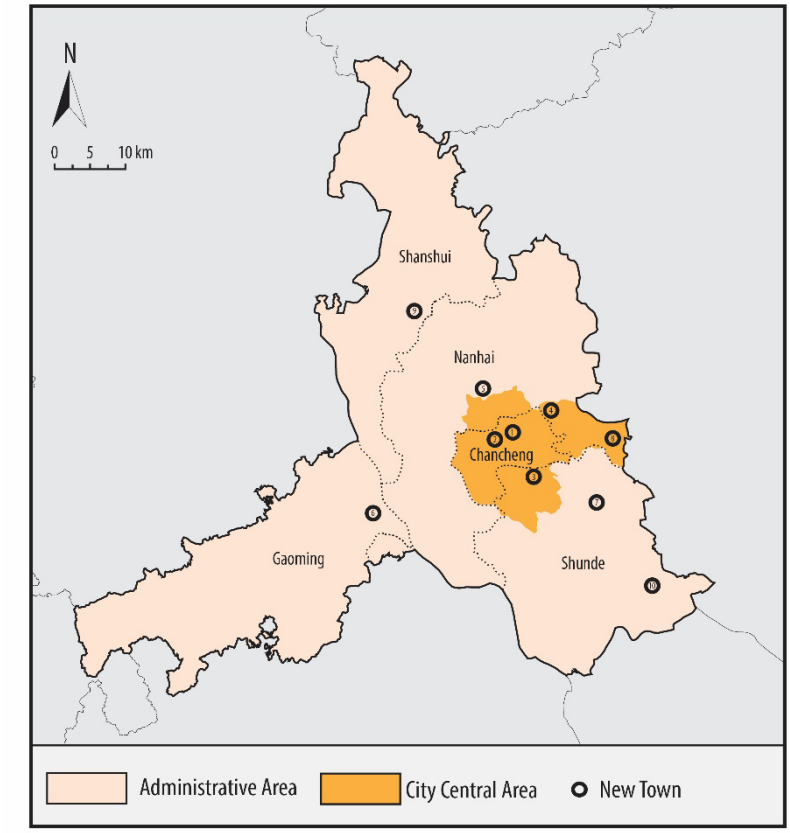

Figure 9. New town projects in Foshan.

There are six new towns (No. 1–5 and 8 in Table 4) located in and near the urban central area, and other four new towns (No. 6, 7, 9, 10) located in suburban district centres (Figure 7). Qiandenghu (No. 4) was the pilot project of Guangzhou and Foshan integration strategy as the two cities signed an official integration cooperating agreement in 2009. Qiandenghu is regarded as a successful bridge linking two cities and it also became Foshan's 'urban living room'. This has become a prestigious brand of new town development in Foshan. As a result, some new town projects have branded themselves as 'the second Qiandenghu'. Sanshan low-carbon city (No. 8) is one of these projects. It is considered as an integration project due to

its proximity to Guangzhou's high-speed rail station area, which provides fast connections to the high-speed rail network. Although it was branded as the first low-carbon city in Guangdong province, it is not much different to other residential new towns close to railway stations. Foshan new town (No. 3) was one of the first new towns planned by Foshan local government but is located inside Shunde administrative area, resulting in conflicts about property rights and land-leasing revenues between the governments of Foshan and Shunde. In 2013, Foshan new town was transferred to the government of Shunde, together with land and fiscal rights.

Table 5. Information of new towns in Foshan.

	Name	*Initiative*	*Branding*	*Overall Area/Booting Area*	*First planned*
1	Chanxi New Town	Municipal	CBD	36.8 km^2	2013
2	Zhangcha/Foshan Smart City	Municipal	Smart city	26.5 km^2	
3	Foshan/Dongping New Town	Municipal	CBD	88.6 km^2	2003
4	Qiandenghu/Guangdong Financial and High-tech Zone	Municipal	CBD axis	6.5 km^2/18 km^2	1999/2007
5	Foshan West Station New Town	Municipal	High-speed Railway new town	92 km^2/8.58 km^2	2015
6	Gaoming Xijiang New Town	District gov.	District centre	20 km^2	2009
7	Beijiao New Town	District gov.	-	-	2008
8	Sanshan low-carbon city	Municipal	Eco-city	23.8 km^2	2010
9	Sanshui New Town	District gov.	RBD	13.95 km^2/56.9 km^2/128.22 km^2	

10	Desheng/Shunde New Town	District gov.	District centre	70 km^2/6.5 km^2	2001

In general, new town development in Foshan is different from that in Guangzhou and Shenzhen in several respects. First, Foshan is still in a period of rapid urban expansion, in which new towns are the major mechanism for implementing urban growth. Most new towns in Foshan are large-scale projects. Unlike in Guangzhou and Shenzhen, new towns in Foshan are outlined in a district plan (*fenqu guihua*), a detailed version of an urban master plan for urban districts (Chen, 2016). Second, Foshan is highly dependent on land-leasing revenue. Its pro-growth model of urban development resembles the model found in typical medium sized cities in China, which carry the risks of overdevelopment and local debt.

2.5.4 Zhuhai

Zhuhai is the smallest city among the four selected case studies and has only 1/10 of the population of Guangzhou. Within the PRD, however, Zhuhai has a unique and important position. Like Shenzhen, Zhuhai is also a special economic zone (SEZ) because of its proximity to Macau. However, just as the city of Macau can be hardly compared to world-financial centre of Hong Kong, Zhuhai has never attempted to become a second Shenzhen. Instead, it has developed its own reputation of liveability and lifestyle. In terms of its urban structure, Xiangzhou forms its central area and Hengqin joined as a new district in 2009. Doumen county has weaker connection to Zhuhai central area, although it has been a part of Zhuhai since the 1980 s. Doumen county split into Doumen district and Jinwan district in

2001, and Jinwan became a national industrial park with a harbour. However, the key area of urban development in Zhuhai remained in Xiangzhou and Hengqin.

The number of new town projects in Zhuhai is lower than in other cases, and all of them are contained in the master plan. However, the situation is more complicated as will be outlined below. In 2013, the Singaporean urban planner Liu Thai Ker was commissioned to develop a new spatial plan for Zhuhai up to 2060, setting Zhuhai's new CBD in Hezhou island, an uninhabited wetland located between the Jinwan and Hengqin districts. The idea was to provide a connection between the central area with the western Jinwan and Doumen districts. A year later, however, the idea of a new CBD in Hezhou was dropped from the revised Zhuhai master plan in 2014. Instead, the master plan identified six new town projects as shown in Figure 8. Some of the new town projects were poorly justified. For example, Fushan city (No. 6 in Table 5) has very little information about its development goals and roles in Zhuhai urban structure. Airport city (No. 3) and Binjiang city (No. 4) were together branded as 'western ecological new town', without explanation of how two new towns could be connected and related to ecology. Many of them were named with ambiguous concepts. Additionally, these new town projects are quite large compared with the small central area of Zhuhai. Strangely, the new CBD in Hezhou and Liu Thai Ker's plan are still referenced by Zhuhai official media, despite the fact that almost none of it was ever implemented and they are still excluded from the most recent urban master plan. This appears to be a branding technique designed to sell land.

Figure 10. New town projects of Zhuhai.

Table 6. Information of new towns in Zhuhai.

	Name	*Initiative*	*Branding*	*Overall Area/Booting Area*	*First planned*
1	Hengqin New District	Central gov.	Free Trade Zone	28 km^2	2009
2	Science and Education City/Tangjiawan New Town	Municipal	Technology city	17.07 km^2	2008
3	Airport City	Municipal	Airport city/eco-city	193 km^2	2004
4	Binjiang City	Municipal	Eco-city		2004

5	Harbour City/Pingsha New Town	Municipal	Harbour city	25 km^2	
6	Fushan Industrial City	Municipal	Industrial city	47.94 km^2	2016

In general, as the smallest city in our selection, Zhuhai is quite ambitious in terms of new town development and is similar to Foshan in several ways, such as its large-scale district-level planning for new towns and its high dependency on land-leasing revenues. Analysis indicates that urban development in Zhuhai aims to achieve spatial growth and generate land revenue. New town projects are used as the main vehicle to implement such growth. Although its new town projects are well connected with its urban master plan, it is likely that these new town plans serve entrepreneurial purposes than urban transition despite heavy use of sustainability-related concepts such as transit-oriented development and eco-city.

2.6 Discussion

The four case studies illustrate that cities adopt an 'entrepreneurial' stance to promote urban growth and compete with each other to attract capital. In the highly competitive PRD region, a city's competitiveness is not only defined by its infrastructure, institutional set-up, and physical attractiveness, but also about the 'differences in image' (Zhai et al., 2004). This is the reason that these cities are keen to embrace innovative and sustainable urban concepts, since being more innovative and sustainable can reconstruct city's image to enhance its importance of rankings in regional development. Since the 1990s, land and financial reforms have given local governments more scope for deploying two critical resources: land and capital. Local governments have adopted pro-growth approaches in urban development,

focusing on large projects like new towns to boost economic development, to project new city images and to accumulate capital. This has also resulted in a general dependency on urban growth mechanisms and consequently the risk of urban overdevelopment and local debt. A two-step examination has been used to illustrate the dependency on land-leasing revenue of four selected cities and their respective strategies of new town development.

Guangzhou and Shenzhen are in competition for the leading role in the PRD region. Although they share many similarities in terms of social and economic performance and sustainable urban development goals, Guangzhou has a much higher dependency on land-leasing revenue than Shenzhen. Their reliance on the urban pro-growth mechanism has impacts on their new town development strategies. Although Guangzhou does not need large-scale land development to generate capital, it has more small-scale new town projects than other cities and some of them are similarly branded. The hasty planning of new towns to boost land-lease revenue and cover the debts generated by hosting the Asian Games reveals a hidden agenda behind the sustainability-related concepts and labels. On the other hand, Shenzhen has tried to align its new town projects, partly due to its compact urban development tradition for land scarcity and high population density, and partly due to its low dependency on land-leasing revenue. New town projects in Shenzhen indicate more attention to fulfilling its innovation-driven ambitions and for generating more quality-based prestige in the region other than boosting short-term land revenue. Foshan and Zhuhai both have higher dependency on land-leasing revenue than Guangzhou. Their new town projects are much larger than those in Guangzhou and Shenzhen since they need more land development to achieve their land-leasing revenue targets. Prestige projects still matter in Foshan and Zhuhai, but since they are not competing for the best of the best in PRD, land revenue can

easily eclipse other goals. Even in Zhuhai, with more attention to liveability, the city has adopted very ambitious pro-growth approaches in urban expansion. Its urban development strategies and plans are the results of a gap between its urban development objectives on paper and the hidden agenda of promoting urban growth. The innovative and sustainable brands it proposed are therefore unlikely to be realised. The study illustrates that local governments' land-leasing revenue can be used as an indicator for how a city depends on urban pro-growth mechanisms (Table 6). This has policy implications to decision makers, urban planners, and researchers that the reliance on urban pro-growth strategy can bring potential risk to any sustainable urban transition.

Table 7. Comparison of land-leasing revenue dependency and new town development strategies of four selected cities.

City	*Dependency on Land-Leasing Revenue & Growth Pattern*	*Typical Location of New Town Projects*	*Average Size of New Town Projects*	*New Town Development Strategy*
Guangzhou	Medium (Mixed)	Central & fringe	25 km^2	Compactness & revenue growth
Shenzhen	Low (Quality)	Suburban	25 km^2	Compactness
Foshan	High (Quantity)	Central & fringe	46 km^2	Spatial growth
Zhuhai	High (Quantity)	Suburban	51 km^2	Spatial growth

2.7 Conclusions

The results of the case study support the assumption that there is a linkage between urban growth mechanisms and urban outcomes in Chinese cities, as proposed in the analytical framework (Figure 1). The higher the dependency on land-leasing revenue in a city, the

higher possibility it adopts a growth-at-all-costs approach, which increases the likelihood of overdevelopment. On the contrary, the lower the dependency on land-leasing revenue, the higher the possibility that the city pays more attention to promoting urban quality, where innovative and sustainable urban transition is more likely to be realised. Because the formation of urban growth approaches in China is deeply embedded in its institutional systems (e.g., tax-sharing system, land and housing reform, and cadre appointment system), institutional reforms are needed to achieve more sustainable forms of urban development. Currently, central government tends to use macroeconomic controls and administrative orders to stop the overgrowth of land-driven economy and local debts, but these tools cannot solve the fundamental problem of fiscal deficit of local governments under the current tax-sharing system. The central government can easily fall in the dilemma of "control then it dies, leave it then it becomes chaotic" (*yiguanjiusi, yifangjiuluan*) (XinhuaNet, 2019a). Furthermore, the strategies and behaviours of local governments in urban development are only supervised by the upper-tier governments. The lack of local supervision contributes to the formation of systematic risks in urban development of Chinese cities.

This study also calls urban entrepreneurialism into question in China. Chinese local governments act as both market regulators and players, holding two critical resources of capital and land, using market instruments for the recreation and reconfiguration of space. China is not a rule-of-law based society, and local leaders are not elected but officials appointed by high level governments. Local governments can go beyond budgetary constraints and apply a market logic to recklessly mobilise resources for urban development and political objectives. This often creates a trend of overspending and excessive investment

in infrastructure and urban development. In this sense, their ‘entrepreneurial nature’ has uncertain and debateable long-tern consequences. Even though local leaders are often proud of the ‘Chinese speed’ in urban development and use it for political performance, the risks of overdevelopment, misallocation of social resources, and potential debt crisis may eventually do more harm than good from the perspective of long-term sustainable urban development.

Developed cities: Innovative governance for project-based land value capture

3

This chapter is based on the following peer-reviewed article:

Song Y, de Jong M and Stead D (2021) Bypassing institutional barriers: New types of transit-oriented development in China. *Cities* 113: 103177.

3.1 Introduction

The concept transit-oriented development (TOD) is a commonly used planning tool that focuses on forming effective integration of land use and transit systems (Banister, 2008; Suzuki et al., 2013). Through advocating the integration of various high density and diversity urban developments around public transport nodes, it offers a possible path towards sustainable urban environment with improved accessibility and mobility, pedestrian and cycling friendliness and a high degree of human interaction (Bertolini and Spit, 1998; Cervero, 1998, 2004; Curtis, J Renne, et al., 2009; Curtis, JL Renne, et al., 2009; Dittmar and Ohland, 2004). Although the same basic philosophy underlies TOD in all contexts, current studies show that its applications may vary significantly after policy transfer and implementation in different institutional environments. In its birthplace the United States, TOD is focused on dealing with the crisis of suburban sprawl by re-centring development around transit stations (Cervero, 1998, 2004). In Europe, the focus seems to shift more to the redevelopment of station areas (Bertolini and Spit, 1998). In South America, it is all about reconnecting already dense urban areas (Lindau et al., 2010). In Asia, TOD seems to be used in managing mega-city growth with transit corridors (Yang & Lew, 2009). Context-based TOD studies help policymakers, urban and transport planners to better understand the relationships between TOD and their local urban problems between station types, morphological and functional characteristics, and to develop more targeted strategies (Lyu et al., 2016).

Given the rapid urban growth and development of mass transit networks in China, TOD has gained popularity as a sustainable concept to address urban challenges such as urban land scarcity (Suzuki et al., 2013), increasing commuting time (Wang & Chai, 2009), air pollution (Ma et al., 2018), and unequal spatial accessibility (Cervero and Day, 2008). Many have argued that TOD has great potential in China as it has positive effects on land value and floor area ratio around station areas (Yang, Chen, Le, & Zhang, 2016; Yang, Quan, Yan, & He, 2016), nearby firms and businesses (Yao and Hu, 2020), and urban life and social equity (Liang et al., 2020). However, there is a lot of doubt in the current literature as regards the authenticity and genuineness of TOD in China. Doulet, Delpirou and Delaunay (2017) claim that Chinese cities are not "real" TOD cities in the formal sense for lacking a structural effects of transit networks on urban development. Cervero and Day (2008) state that in China there has been a disconnect between transit investments and urban development. Wang, Samsura and van der Krabben (2019) further identify three main institutional barriers in developing TOD in China: (1) unsupportive planning regulations; (2) limited financial instruments; and (3) inefficient governance. Moreover, there is also criticism of the pragmatic pro-growth nature of China's existing urban development mechanisms turning TOD practices into "development-oriented transit (DOT)" serving primarily the promotion of veritable suburban bedroom communities (Cervero & Day, 2008; Cervero & Murakami, 2009; Doulet et al., 2017; Yang, Chen, et al., 2016).

On the other hand, an emerging type of practice in China called 'rail plus property' (R+P) has attracted quite a bit of attention in the recent literature (Cervero & Murakami, 2009; Wang et al., 2019; Xue & Fang, 2015; Yang, Zhu, Duan, Zhou, & Ma, 2020). R+P projects

appear not only to integrate transit with urban development at the station level, but also serve as alternative funding sources for transit infrastructure and produce affordable social housing at the same time (Yang et al., 2020). Wang et al. (2019) identify various informal strategies used in R+P projects, bypassing the existing institutional barriers, to realise the capturing of land value. R+P seems to evolve into a new type of TOD practice with a more project-based approach. Informal strategies can be also found in another type of practice based on integrated development with regional hub railway stations, also branded as TOD. However, informal institutions can also be the outcome when local authorities are unable formally to regulate urban growth (Kreibich, 2012). Whether these new practices only represent temporary informal ways to secure infrastructure investment from developers, or whether they represent a transition to new types of governance is understudied. Compared to old types of TOD practices constrained by the existing institutional mechanisms prioritising urban growth, the way in which these new types of TOD practices deal with urban growth mechanisms has become important to TOD's future development in China.

Currently there is little literature analysing the origins and effects of changes in institutional settings of different types of Chinese TOD practices, hence this article aims to fill this knowledge gap. More specifically, it aims to answer the question *how different types of TOD practices with different institutional settings deal with the pre-existing institutional mechanisms underlying urbanisation in China.* We thus engage in both theoretical reflection and empirical study. The article is divided into nine sections including this introduction. In section 2, we construct a theoretical framework to examine TOD practices in China from the perspective of its current institutional context. Section 3 identifies three different types of

TOD practices in terms of formal or informal changes of institutional settings. Section 4 demonstrates the methodology used in our empirical study and details three types of TOD related practices. In sections 5-7, we analyse these three types of TOD related practices. Baiyun new town in Guangzhou as a transit-adjacent development practice is analysed in section 5; Henggang depot project in Shenzhen as a rail plus property practice is analysed in section 6; Xintang TOD new town in Guangzhou as a transport hub megaproject is analysed in section 7. The findings are discussed in section 8 and final conclusions are presented in section 9.

3.2 Conceptual Framework

Generally speaking, TOD is a concept coined to structure urban growth with mass transit infrastructures at both the regional and local levels (Doulet et al., 2017). The institutional context and mechanisms of urban growth have a significant influence on how the concept of TOD is applied and implemented (Doulet et al., 2017; Wang et al., 2019). As defined by North (1991), institutions are "the rules of the game in a society and include the formal and informal constraints that shape human interactions". We identify three dimensions of formal institutions in the process of urban growth that we believe are essential in either facilitating or constraining TOD practices.

First, the land management system is crucial to the integration of transportation and land use. However, land development in China is regarded as a major means of local authorities to generate local revenue, also known as "land finance" (*tudi caizheng*) in Chinese. Thus, it is

criticized by Doulet et al. (2017) as lacking "real land-management measures" because land development is guided by priorities relating to attractiveness for investment and economic growth, following short-term value maximisation strategies. On the other hand, land development can also be a financial instrument for developing TOD through land value capture which needs sound land asset management (Medda, 2012). The current literature has shown many international experiences using various instruments to capture land value from transit development, including rail plus property development in Hong Kong (Cervero and Murakami, 2009), land readjustment in Tokyo (Murakami, 2012), and transferable development rights in Sao Paulo (Sandroni, 2010). Thus, the institutional setting for land management in the urban growth process has great influence in either facilitating or constraining TOD practices.

Second, the planning system is also key in realising synergetic transit and land development. Planning regulations that arrange the land use type and density determine whether the institutional arrangement encourage the adoption of TOD principles or not. The literature has shown that the current Chinese planning system is in fact unsupportive to TOD practices. For instance, mixed-used land development is not encouraged and hard to realise because different land use types have different leasing terms. There is also a lack of planning regulations and guidance at the national level to encourage and regulate high-density development in transit areas (Wang et al., 2019). Furthermore, urban planning is regarded as a tool in the hands of local authorities to promote urban and economic growth under the philosophy of growth-oriented development (Wu, 2015a). Planning methods are criticised as "functionalist approaches favoured by communism" (Cervero and Murakami, 2009) in

favour of single-function large blocks (also known as mega-blocks) such as new residential areas (*xiaoqu*), which further reduce the connectivity of the transit system and urban space.

Third, successful TOD also requires robust governance in facilitating and enhancing the cooperation of stakeholders, a mode of governance defined by Williamson (2000) as "an effort to craft order, thereby mitigating conflict and realising mutual gains". However, the governance of urban growth in Chinese cities is often identified as 'urban entrepreneurialism' (Chien, 2013; He and Wu, 2009; Wu, 2015a) featuring "the attempt of local governments to capture land value as a driver to fill the gap in public expenditure and desire for political career advancement" (Wu, 2018). Entrepreneurial governance can be understood as an overarching mode of urban governance affecting the land politics of urban growth. The strong motivation of local governments to capture land revenue originated from the tax-sharing reform in the 1990s causing local government to use land development as a major source to generate extra-budgetary revenue to fill the growing gap between local tax income and public expenditure (Zheng et al., 2016). Local leadership of GDP-ism also contributes to entrepreneurial governance due to the criterion of economic performance imposed from a top-down cadre appointment system (Li & Zhou, 2005). The over-emphasis of urban and economic growth through entrepreneurial governance potentially hampers TOD practices as it encourages suburbanisation based on private cars (Cervero and Day, 2008) and produces 'transit adjacent development' (TAD) practices prioritising land revenue (Zhang & Lin, 2011), suggesting it is "physically near transit but lacks functional connectivity" (Hale, 2014; Renne, 2009). Furthermore, TOD is also potentially hampered by "segmented governance" and the "compartmentalisation of public action" (Doulet et al.,

2017; Spear, 2006; Zhao and Yang, 2007) such as (1) limited regional cooperation and coordination among various tiers of local government; (2) lacking horizontal coordination between different technical agencies and departments; and (3) lacking intermodal coordination of different transit networks.

3.3 Typology of TOD applications in terms of different institutional settings

TOD in China is still in its early stages. Without national level guidance, few cities in China adopt TOD principles at the city level as their development strategy (only Shenzhen has adopted TOD principles in its urban master plan as a general development strategy). Local authorities develop their own types of TOD practices which show great diversity in terms of purposes, spatial configurations, scale, and institutional settings. Some types of practices are regarded as more successful than others, especially the emerging type of rail plus property practices that originated from Shenzhen (Wang et al., 2019; Yang et al., 2020). In order to find out how various institutional settings facilitate or constrain the application and implementation of TOD, we identify three different types of TOD practices in terms of the various institutional settings we mentioned above: (1) regular TOD application at ordinary stations, (2) rail plus property practices at depot stations, and (3) TOD application at regional railway stations.

The first type of TOD practice refers to transit station area development projects without special institutional arrangements. This type of TOD practice may vary from scale to scale,

but the common characteristic is that they develop under regular institutional settings for urban growth without any specific arrangement to enhance integrated transit and land development. Local governments as key actors follow the strategy of maximising revenue from land-leasing as their mode of entrepreneurial governance. With very limited planning regulations and restrictions on the development of transit areas, and poor coordination between developers and transit providers, transit systems and the surrounding development are separately developed and often poorly connected. Because of the various undesirable outcomes, this type is often criticised as 'transit-adjacent development' (TAD) (Wang et al., 2019), or 'development-oriented transit' (DOT). As Doulet et al. (2017) stated, "although transit infrastructures have been built to serve new urban projects on the edges of cities, they do not seem to have been in any way designed as vectors to drive and shape urbanisation". Yang and Chen, et al. (2016) further discovered that even in Shenzhen where TOD principles are formally adopted in its general city development strategy, there exist many metro alignments and station placements that deliberately bypass established suburban communities for the benefit of generating revenue from new residential and shopping areas, showing an apparent character of 'development-orientarion'.

The second type of TOD practice refers to the emerging rail plus property (R+P) practices recently in Chinese cities. Taking the R+P practices in Hong Kong (Cervero and Murakami, 2009) as a model, the neighbouring mainland city Shenzhen was the first to develop R+P projects in China (Wang et al., 2019; Xue & Fang, 2015; Yang et al., 2020), and it also became a learning model for surrounding cities such as Guangzhou and Foshan. The development of R+P practices in Shenzhen is based on several innovative but informal

institutional arrangements that bypass the existing institutional barriers (Wang et al., 2019). The first group of R+P practices in Shenzhen started from depot station projects, which require far more space than ordinary stations for the purposes for storing and maintaining rolling stock. Due to rising land prices, the metro company is motivated to make optimal use of land from extra development on top of depot stations. The metro company as key actor in the urban development negotiates with local government for special planning and construction permissions. Wang et al. (2019) describe transit company-led governance as a process of coordination between local government, the transit company and developers. Informal institutional arrangements are established using land as a financial instrument to fund metro infrastructure. In return, the metro company is obliged to construct certain amount of social housing (Xue and Fang, 2015). More specific analysis on how informal arrangements are formed will be presented in the case study below.

The third type of TOD practice refers to the application of TOD in regional hub railway stations. These are much unlike the European TOD practice based on intercity train stations, which are often located in the city centre aiming for redevelopment of station areas (Bertolini and Spit, 1998). Regional railway stations in China are often located far from the city centre to stimulate urban growth through new town development (NDRC, 2018b). The TOD concept then is heavily branded in combination with these new town projects, especially by the media, but experts criticised them for deviating from genuine TOD principles, being too far away from the city centre and lacking efficient connections with it, under the occasionally false assumption that land development will appear automatically around station areas (Lu, 2012; Wang et al., 2019). In some recent examples, we observe new attempts to integrate

land and station development, especially on the top of stations. Informal institutional applications of regulation of land-leasing can be found in these practices, in which the land use rights above the station area are separated from those on the ground. Thus, local governments are able to lease out the use rights above the station to developers with special regulation and restriction related to station construction, thus achieving a certain degree of mixed-use development through bypassing current institutional barriers. The biggest difference with R+P practices is that local governments as key actors can further arrange the surrounding land development in the station area as a bundle project to attract investment to the transit infrastructure.

3.4 Methodology

Our research is based on a thorough review of the literature, expert interviews and three case studies. In 2017, we conducted 6 in-depth interviews (1-1.5h) with experts. This included one urban planner from the Guangzhou Urban Planning and Design Institute, with ample experience in R+P development; another urban planner from the Shenzhen Urban Planning and Land Resource Research Centre, who led several R+P projects and general TOD planning in Shenzhen; another urban planner from the Foshan City Planning, Design and Research Institute, who was working on local R+P by learning from Shenzhen experience; one staff from the Guangzhou Metro Group familiar with transit provider arrangements in R+P projects; and two professors from South China University of Technology who study TOD practices and railway station area development. Questions focused on emerging TOD practices and urban growth mechanisms. More details can be found in the appendix.

Based on the three types of TOD practices we identified in section 3, we now select three empirical cases to make an in-depth analysis of each category. The cases we selected are from Guangzhou and Shenzhen because the emerging new type of R+P practices were first developed in Shenzhen, and the integrated railway hub station projects can also be found in these two cities. We selected the Baiyun new town project in Guangzhou with ordinary stations for TOD type 1, the R+P project on Henggang depot station in Shenzhen for TOD type 2, and the Xintang TOD new town project of the Guangzhou East transport hub station for TOD type 3. It is not surprising that we find these different types of TOD practices around different types of stations (ordinary, depot and hub): different spatial configurations for different types of stations with differential potential for development are the key reason why the main actors in these projects seek to experiment with informal changes to the current institutional setting and make full use of them.

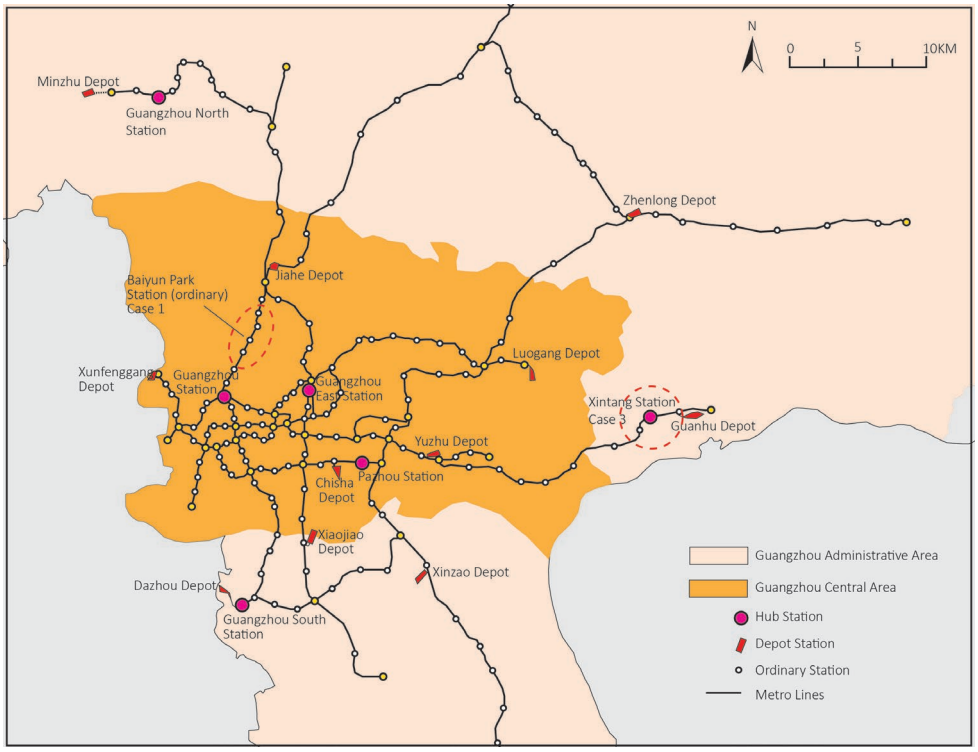

Figure 11. Map of Guangzhou metro system, marking city-level hub stations and depot stations.

To further illustrate the difference in spatial configurations, we provide a map of a major part of Guangzhou's metro system. Figure 1 shows that most hub and depot stations are located in suburban areas and the urban periphery, except for a few major rail stations in the urban centre. Hub stations do not only function as transport centres integrating metro and other railway systems but also as district or regional level service centres. It is likely these stations operate as cores of new town projects that require a higher level of integration. On the other hand, depot stations are often located at the end of a metro line, or in peripheral areas taking a large parcel of land; they are consequently regarded as the areas with the highest land development potential (Guangzhou Gov, 2017). This provides a motivation to

transit providers to capture land value. Lastly, ordinary stations with medium levels of development potential are more likely to be beneficial for suburban residential projects following the regular development-oriented logic.

3.5 Type 1: regular transit stations serving suburban development

Baiyun new town in Guangzhou is a typical case of suburban development with ordinary metro stations: it represents the regular TOD practice under the existing institutional barriers. It was first planned in 1998 as a major new town project. The site of this project used to be Guangzhou's old airport until in 2004 when Guangzhou's new international airport was established 30 kilometres away from its city centre. This relocation left a large parcel of 260 hectares empty land in Guangzhou's north-west periphery. Guangzhou local government adjusted its planning of Baiyun new town and wanted to develop it as the city's second urban centre. In 2009, its plan was adjusted again emphasizing the transformation of the former airport runway into an 80-metre wide central axis park for building a green CBD. Metro line 2 was placed in the middle of the central park as the future major transit system to solve the disturbing traffic congestion problems in the area which at that time was even worse than in Guangzhou's central area.

The implementation process of Baiyun new town represents a typical 'development-oriented' strategy. For the local government, the number one priority in this project is to maximise land-leasing revenue. Thanks to its heavy branding as Guangzhou's second CBD,

a large parcel of land near a metro station for residential use was leased out in 2010 at the highest price of the year (*diwang*). This parcel of land remained undeveloped for a few years, which was generally criticized as an act of irresponsible land hoarding during times of soaring housing price. By the time this parcel of land was leased out, the nearby metro station had already been running for some time, but there was no specific restriction on land development to maximise the accessibility of the station. As a result, when the project was finally completed, it evolved into the most expensive gated community of that district (Figure 12) but was poorly connected to the station. A similar situation can be also found in its commercial land development, where a giant shopping mall was facilitated by a massive parking area but comparatively isolated from the nearby metro station. Moreover, there is no sign, or even any attempt, of mixed-use development: commercial and residential functions are placed separately around station area. For the local government, mixed-use functions are not necessary for maximising land-leasing revenue. There is also a clear lack of integration in the management process. At the heart of Baiyun new town, several major public culture buildings were planned with the central park. These should be the key projects of the whole new town development, but they were never built maybe because they necessitated a substantial amount of direct investment which the government was unable or unwilling to provide. As a result, the new central metro station has been left in the middle of a large parcel of empty land fenced with concrete walls around it for no less than ten years (Figure 12).

Figure 12. Transit-adjacent development in Biayun New Town of Guangzhou.

The result of Baiyun new town as a major urban project is definitely suboptimal. It was intended to become a modern green and liveable CBD with sufficient open space well-serviced with metro transit. While skipping all neighbouring densely populated communities (Figure 12), the metro line went straight from the middle of the park to a number of isolated high-end gated communities, giant shopping malls surrounded with large parking lots, and of course, fenced unused emptied land. This has caused several stations on the line counting about the lowest ridership in the entire Guangzhou metro system. On paper, the objective to better integrate transit, car and pedestrian systems and improving local traffic flows was amply mentioned in every version of the new town planning. In reality, the objective underlying this project was to generate revenue for the local government, which is not uncommon in projects for the development of suburban areas. The same argument applies *a fortiori* to how several land-lease deals were struck for the area around *Xiaogang* metro

station. The land development and transit system were developed separately. Transit was simply an instrument to trigger maximum land-lease prices, while quality of public space, transit connectivity, and pedestrian experience clearly came in second. As a result, these practices can be regarded as transit-adjacent development.

Such drifts in land development potential and land-leasing revenue reflect entrepreneurial governance on suburban transit station areas. Especially development near ordinary stations, where the need to increase transit ridership and connectivity can easily be eclipsed by other motives more financial in nature. Though the project of Baiyun new town is a success in the sense of boosting land-leasing revenue, it fails on the level of integrated transit and land development, pedestrian and cycling friendliness, transit ridership, and social equity. The interviewee 6 said it is because "*the project did not persist and implement TOD concept, instead it used metro as a means to attract investment*". But it represents a common strategy for local government to develop suburban TOD projects under the existing growth-oriented institutional regime with its institutional barriers to 'authentic' TOD.

3.6 Type 2: rail plus property development on depot stations

The Rail plus Property (R+P) practice was first made famous in Hong Kong for its efficient land value capture to finance transit infrastructure. Cervero and Murakami (2009) discovered that the R+P model not only contributed more than half of all income to the railway operators through property development but also increased ridership and housing prices. Since Hong Kong and Chinese mainland cities have different systems of planning and land management,

there are several institutional barriers to transferring the R+P model from Hong Kong to mainland cities: (1) mainland transit providers are pure state-owned enterprises (SOEs) that are not capable of and allowed to obtain land from the land market for property or commercial development; and (2) there are no regulations on developing air rights on top of transit stations. Thus, Cervero and Murakami (2009) claim that Hong Kong's R+P model is not likely to be transferred to Chinese cities.

This explains why the R+P experiment in Shenzhen started from depot stations, as the metro company obtained large parcels of land for depot station development on the ground for the simple function of maintaining rolling stock. The problem of land acquisition then is naturally solved. Realising the development potential with depot stations, the metro company is motivated to negotiate with local government for establishing an informal strategy to make full use of the air rights. Two kinds of informal arrangements are formed: (1) the metro company is allowed to develop air rights on top of stations, but it has to obtain them through public auction in the land leasing market. 'Bundle leasing' (*kunbang churang*) is one means to guarantee that the metro company obtains these air rights, because the land leasing auction is not only decided by price, but also by the technical qualification of developers to develop rail and property complexes, for which only the metro company is qualified. (2) the second means is that the local government directly allocates land with air rights to the metro company, but the local government will assess the value of the air rights and regard them as a direct investment to funding transit infrastructure. Thus, local government can reduce direct capital investment. Moreover, metro companies as total SOEs were allowed to develop land and property by establishing a subsidiary company. For

example, Shenzhen Metro established its property subsidiary company in 2013 to develop and manage properties on and near stations. Thus, with the metro company as the key actor, informal arrangements were formed to enable the development of R+P practices.

Figure 13. R+P project of Henggang depot station in Shenzhen.

Henggang depot (*Liuyue*) station development in Shenzhen is an example that illustrates the features of governing R+P development. Located in the suburban district Longgang, the Henggang depot is one main parking and maintenance station of Shenzhen metro line 3. Shenzhen local government originally assigned 30 hectares of land to Shenzhen Metro (SZM) as a direct investment. SZM used the land as a mortgage to finance the construction of line 3 in the capital market. In order to maximise profit for land development, SZM developed a new double-layer structure for parking and maintenance functions which saved 35% of land. The whole project provided about 19 hectares of land and air rights for property development, among which 11 hectares of land turned into a commercial and residential

project by SZM in cooperation with a state-owned property developer, and the rest developed into a social housing project and a school (Figure 13). SZM's strategy was to save constructible land as much as possible for property development through technical innovation and to use air rights over depots for social housing. With the increase in land values in megacities like Shenzhen, such a compact development strategy became possible, as only a small amount of land is needed to capture the land value to fund infrastructure development. Besides the Henggang depot, almost every depot station in Shenzhen has similar R+P development. The Qianhai, Songgang and Tanglang depots are the best known and successful ones. They all followed similar property development strategies with social housing and station depots developed under a comprehensive station-area project. SZM played a leading role in the planning, land acquisition, construction, and management process. During 2011-2016, SZM developed seven depot R+P projects to facilitate five new lines. With 156 hectares of land generated by these projects for property development, SZM is no longer a mere transit provider, but also a major developer in the real estate market (Xue and Fang, 2015).

Compared with the first type of TOD practice which is heavily constrained by existing institutional barriers and the entrepreneurial governance mode focused on urban growth, the informal institutional changes in the R+P practice show a far better result in terms of integrating transit development with land development. Using land as a direct investment to finance transit infrastructure provides a possibility for local governments to jump out of the dominant strategy aimed at maximising land-leasing revenue which prevails at ordinary stations. The R+P experiments in Shenzhen also result in closer cooperation between the

metro company and developers. SZM even became the biggest shareholder of one major real estate developer (*Wanke*) in China in 2017 and formed strategic cooperation in the future R+P projects. Shenzhen's R+P development has become a demonstration model and TOD best practice in China, and many municipal metro companies aim to emulate its success, including neighbouring cities Guangzhou and Foshan. Only in 2018, Guangzhou started five R+P projects, four of which revolved around depot station-area development; Guangzhou is also planning 29 additional R+P projects going by the name TOD.

3.7 Type 3: integrated development on regional transport hub stations

Before going to the development of regional transport hub stations, we have to dig deeper into the background of new town development around high-speed railway stations, since it has profound influence on the emergence of the latest informal changes to the prevalent institutional arrangements. Starting from the 2008 world economic crisis, the Chinese central government issued a 'four-trillion investment project' to stabilize China's economic growth. Interregional and regional railway systems like high-speed rail network became key national infrastructure projects to spend these national funds (Lu, 2012). Local governments were enthusiastic about being absorbed within a regional transport network with infrastructure development. Second, local governments are also eager for urban growth. Combining the development of new regional railway stations with their new town projects became an effective way to stimulate their suburban growth. Some local governments even intended to

locate the new stations farther away from their built area to justify larger new town development plans.

However, the resulting high-speed rail new towns are criticised for being isolated and too far removed from city centres. The capability of regional railway stations to attract residents was also overestimated. These new towns are at risk of developing into ‘ghost towns’. Soon the central government imposed tighter land management and location selection restrictions on these practices to cool down the fever of constructing station-based new towns (NDRC, 2018b). Local governments, especially of megacities, had to change their strategies to increase the attractiveness of regional railway stations and promote compact development of their mega urban projects. Transport hubs were created by connecting multiple modes of rail transit including high-speed rail, intercity rail, urban metro, urban light rail, and tramway. These inter-model connections increased the attractiveness to passengers, residents, and investments at any single railway station. Integrated development is needed to build on top of hub stations and create a land mark for promoting the new town project. Similar to the evolution of R+P practices, special institutional arrangements are needed to enable the development of air rights above hub stations. The difference is that here with local government acting as the main promotor, it can further use the priority to obtain the surrounding land for residential development and attract developers to invest the costly land mark project.

Guangzhou East transport hub, also known as Xintang TOD new town, is an example that illustrates the features of governing such mega urban projects. Located about 30 kilometres from the Guangzhou city centre, Xintang TOD new town is built in the peripheral area of

the suburban county-level town of Xintang (Figure 11). Led by a coalition of three levels of provincial, municipal and district governments, with the municipal government as the main actor, this transport hub brought together three high-speed rail lines, two intercity rail lines, and four metro lines. The high-speed railway will have its own station, and the intercity rail and metro will be integrated into a super high-rise complex, as a central landmark of the new town (Figure 14). Invested by a Shenzhen real estate group and designed by a Japan-based architecture firm, a 360,000 square metre complex with a twin tower up to 260 metres high was jointly developed with a dozen SOEs including national rail, provincial rail, and metro companies. With the transport hub landmark as a core, the whole new town will develop 269 hectares of land and populate 31,000 to 34,000 residents in its initial phase. The main Shenzhen investors were able to obtain the surrounding residential-use land for further development.

Figure 14. Guangzhou East Transport Hub, also known as Xintang TOD new town.

Compared with regular high-speed rail new towns, the integrated development on top of transport hub stations delivers much higher quality of station areas which contribute to a more successful future development of the entire new town project. In that case, local governments will be able to benefit much more than only by collecting one-time land-leasing revenues as they do from regular rail station new towns. In comparison with R+P practices, local governments in hub station projects have more power to generate informal institutional arrangements bypassing the current institutional barriers to achieve multi-functional mixed-use development. But for a new town project, too much emphasis was put just on the central land mark, while the surrounding area is still short of strong application of TOD principles, such as with pedestrian friendliness, mixed-use space, and restrictions on car use, even though the project was heavily branded as a TOD new town. This may eventually become a challenge to the authenticity in implementing TOD in the project.

3.8 Discussion

We have examined three types of TOD practice occurring in different institutional settings and seen how these types deal with the general pre-existing institutional mechanisms prioritising urban growth. We found that the current institutions for planning and land management systems result in rigid land use and financial regulations which acts as a barrier to the integrated development of land and transit, as well as hampering collaboration between actors during the decision-making process. As the first type practice shows us, local governments tend to maximise their land-leasing revenue around transit stations, which

results in undesirable outcomes such as TAD. On the other hand, new types of TOD practices like R+P development and integrated hub station development show more tightly woven coalitions of local government, transit provider and private developer acting jointly in more unified project management. These coalitions are established for different reasons and purposes, but they form various informal arrangements to bypass the existing institutional barriers and thus realise a certain degree of integrated development. Moreover, they represent new types of governance that satisfy the need for urban growth, combining the capture of land value in more mature and sophisticated ways than by merely relying on land-leasing revenue.

We propose several key recommendations for future institutional changes. First, the comparison of three cases has shown that there is a need to reform the current institutions in the planning and land management systems. The current institutional mechanism was designed for achieving rapid urban growth. As Chinese cities enter a transitional period in which the quality of the built environment is more important than its quantity, strict regulations on monofunctional land use should be replaced by flexible regulations that encourage multifunctional and mixed land use. Furthermore, institutionalising the informal institutional arrangements for practices in both R+P and hub stations is crucial for establishing a new mechanism for effective integrated transit and land development. Suzuki, Murakami, Hong and Tamayose (2015) propose some key principles for effective value capture that can be considered in establishing such a new mechanism: (1) having special floor area ratios (FARs) and restrictions for developments in transit station areas; (2) transferring development rights of station area land to transit providers at a pre-rail market

price; and (3) having clear rules for sharing costs and profits between the public sector and developers.

Second, over-reliance on land-leasing revenue by local governments not only hampers integrated development, but also constrains the ability to experiment with innovative planning practices. A previous study has shown that at the city level, in the region Shenzhen relies least on land-leasing revenue, and is more likely to have sustainable and innovative planning experiments (Song et al., 2020). The most efficient way to reduce reliance on land-leasing revenue is to develop new revenue sources, such as property taxation or land value taxation. Although land value taxation may be more efficient in value capturing (Cohen et al., 2009), it requires a great deal of institutional and administrative support. Property taxation seems more feasible in the Chinese context.

Third, we found two more successful practices bypassing institutional barriers. International experience has shown that allowing planning experiments that may bypass current regulations can generally be a good way to test and try innovative planning approaches. For example, the Dutch government allows local governments to engage in two planning experiments per year, putting aside prevailing legislation to test innovative planning approaches. This was legalised through grafting the so-called *Crisis- en Herstelwet* (Crisis and recovery law) to the regulation on spatial planning in the Netherlands.

Additionally, the comparison of three types of TOD practices also brings up the discussion of the balance between growth and equality of transit systems and their roles in urban development. Transit stations bypassing established suburban areas for new property

development sacrifices certain rights of local residents to what in apparently seen as a greater development goal. New property development near stations is mostly done in the form of gated communities which segregate residents physically and socially. Physically, gated communities not only create a negative interface to the city by their hard-fenced enclosure; their homogeneous superblock-style also deteriorates street connectivity, road density, and accessibility of transit services. Socially, by separating themselves from the city, gated communities create *de facto* collective rights to the residents to enjoy a higher quality of management and services inside by having their access controls, security guards, janitors, and gardeners. As compensation to the absence of private property and land rights, such collective rights become a commodity to a group of people who can afford to create their urban space in the city. This strengthens the segregation of social classes. This segregation also generates a dilemma to TOD practices in China: the middle-class residents living in the station-area gated communities are more likely to own private cars and enjoy automobile travel, while the bigger population of residents living in the urban villages and informal housing are outside walking distance for transit stations even though they are more dependent on public transport. In 2016, the central government issued a policy document to stop the construction of gated communities and urged the established gated communities to gradually open up to the city (State Council, 2016). However, this national policy is barely implemented at the local level. Gated communities are deeply rooted in China's institutional setting, market orientation, and urban governance. When the state is captured by and represents capital, urban change is driven by a need for growth rather than a need to redistribute welfare. The social housing development in Shenzhen's R+P practices is an attempt to balance between growth and equality to some extent, but in the bigger picture,

gated communities still dominate in the Chinese real estate market. Consequently, urban development and the social challenges in TOD practices will persist.

3.9 Conclusions

The term TOD as a sustainable concept is frequently used in city branding by local governments and developers to justify their urban projects. Like other sustainable concepts, their implementation in China has been questioned and criticised for an underlying systematic implementation gap caused by mechanisms for accumulating capital and power from urban development (de Jong, 2019). Particular urban morphologies are created under particular institutional constellations, even when they conflict with parts of the TOD concept, like increasing street connectivity and pedestrian friendliness. Rather than being merely seen as contextual factors for transfer, particularity and specific institutional settings should be seen as a part of the urban process on which the concept TOD is superimposed.

The existing literature on TOD practices in China has shown that the existing urban growth mechanism and the current planning and land use systems have become institutional barriers to a genuine application of TOD practices. Although new types of TOD such as R+P and integrated hub station development have emerged and created informal bypasses around these barriers, there was not yet any explorative study into the origins and effects of these informal arrangements and how these arrangements interact with the underlying mechanism for urban growth. By identifying and comparing three types of TOD practices with different institutional settings, we found that land value capture can replace the existing mode in which

local government heavily relies on land-leasing revenue and also leads to a better integration of transit and land development. We have also provided several suggestions for future institutional improvements based on these new types. Although the informal arrangements have proven effective in achieving land value capture and integrated development, the formal restrictions to station-area development obviously still exist. Genuine TOD would necessitate a national level legal framework and policy strategy for urban master planning in compliance with TOD principles, supporting by policies from various relevant agencies.

4 Average cities: Urban development dilemma between growth and sustainability

This chapter is based on the following peer-reviewed article:

Song Y, de Jong M, Stead D, Yang W and Wang B. Dreaming the wrong dream: An exploratory case study of a policy change towards sustainable urban development in a medium-sized Chinese city. *Journal of Urban Affairs* (accepted)

4.1 Introduction

Dushan, a humble county town in the west of China, reached the national media headlines in 2015 for its astonishing 40 billion RMB of municipal debt, which was around 40 times its annual revenue. As it was not able to even pay back the interest on these debts, Dushan's local government was declared bankrupt. One of the main reasons for this municipality's financial downfall was its unrealistic investment in rapid urban growth, including new commercial districts, an industrial park, a university town, and a tourist resort (Pengpai News, 2019). Soon after the revelation of this massive debt, the head of the municipality was arrested for creating the local debt crisis (as well as for corruption). Thereafter, all of these lavish projects were halted and have since remained unfinished. Beyond the issues of corruption and misconduct of city officials, the story of Dushan highlights a widespread urban phenomenon in China today: excessive eagerness to pursue urban growth and development strategies, often resulting in high financial risks with the potential for economically disastrous consequences.

If a county-level town like Dushan can be this aggressive in its urban development, what about the situation in prefecture-level cities which are more representative of common 'urbanities' in China? A recent study of Long and Gao (2019) has shown that 180 cities with shrinking populations are all planning for urban growth regardless of their population decline and mounting risk of overdevelopment. Most of them are common medium-sized prefecture-

level[4] across the nation. It seems that a common dream of unbridled urban development exists among local governments in China, not only in the first-tier cities (Beijing, Shanghai, Guangzhou and Shenzhen etc.) but also in small and medium sized cities in China's less developed regions. "Development and growth" have become a dominant paradigm for urban visions and plans, even in cities with limited economic and social resources. In the academic literature, this type of pro-growth urban governance has been explained in terms of urban entrepreneurialism and urban growth coalitions (Guo et al. 2018; He and Wu 2005; Wu 2015 and 2018). In the Chinese context, there is a common understanding that the local 'land-driven economy', also known as 'land finance (*tudi caizheng*)', referring to local governments generating revenue from land development, is the major driver behind the pursuit of urban growth (Liu, 2013). Although such urban pro-growth mechanisms abound across cities of all sizes in China, the risk of overdevelopment is distinctly higher in medium-sized cities since these cities are often overlooked, and the public only notices them when they find themselves in severe financial problems.

Trying to address the risk of urban overdevelopment, the Chinese central government issued a series of policy statements emphasizing the importance of sustainability, efficiency and urban quality. However, it remains to be seen whether these policy changes will be sufficient to affect the land finance model currently used in many of China's cities. Among the new policies adopted by the central government, 'eco-civilization' and 'new-type urbanisation'

[4] Medium-sized cities refers to cities with the population of urban central district from 500,000 to 1,000,000 (State Council, 2014). There are currently 99 cities that can be classified as medium-sized cities in China.

are two major concepts emphasize for future urban development. The highly publicized national strategy on 'eco-civilization' seeks to promote ecological and environmental values and foster "a new pattern of modernization where humans live in harmony with nature" (Central Committee (CPC) & State Council, 2015). Meanwhile, the "new-type urbanisation" concept stresses a more sustainable, people-centred and environmentally friendly pathway for future urban development and redevelopment (Chen et al., 2016; Li & de Jong, 2017). These major national-level policy changes on urban development have led some scholars such as Liu and Qin (2016) to herald the beginnings of "a systematic set of low-carbon policies" in China in which 'low-carbon' is a central feature of future development. On the other hand, other scholars such as de Jong (2019) have argued that there is still a clear gap between national-level new narratives and the urban development in practice, and that such gaps can be systematic and deeply imbedded in China's institutional mechanisms. These debates reveal a fundamental question related to policy change: whether the promotion of sustainability in urban development reflects a genuine, consistent and systematic policy change, or merely a window-dressing narrative for reasons of political correctness.

Most of the current academic literature concerning sustainable urban development policies in China focuses on the 'material' aspects of changes, such as laws, regulations and resource distribution. To date, little attention has been paid to the 'ideational' level of changes, such as the values, beliefs and principles contained in policy. This is a limit in our current understanding of how new ideas influence policy change and the challenges that these new policies face during the implementation process. This article aims first to contribute to an understanding of policy changes in sustainable urban development at the central level.

Second, it explores the tensions and struggles generated within the local state in its policymaking and implementation processes, which have been dominated by a model characterized as 'urban growth machine' for decades. In other words, as an exploratory study, this article aims (1) to gain an in-depth understanding of the tensions emerging between central and local states regarding newly adopted sustainable urban development policies at the national level and still dominant local urban pro-growth practices; and (2) to develop a research framework for future study on medium-sized cities in which policy dilemmas faced during urban sustainable transitions can be replicated and tested more systematically.

There are a number of reasons why we selected and focus on medium-sized cities in particular. First, compared to small-sized cities which rarely have the opportunity to promote grand urban development, medium-sized cities have more resources to invest in large scale urban and infrastructure development. Second, compared to large metropolises which are often the destination for population migration, medium-sized cities often have either shrinking or stagnant populations. Medium-sized cities are therefore are at the highest risk of urban overdevelopment. However, how these municipalities deal with such risks and how they react to urban sustainable policies from the central government is understudied.

This article is divided into two main parts. The first part explores the policy changes regarding urban sustainability at the central level and describes it as a shift in policy paradigm. The second part examines the specific policymaking and implementation issues at the local state level with an in-depth exploratory case study of a medium-sized city.

Specifically, section 2 introduces the concept policy paradigm and explores the generated policy change at the central level. Section 3 outlines the methods in building an exploratory case study that both provides in-depth understanding of local development dilemmas and can be tested more in-depth among other medium-sized cities. Section 4 analyses policy change at the ideational and material level, focusing on local policies in our city under study. Section 5 discusses the influence of ideational change on shifts in policy paradigms and examines the degree of consistency between ideational and material changes in urban development policies. Section 6 concludes with a clear roadmap for future research focusing on development risks and challenges of medium-sized cities in China during their sustainable urban transition.

4.2 Conceptual framework

4.2.1 Ideas, policy paradigm, and policy change

This article draws on the notion of public policy paradigms, which have been widely used by public policy scholars. The origins of the conceptual framework can be found in the work of Hall (1993) who built his ideas on the 'scientific paradigm' developed by Kuhn (1962). According to Hall (1993), a policy paradigm is "*a framework of ideas and standards that specifies not only the goals of policy and kind of instruments that can be used to attain them, but also the very nature of the problems they are meant to be addressing"* (Hall 1993: 279). This framework of ideas and standards constitute the "world view" of politicians, bureaucrats, and policy experts, their beliefs, values, attitudes in perceiving public policy

problems and possible solutions (Howlett and Ramesh, 2003). One major contribution of Hall is using policy paradigm shift to explain significant public policy change. Hall suggests that paradigm shift is a result of "*the accumulation of anomalies, experimentation with new forms of policy, and policy failures that precipitate a shift in the locus of authority over policy and initiate a wider contest between competing paradigms"* (Hall 1993: 280).

Although the theory on policy paradigms has become a "classic", it faces a number of criticisms. First, the concept of policy paradigm has been criticised as elusive and undertheorized. Particularly, identifying what precisely leads to and results from a paradigm shift is not clear (Berman, 2013; Campbell, 2004; Carson et al., 2009). Hall's initial definition of policy paradigm suggests an automatic connection between third order change with policy paradigm shift, which is later criticised as oversimplified (Campbell, 2002; Daugbjerg, 1997; Greener, 2001). Second, on the level of methodology, the causal mechanisms connecting policy paradigm with policy consequence is not sufficiently clear (Blyth, 1997). "Revealed ideas" is a frequently used approach in the application of policy paradigms in which ideas are inferred from policy outcome rather than directly studied from policy actors (Daigneault, 2014). The advantage of this approach is its simplicity as public policies are easier to compare and measure, but it is also risky as a given public policy can be compatible with various policy paradigms. The approach cannot be used to study the influence of ideas on public policy; studying how policy paradigm shifts affect public policy change when the paradigm shift is inferred from those very policy changes is in fact circular reasoning (Daigneault, 2014).

In response to the above challenges in studying policy paradigms, Daigneault (2015) proposed a new framework for policy paradigms in an attempt to make the concept theoretically clearer and practically more operational. Four core components of policy paradigm are defined as: (1) the nature of reality, social justice and the appropriate role of the state, (2) the problem that requires public intervention, (3) policy ends and objectives that should be pursued, and (4) appropriate policy 'means' to achieve those ends. Other than in Hall's third order change, Daigneault (2015) suggests that a policy paradigm can be identified when there are 'significant changes' in all four dimensions of the concept. There are two requirements in the shift identification: the ideas that compose a policy paradigm (i) must be internally coherent and (ii) must be widely shared by a significant number of actors in a given policy community (Daigneault, 2015).

This article employs a research framework that examines policy change both in terms of ideational and material aspects. On the ideational level, we identify the current dominant and alternative policy paradigms in urban development based on literature review and policy document exploration. The overall status of the policy paradigm for urban development is established. On the material level, we select a typical medium-sized Chinese city for in-depth policy study. By examining the local policy goals, instruments and policy implementation, we measure the influence of policy paradigm and idea change on local policy practice. We thus draw a linkage between ideational change and policy change to understand the policy for sustainable urban transition in China.

Employing the theoretical framework described above, urban development policies are analysed according to the four dimensions of policy **values**, **problems**, **goals** and **instruments** considering both ideational and material aspects. Temporal changes in each dimension are examined to determine whether a policy paradigm shift has taken place.

4.2.2 Identification and examination of a policy paradigm for urban development in China

Existing academic literature has identified the pro-growth paradigm as the dominant one in China since 1978. Ngok (2007) characterised it as a market economy-based, development-oriented paradigm that dramatically shifted from the socialist paradigm of the Maoist era. Wu (2018) used the neo-liberal model to explain the paradigmatic reform with changes of decentralisation of government power, marketisation of state-owned businesses, and industrialisation for the global market. The type of urban governance promoting growth and expansion was identified as urban entrepreneurial governance in which local governments promote urban growth with property-led development in pursuit of political and economic objectives (He and Wu 2005; Jiang et al. 2017; Song, Stead and de Jong 2020; Wu 2018; Wu and Phelps 2011). The policy value can be identified as "quantity growth", and the policy problem is that the low level of urbanisation restrains modernisation and economic development. With the goal to promote urban growth as the highest priority, several major policy and institutional instruments support this pro-growth paradigm (Table 1). First, China's tax-sharing system reform in 1994 regulated that local municipalities should transfer up to 75% of local taxes to the central government (Peng, 2014). In return, local governments

are allowed to engage independently in urban development and keep all revenue they incur from leasing land to developers for themselves. Land development has since become a tool to boost local government coffers. Second, GDP-ism in the Cadre Appointment System encourages local leaders to use urban development as a tool to reach high 'political performance levels' in their competition for promotions (Li and Zhou, 2005). Third, the local government financial vehicle (LGFV) is a major local instrument for financing urban and infrastructure development (Li, 2016). LGFVs are fully state-owned enterprises established by local governments, and act as vehicles for local governments' entrepreneurial behaviours including land acquisition, compensation, leasing, investment and finance. LGFVs greatly increase the ability to leverage massive urban projects of local governments, as well as the risks of local debt crisis.

Table 8. Identification and examination of policy paradigm of urban development in China

	Pro-growth urban development	*Sustainable urban development*
Values, principles and the nature of reality	Quantity growth	Quality growth
Policy problems that require public intervention	Low levels of urbanisation and modernisation restrain economic development	Growing social conflicts, financial risks and environmental deterioration during rapid urbanisation
Policy ends and goals	Achieving high GDP growth through urban expansion and modernisation	Achieving high quality built environment and promoting social equality
Policy means and instruments	'Land finance model': Tax-sharing reform and decentralisation of power in land development	Incremental change in the 'land finance model' but no significant overall change: replace LGFVs with local governmental loans and bonds

	GDP-ism in cadre appointment Establishment of local government financing vehicles (LGFV)

The clarion call for changing the quantity-oriented growth model into a quality oriented one has grown increasingly strong in recent years (Central Committee (CPC) & State Council, 2015; Chen et al., 2019; de Jong, 2019; Liu and Qin, 2016; Ngok, 2007), but whether this call for a strong emphasis on sustainability is strong enough to justify calling it a policy paradigm shift remains debatable. Some academic sources state that a shift towards environmental and human-centred development has taken place in China based on national level policy changes (Liu and Qin, 2016; Ngok, 2007). Others argue that urban sustainability has so far actually little more than a branding tool, while noting that realising a shift in policy paradigm in urban development can take years or even decades (de Jong, 2019; Zhu, 2013). Evidence suggests that changes in policy instruments have been limited, and that any transition in policy paradigm has also been limited. For example, the central government put a halt on LGFVs raising money for local governments in the revision of the Budget Law in 2015 (Li, 2016). But in return, local governments were allowed to issue bonds and loans to replace LGFVs in financing development projects. This has only curbed the land finance model only to a limited extent. Additionally, there is very little change in the tax-sharing and cadre appointment systems. Property tax has been discussed for a long time, and even partly tested in some cities as a replacement for land-leasing revenues for local governments. To date, however, this has not resulted in significant change partly because the land finance model is deeply imbedded within China's political and administrative institutions; it may

require years or even decades to reform it. As such, there is little evidence of a national policy paradigm shift occurring to date.

We must consequently draw a preliminary conclusion that although there are loud voices suggesting policy transformation, signals of thorough institutional and instrumental change from pro-growth to sustainable development policies remain weak. There is not yet enough evidence to justify claims of a policy paradigm shift. As central government is very cautious regarding changes to institutions and instruments, it may take a long time for significant policy change to take place. In the meantime, there exist various inconsistencies in policy goals and instruments where pro-growth development is hidden in the official narrative but remains strong in practice. The nature and implications of these inconsistencies at the local level are considered in more detail in Section 4.

4.3 Research methods

Based on the above theoretical considerations, an exploratory case study is introduced. In order to gain an in-depth understanding of the potential tensions and dilemmas that local states of medium-sized cities are facing during the overarching policy change of urban sustainability, one medium-sized municipality is selected to conduct extensive primary research in. The qualitative methods used to collect data are interviews and focus groups which provide meaningful insights from various actors involved in the policymaking and implementation processes of local urban development. This section sets out the analytical framework, data collection methods, and basic information on the case.

The analytical framework consists of two parts: ideational analysis and material evidence. The analysis on the ideational level aims to explore and examine the consistency of overall policy goals and policy instruments between central and local government. In simple terms, the ideational dimension can be understood as identifying 'what governments say they want to do' in their policy statements. Analysis of this dimension involves examining the underlying values, principles, stated problems and solutions that decision makers claim to address. This information is gathered through interviews with governmental actors as well as from policy documents including local urban masterplans and transport plans. Their content is then compared with the content of central level policies. Second, the analysis draws on empirical (material) evidence of urban development policies at the local level. Analysis of the material dimension can be understood as 'what governments actually do in the practice of implementing their policy'. Comparing what governments claim on paper and what they do in action provides a way of examining the consistency of policy ideas as well as the alignment of policy paradigms between central and local government.

As an exploratory case study, a typical medium-sized city located in central China was selected on which we drew for extensive first-hand fieldwork. The research team was invited by the local government to conduct a research project on its sustainable urban transition, and we were given the opportunity to visit and stay in the city for a few months and conduct interviews. In order to preserve the anonymity of the interviewees, we do not refer to the real name of the city but instead refer to it as *Yongcheng*, which means "mediocre city" in Chinese. Between November 2018 and January 2019, the research team stayed in

Yongcheng and conducted interviews with public officials from dozens of government departments (including planning bureau, planning and design institute, land and resource bureau, new district government, land investment corporation, bus company, and traffic police department – see Appendix) and to inspect many official policy documents, including various kinds of planning documents (such as urban master plans, transportation plans, and district plans). At the end of the fieldwork, a three-day seminar was hosted in Yongcheng for the research team to present its initial findings to selected public officials and international invited experts from various fields including urban planning, governance, and transport. While in Yongcheng the research team also took part in a focus group on sustainable urban transition in which in-depth discussions about some of the initial research findings took place.

Yongcheng is a city that few people know outside its province. Its GDP per capita (around 70,000 RMB in 2019) is close to China's overall average of 71,000 RMB. The urbanisation rate (percentage of urban population to total population) in Yongcheng's administrative territory (including three surrounding counties) in 2019 was 60%, similarly close to the national level of 61%. As such, Yongcheng can be regarded as an 'average' Chinese medium-sized city. Yongcheng's urban population in its central urban area has grown from 643,100 in 2009 to 715,000 in 2019, while its overall administrative population merely increased from 2,850,300 to 2,897,500. In general Yongcheng does not have a shrinking population, but its population growth is far behind the estimates in its master plan. Since the 1970s, Yongcheng's economy has centered around heavy industry after a group of state-owned factories were transferred to the city. However, by the start of the 21st century,

Yongcheng was no longer satisfied with its image as an industrial medium-sized city: it had bold ambitions for urban development that sought a transformation from a polluted industrial city to a sustainable, innovative and livable one. Since 2000, two new urban districts, a new industrial district and a new administrative district have been developed.

4.4 Empirical evidence: urban and transport development

4.4.1 Ideational analysis

This section focuses on the ideational level, more specifically the consistency of the general development goals and the policy problems as perceived by the central and local governments. We examine through interviews and two key local development documents (urban master plan and comprehensive transport plan) if the local government claims to be moving in the same direction as the central government has proposed.

According to the Yongcheng urban master plan, the overall goal is to pursue "*industrial upgrading, innovation and transition, achieving sustainable, liveable and low-carbon urban development*". Yongcheng aims for building "*a regional central city, provincial petrochemical and innovative industrial base, cultural and liveable city with great natural resources*". Additionally, the urban master plan states that the major development problem of Yongcheng is low resource efficiency during its rapid urban expansion. Yongcheng should put more efforts on sustainable development and resource conservation, while at the same time its urban structure and road infrastructure system should be optimised. We observe that the overall goals of Yongcheng master plan stresses the value of sustainability

and quality growth which and is therefore consistent with the alternative paradigm of sustainable urban development, as well as the central level requirement to realise an eco-civilisation and new-type urbanisation.

Moreover, Yongcheng's comprehensive transport plan also claims to have sustainable development at its core and explicitly aims to give public transport a central role in the future development of its transport system. The plan's overall development goal is to increase urban competitiveness and to achieve urban sustainable development, while the key development principles are efficiency and conservation of land resources, protection of the natural environment and creating an urban traditional cultural area during infrastructure development. The key problem found in the current transport system is unbalance in the road network which severely lacks in secondary roads and branch roads. So, the key objectives are to optimise road network and prioritise public transport, in order to achieve 30% public transport travel in 2030.

On the other hand, despite a heavy emphasis on the value of sustainability and quality growth in Yongcheng's official urban and transport development goals, pursuit of massive urban growth appears still prominent in interviews and in other pages within abovementioned documents. For example, the urban master plan states that the main problem of Yongcheng's downtown area is that it is "*falling behind economic and industrial development, and the urban central area should have more development space*". The urban structure of Yongcheng should be made more compatible with regional transport infrastructure development. According to the local officials, the "adjustment in urban structure" very much

refers to new town or new district development that expands the built area. Pro-growth goals are hidden within the policy documents, in which the sustainable agenda is emphasised. However, the local officials clearly state that what Yongcheng actually and urgently needs is more development in a larger urban space.

4.4.2 Material analysis: road infrastructure policies

When comparing two selected sustainable and pro-growth road infrastructure development policies, we can clearly pinpoint implementation gaps. Pro-growth policies are a top priority in which substantial financial and political resources are invested, which are not allocated sustainable urban development policies.

A prominent example is the 'Traffic Microcirculation Optimisation Plan for the Old Town Area of Yongcheng', also known as the "Microcirculation Plan". This plan is a local policy formulated in response to the national guidance on urban development to optimize road networks and develop public transport (State Council, 2016).

On the ideational level, this plan perceives the key policy problem as "traffic congestion caused by an existing unbalanced road network with a severe shortage of secondary and tertiary roads". It upholds the value of quality growth as its policy goal and aims to optimise and improve the existing road infrastructure system for the built urban area (Table 2). In other words, more branch roads are to be built to relieve pressure from the main roads and to support a more efficient and accessible bus system. The plan has three main strategies: constructing new roads, opening up existing roads from closed communities, and renovating

and reconstructing existing problematic roads. So, the microcirculation plan is not in pursuit of massive new infrastructure development but to make better use of existing road infrastructure and to improve public transport.

Unfortunately, the plan never really reached the implementation stage for lack of deployed valid policy (financial) instruments, a common situation for many sustainable urban development policies. Compared to common transport infrastructure plans, the microcirculation plan requires less funds (326 million RMB in total including slow traffic and bus systems) as it mainly focuses on constructing small roads and the improvement of existing roads. Local officials from the planning bureau explained that the microcirculation plan lacks financial support from local government leaders, so it misses a government budgets to be implemented. Currently the plan has a tiny number of road projects under construction under another policy called "Shantytown Renovation Policy (*Penghu qu gaizao*)", which is a national policy issued in 2015 to reconstruct and renovate old town areas in Chinese cities, especially medium-sized cities. This policy is funded by a special financial instrument from the central government (XinhuaNet, 2019b) and does not need any local budgetary contribution. The fact that it has become the *de facto* carrier of the microcirculation plan suggests that the local government shows little interest in sustainability and is reluctant to put in local resources, even though it could directly have improved Yongcheng's downtown area.

Instead of investing in the microcirculation plan, Yongcheng's local government allocated most of its resources to a large-scale pro-growth infrastructure development programme: the

'Three Rings Eight Arterials and Six Tunnels (TREAST)'. TREAST aims to build a whole new transport structure of three concentric ring roads: the inner ring is 19.22 km long covering the old town area of about 20km^2; the middle ring is 34.07 km long encircling the current city's built-area of 73 km^2; and the outer ring is 76.80 km long enclosing about 380 km^2 territory (Hubei News, 2017). There is an obvious contradiction between the TREAST and the microcirculation plan: if there is already a shortage of secondary and tertiary roads in Yongcheng, then building more primary roads only aggravates the imbalance in the road network. TREAST is not an infrastructure programme for the current built environment, but rather facilitates future urban expansion.

On the ideational level, TREAST considers the key policy problem as "lack of urban space resulting in a crowded and congested downtown area which constrains further economic development". It upholds the value of quantity growth and aims to facilitate the massive future urban growth (Table 2). According to one interviewee of the planning bureau, TREAST will "*reconstruct Yongcheng's urban structure and its urban space will grow from 70 km^2 to 380 km^2, achieving a five-fold growth of space for the future development*".

Although TREAST is more than ten times costlier than the microcirculation plan, its implementation runs much more smoothly, because it financially well endowed. For example, the outer-ring project costs 3.3 billion RMB and was completed and put into use in 2017 only after 4 years of construction. Zhanghe Avenue, one of the eight arterials, cost more than 700 million RMB and was completed in 2015 as the most important arterial project connecting to a Yongcheng new town area. The financial instrument used in the

implementation of TREAST is LGFV, which is the Yongcheng Transport Construction Investment Group (TCIG) specifically for funding transport infrastructure. Although the central government has officially limited the use of LGFVs in financing local land development projects, they are still the main instrument under use.

A comparison of the microcirculation plan with TREAST shows a clear gap between the sustainable urban development goals on paper and the pro-growth development in action (Table 9). Yongcheng's local government invests massively in local transport infrastructure development using LGFV as a main policy instrument. Yongcheng's dominant belief still appears to be: as long as the central government asks for economic development and urban modernisation, urban growth and expansion continue to be the right way forward and ways around restrictions shall be found. Sustainable urban development policies with their concomitant values and goals have become the political correctness that the local government need to display on paper to please the central government. But in practice, local government sticks to its old agenda of bigger, faster and more impressive infrastructure systems to promote dramatic urban expansion. Old means of showing political achievement are hard to die.

Table 9. Differences between ideational and material aspects in road infrastructure policies

	What they say they will do (idea on paper)	*What they actually do (practical action)*
Policy values and principles	Sustainable, compact, quality growth	Urban and infrastructure quantity growth

Policy problems	Traffic congestion, unbalanced road network structures	Crowded downtown area, lack of urban space restrains economic development
Policy objectives and goals	Improve existing road network, achieve public transit-orientation	Expand urban space, with car-oriented infrastructure development
Policy means of implementation	Lack of valid instruments	LGFV as financial instrument

4.4.3 Material analysis: High-Speed Rail policies

Not only can the pro-growth tendency be found when comparing the implementation of pro-growth and sustainability-oriented policies, but also in the implementation of key transport and urban infrastructure projects like the High-Speed Railway station and the development of new town area surrounding it.

High-speed rail (HSR) development in China is closely related to urban development, especially new town development. Although HSR development in China is part of a national level infrastructure strategy planned, designed and implemented by the China Railways, local governments always see it as an important opportunity for urban expansion. During our interviews in Yongcheng, which was the last municipality in the province to be connected with the HSR network, local government officials saw this missing connection as a major policy problem and emphasised the importance of a HSR station for their local economic development and competitiveness of their city.

Theoretically speaking, to maximize the economic contribution a HSR station can generate, the station should be built in the city centre to maximize the city's regional accessibility.

However, in practice it has become a tradition for local governments to build HSR new towns far out of town; Yongcheng is no exception. Yongcheng's HSR New Town Plan in 2017 proposed the HSR station 13 km south-west of its current city border, nearly 20 km from its old city centre. It was projected as 8 km^2 area offering homes to 55,000 to 65,000 residents in the future. The plan was approved and made public by the local government in mid-2017. Even at the ideational level, Yongcheng's initial HSR new town plan strongly upheld the value of quantity growth, as its policy goal was to use the HSR station to initiate new town development rather than to efficiently connect the city to HSR network (Table 3).

However, the central government put a stop on the widespread construction of HSR new towns when promoting sustainable development policies. In 2018, four ministries from the central government[5] issued a guideline for the urban development around HSR stations. Basically, it urged local governments "*not to pursue short-term political performance, to consider local conditions and capability, and prohibit impetuous urban expansion in the name of HSR station area development*" (NDRC, 2018a). This national level guideline does uphold the value of quality growth as it encourages compact development and the integration of HSR with urban development and discourages using HSR for massive urban growth. Yongcheng is one of the cities directly criticized by the central government for deliberately locating HSR station farther away from city centre in its pursuit of new town development.

[5] National Development and Reform Commission, Ministry of Natural Resources, Ministry of Housing and Urban-Rural Development, and State Railway Group

Its initial HSR new town plan had to be abandoned and new location nearer to the built area was to be found.

This case demonstrates both tensions between local and central governments and developmental dilemmas local governments face. From the perspective of local leaders, urban growth is automatically desirable and promotes their political careers. It drives them to use every opportunity to strive for more urban expansion. But the existing cases and experiences (especially HSR new towns on the Beijing-Shanghai HSR line) have already shown that the potential of HSR stations to attract residents for new development is always overestimated, especially for medium and small sized cities (Yu et al., 2012). Building HSR stations in remote areas not only increases risks of overdevelopment and financial debts to local governments, but also decreases accessibility to and ridership of the HSR network, thus boosting the deficit the China Railway are already coping with. This is why the central government decided to ban on the further construction of HSR new towns.

The after-tale of Yongcheng's HSR station is worthwhile telling too. The location chosen for the HSR station was shifted to the west of the city, indeed much closer to city centre. But the ambitions of the local government had not faded yet. It enlarged the size of the station from 12,000 m^2 to 40,000 m^2, of the China Railways would build around 6000m^2 (the size it thought was actually needed), and the rest of the enlargement programme would be paid by Yongcheng itself. The latter stepped up its investment to 2.1 billion RMB in 2021 to make the enlargement possible. At the time of writing the detailed plan had not been published yet,

but its preliminary scheme still insists on an astonishing 100,000 m^2 square in front of the station surrounded by potential "district development".

Table 10. Differences between ideational and material aspects in HSR policies

	What they say they will do (idea on paper)	*What they actually do (practical action)*
Policy values and principles	Sustainable, compact, quality development	Urban and infrastructure quantity growth
Policy problems	Disconnect from national and regional rail network which constrains urban and economic development	Disconnect from national and regional rail network which constrains urban and economic development
Policy objectives and goals	To better connect and integrate HSR with the city	To use national HSR project to initiate new urban expansion
Policy means of implementation	Transport and land use integration tools	New town development instrument: LGFV for land development

4.5 Discussion

Empirical evidence from Yongcheng confirms the idea that there are changes in ideas as to sustainable urban development in terms of local policymaking and urban planning, but that these still largely remain a paper tiger, while the pro-growth paradigm still looms large but not remains hidden from official narratives. Our findings show a significant gaps between policy ideas, values, goals, principles on the one hand and what is actually implemented on the other. In this section, we will further discuss the influence of idea changes on policy change, and the role of ideas in paradigm shifts.

4.5.1 Policy ideas and policy change

An analysis of ideational and material changes in Yongcheng shows that policy idea, values and goals with regard to sustainable development are emphasized at both the central and local levels, but that the LGFV as a policy instruments for pro-growth policies remains dominant (now facing restrictions in land development but not in infrastructure development), while the policy instruments for implementing urban sustainability are unclear. From Yongcheng's perspective, there is no contradiction between emphasizing sustainability as a *value* and pursuing great urban growth as a *practice* at the same time. To them, sustainable ideas are long-term visions promoted by the central government, while pro-growth targets are a default mission they need to address to show local political and economic achievements. This creates an inconsistency between long-term and short-term policy goals. Furthermore, local leaders under the current administrative system would commit political suicide if they put all their resources in sustainable urban policies without showing immediately visible output while other cities build magnificent infrastructure and realise high urban growth as an indication of induced prosperity. For the central government, no matter how hard sustainability is emphasised as a value, the targets for urban sustainable development policies remain "soft and vague" compared to the clear targets of GDP growth each year. In other words, GDP growth is still the highest priority both for central and local governments, and infrastructure and urban development remain the main approach to boost this growth, especially in medium-sized cities that lack investment in other industries. This explains why Yongcheng decided to invest heavily on TREAST projects rather than on the microcirculation projects even though the local government is fully aware of its severe

shortage of secondary and branch roads. Only introducing new policy ideas will not change much in actual policy practice if it can afford to become pure "political correctness" on paper.

Compared to the change of policy ideas and policy goals, the change of police instruments affects policy practice more visibly. For example, LGFV has been the major instrument for financing both infrastructure and urban development, especially in less developed cities with limited budgetary resources. When in 2015, the central government imposed restrictions on the use of LGFVs with the new budget law, this directly influenced the urban development process at the local level (Li, 2016). In Yongcheng, we interviewed the Land Investment and Development Company (LIDC), a subsidiary under Yongcheng's major LGFV of Urban Construction Investment Holding Group (UCIHG). The officials stated that their numbers of land development projects decreased dramatically when the central government put restrictions on the use of LGFVs. The financial instrument for land development changed from LGFVs to special land bonds issued by local government which allowed for stricter supervision within the fiscal system. As a result, Yongcheng's land development process significantly slowed down. However, although using LGFV is severely restricted, it remains the major instrument to finance infrastructure development. TREAST is primarily funded through the major LGFV of the Yongcheng Transport Construction Investment Group (TCIG), with few restrictions. Consequently, TREAST through *LGFVs as infrastructure development* itself theoretically encourages massive future urban development but future urban expansion through *LGFVs as urban development* is unlikely to be realised because that type of LGFV is no longer allowed. Restrictions on the use of LGFV as a financial

instrument do have a direct influence on policy practice, but this influence is more instrumental than significant. Local governments can maintain their strong belief in the pro-growth paradigm.

4.5.2 What impedes a paradigm shift?

Our case study confirms the impression that a new narrative for sustainable urban development has emerged, but that it is not enough for a shift in policy paradigm. Building new roads and HSR stations takes place along the lines of pro-growth development. Although the latter is hidden on paper, in practice it remains dominant. So, the sustainable urban transition in China today can better described as a change in narrative than in a change of worldview. To force off a genuine policy paradigm shift, there first needs to be a genuine replacement of existing policy goals for urban development. For example, the central government should reconsider setting hard GDP growth targets every year, since China has already entered a slowing down period in which quality growth should outweigh quantity growth. Furthermore, quality growth target should replace quantity growth targets in the Cadre Evaluation and Appointment System so that local leaders would no longer compete for personal career promotion purely based on local infrastructure and urban growth achievements. However, replacing policy goals in this manner can be extremely difficult because maintaining economic growth is deeply ingrained as a source of legitimacy: the capability of constructing large scale infrastructure and urban development has also become a symbol of "institutional superiority" in China which often refers to the ability of "concentrating all powers to make great achievements". This type of propaganda narrative

is deeply embedded not only among decision-makers but also more broadly in society. The risk of overdevelopment may then be easily overlooked.

4.6 Conclusions

In recent years, urban sustainability has grown markedly in importance as the national 'eco-civilisation' policy gained high-level political endorsement. Although local officials have begun to pay more attention to the protection of the natural environment and industrial pollution control, little attention is paid to the nature and scale of urban development (and urban infrastructure) when considering sustainable transitions. Urban development of this type revolves more around local investment and economic growth, and the aspect of sustainability is comparatively 'softer' than in other fields of ecological preservation. Its environmental effects only become visible after a long period of time and are complicated to pinpoint and caught up in arguments of 'modernity'. All of this contributes to difficulties local states experience in their shift from short-term capital-centred pro-growth urban development towards a more human-centred quality-oriented model of development. The effects of applying the urban pro-growth paradigm in medium-sized cities are more serious because they have high ambitions to promote large-scale urban growth but lack the economic and population growth to support and facilitate their expansion plans. At the end of the day, using investment in urban and infrastructure development to boost GDP growth highly likely leads to overinvestment and oversupply.

As an exploratory study, this article does not seek to demonstrate whether a paradigm shift to sustainable urban development is successful at the central or local levels, but rather contributes to an understanding of what has changed in policy values, problems, goals and instruments at the central level, and how the local state reacts to such changes given the institutional context it operates in. The findings show that even if there are significant policy changes at the central level (e.g. overarching sustainable urban development goals, restrictions on the use of policy instruments such as LGFVs, and direct interventions in local transport policies), the local state will still struggle to shift away from its urban pro-growth model. This does not necessarily imply that local officials do not care about urban sustainable development, but rather that it is extremely difficult to find alternative ways to maintain local economic growth without massive investment in urban and infrastructure development. They may be working tirelessly on the restoration of local ecological systems through controlling air and water pollution and greenhouse gas emissions, while at the same time having to maintain their financially risky and environmentally unfriendly modes of aggressively promoting urban growth. Their dependence on investment, especially state-led investment, is deeply embedded in China's political and economic system, and constitutes the biggest financial risk in China's economy. This goes well above and beyond the agency of the local state in policymaking and implementation processes.

This study also raises the awareness of a development dilemma medium-sized cities face and to proposes a roadmap for future research project on urban overdevelopment and sustainable development among medium-sized cities in China. A twofold examination framework is suggested for future studies on this topic. The first part of the framework starts with the

assessment of risks in overdevelopment through examining cities' historical population growth, future population projections, overall strategic planning, and the scale of their visible and invisible local governmental debt. The second part focuses on an analysis of the consistency of policymaking and implementation on urban development issues through the comparison of policy goals, values, and instruments on the ideational level and implementation processes on the material level. Such studies will not merely reveal implementation gaps of sustainability policies, which can more or less be found among all types and sizes of cities, but also lay bare hidden financial and environmental risks of applying the urban pro-growth model cloaked behind dreams of a sustainable future.

5 Future pathways: Attempts at reform in a national level new district

This chapter is based on the following peer-reviewed article:

Song Y, de Jong M, Stead D and Liu Z. Smart urban governance in China's newest technopole? *Planning Theory & Practice* (submitted).

5.1 Introduction

Advanced science and technology have become a strong engine of economic development as well as an important symbol of national power around the globe since early 1980s. This is certainly the case in China. In 1988, the former reformist president Deng Xiaoping claimed that: "science and technology are primary productive forces (*keji shi diyi shengchanli*)"(People.cn, 2017a). Science and technology parks or technopoles have been developed for the last three decades, starting with attempts to create National High-tech Industrial Development Zones (NHTIDZs), provincial development zones and city-level industrial parks. A trend has emerged where science and high technology are combined with urban expansion and regional collaboration. The current mode of NHTIDZs as a specifically Chinese style of building technopoles is regarded as the creation of exclusive spaces by the national and local governments with preferential policies and management privileges. Though the construction of NHTIDZs makes a significant contribution to China's high-tech development, its spatial form has also been criticised as being strongly disconnected from the urban context (Yiman and Xiang, 2020). As a special form of urban development in China, NHTIDZs are also influenced by the trend of property-led development, which is not necessarily conducive to an innovation-driven atmosphere (Wang and Leng, 2012).

Established in 2017, Xiong'an New Area, represents a new generation of science and high technology driven urban development in China. Directly established by the State Council and the Central Committee of the Communist Party of China, Xiong'an has become one of the most important development zones and urban projects, following in the footsteps of the

famous Shenzhen Special Economic Zone (SEZ) and the Pudong New Area in Shanghai. With its ambitious slogan of "Millennium Plan, National Event", Xiong'an has four main objectives: (i) to absorb the non-capital administrative functions of China's capital city Beijing for its administrative restructuring; (ii) to develop as a regional pole and improve the regional spatial structure of the unbalanced Jing-Jin-Ji metropolitan zone; (iii) to explore a new development mode for densely populated areas; and (iv) to create a new engine for innovative development especially for science and high technology. The development has received high-profile political endorsement from president Xi Jinping (Noesselt, 2020). According to Noesselt (2020), "*Xiong'an is constructed as a test lab for Chinese AI innovation and a model city unit of green urbanisation, illustrating the political leaders' will to engage in all-encompassing reforms*". As such, Xiong'an can be regarded as a new national-level initiative embraced by the political leadership and aiming to develop an incubator for innovative high-tech development and futuristic urban governance in China.

The idea of developing a regional development pole with innovative technology resembles the concept of a technopole, a term used by Castells & Hall (1994: 1, 8-9) to describe "*various deliberate attempts by governments in association with universities and private companies, to plan and promote technologically innovative and industrial-related production within one concentrated area, to generate the basic materials of the information economy*". One of the defining functions of a technopole, according to Castells and Hall (1994) is to create the basic materials for an information economy. Industrial complexes such as Silicon Valley can be included under this definition by Castells and Hall because of the crucial role governments and universities played in them even though these initiatives were

not deliberately planned. Thus, technopoles (both top-down state-led and bottom-up private-sector-led) can be regarded as growth poles driven by science and high-tech industries. While Xiong'an is another example of a state-led technopole initiative in China, it is institutionally very different from any existing science and technology initiatives in terms of land development financing and social management (Liu et al., 2020). This article aims to understand the extent to which Xiong'an represents a new approach for developing and governing technopoles, and the possible implications for employing a similar approach in other locations. To do so, this article examines the features of institutional innovation in Xiong'an from an urban governance perspective. Section 2 outlines the conceptual framework based on the theory of space production which is used to analyse different regimes of global industrial space production and local place space production as imposed on NHTIDZs. Section 3 analyses the land management and finance arrangements. Section 4 provides an in-depth analysis of governance modernisation in Xiong'an. Section 5 discusses Xiong'an's particularities in applying high technology in urban administrative and social management as a new style of technopole in China. The empirical data comes from official documents, urban conceptual and master plans, policy papers, and articles published by state media. The analysis sheds lights on the specific characteristics of contemporary technopole developments in China and the underlying ambitions of the state in applying technologies in urban development to achieve social management and control.

5.2 Conceptual Framework

The extent to which Xiong'an represents a new approach for developing technopoles under a different urban governance regime is examined using a conceptual framework that focuses on the processes of space production. Based on the theory of the production of space, a city cannot simply be understood as an agglomeration of people and things in space: it has the practice of making its own space. According to Lefebvre (1992: 26), "*(social) space is a (social) product. Space thus produced also serves as a tool of thought and of action. In addition to being a means of production it is also a means of control, and hence domination, of power*." As such, the analysis of underlying social relations and social forms is central to understanding processes of space production. These underlying social relations and social forms can be examined with reference to regimes which, according to Stone (1989: 4), refer to "*an informal yet relatively stable group with access to institutional resources that enable it to have a sustained role in making governing decisions".* Compared with direct command power of the state, a regime is formed as an informal basis for coordination without all-encompassing structure of command.

From this perspective, technopoles (NHTIDZs specifically) in China can be regarded as processes of space production with China's pursuit of modernity and high technology industrial development. On one hand, NHTIDZs are exclusive spaces produced by the state for national high technology development and competition at the global market. Being placed in the suburban areas of cities, these development zones are comparatively detached from a city's historical developmental context (Clark, 2014; Oh, 2002). On the other hand,

at the background of rapid urbanisation processes in Chinese cities, NHTIDZs are affected and re-created by the local urban pro-growth policies. Enthusiasm among local states for property-led development also (re)creates spaces within NHTIDZs. Hence, two different regimes regarding China's technopole space production can be identified in terms of (1) global industrialisation and (2) local urbanisation.

5.2.1 Space production of global industrialisation

Despite the emphasis on high technology, NHTIDZs share characteristics similar to other development zones regarding global industrialisation in the process of space production. The 'development zone fever' in the 1990s refers to an early stage in China's economic reforms giving way to the global market with the establishment of a large group of national and local industrial and high-tech development zones, in which NHTIDZs and National Economic and Technological Development Zones (NETDZs) were the major types of national development zones (Yang, 2009; Yang and Wang, 2008). As a special type of development zone, NHTIDZs are created by the central state taking the advantage of cheap land and labour, providing infrastructure and preferential policies to attract foreign and domestic capital and high technology investment (Wang et al., 1998; Zhuang and Ye, 2020). In terms of the process of space production, NHTIDZs resemble other kinds of development zones as globalised industrial space which are created as homogeneous, replicable and interchangeable spatial products for global production and capital circulation. We identify this regime dominating the process of space production as a regime for global industrial production (Figure 15). Moreover, the process of space production is accompanied by a massive amount of open land conversion and development, eviction and relocation of

residents, and migration of workers, which brings significant change to social networks and structures as well as to cultural and demographic landscape of recipient cities (Kong and Chen, 2016). The literature names such industrial space production a Chinese "enclosure movement" (Yiman and Xiang, 2020), referring to historic land enclosure and privatisation processes during the British industrialisation during the 18th to 19th centuries.

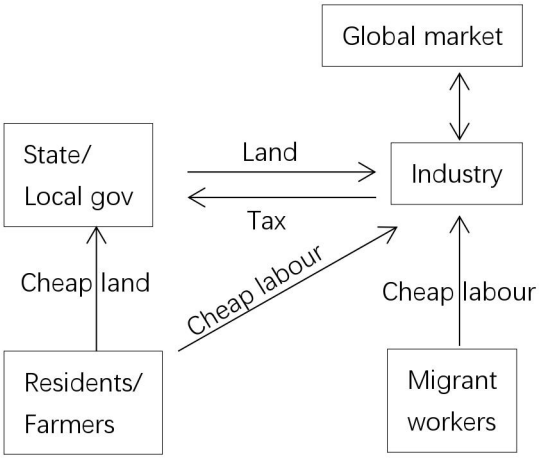

Figure 15.Regime for global industrial production

The exclusive nature of globalised industrial space is a form of "deterritorialization": a process of deconstructing and then reconstituting the ensemble of local relationships, context and organisation, altering them to meet the new needs of globalised industrial production (Deleuze and Guattari, 1987). The segmentation between NHTIDZs and local urban space and development context decreases social integration and increases risks of social conflict. Yiman and Xiang (2020) illustrate such segmentation with the case of Zhangjiang NHTIDZ in Shanghai, and state that the practice of NHTIDZs in general demonstrates the phenomenon of "isolated industrial islands", reflecting the difficulty of integrating

NHTIDZs within broader local and regional development. The current literature also portrays social conflicts in high-tech and industrial zones as local resistance to globalisation in the cases of Durban industrial zone of South Africa (Scott, 2003), and Hsinchu Science Park of Taiwan (Tsai, 2015).

Some argue that NHTIDZs are different from other types of development zones since in NHTIDZs technological innovation depends less on foreign investment and it is supported with preferential policies enacted by governments. However, in practice the NHTIDZs during the past two decades have shown a clear spatial shift from being geographically widely and evenly distributed in the early stages (Wang et al., 1998) to extremely unevenly distributed and located primarily in the developed coastal regions where foreign direct investment (FDI) and export-oriented development zones are concentrated (Wei, 2015; Zhuang and Ye, 2020). The preferential policies for high technology development are increasingly expected to be phased out (Wang et al., 1998), since they are regarded as more suitable for industrialisation than for innovation (Zhuang and Ye, 2020). Additionally, one major debate in the current literature on technopoles is whether the advantages of physical proximity for partners in traditional industrial parks, complexes and platforms still matter with the rise in importance of information and communications technologies (ICTs) (Miao et al., 2015), thereby drawing into question the assumed rationales and roles of NHTIDZs.

5.2.2 Space production of local urbanisation

Apart from the production of global industrial space, NHTIDZs have also played a key role in the overall processes of urbanisation. Zhuang and Ye (2020) discovered that the new surge

of NHTIDZs is accompanied by rapid urbanisation as NHTIDZs provide industries, technologies and fast conversion and production of development land and space. Meanwhile, Gao et al. (2018) report that the (re)development process of China's urban industrial land is full of inconsistencies, with tensions and conflicts between central and local governments and broad societal resistance. The neoliberal model that can help explain China's urban growth process originated from the institutional decentralisation in 1990s and included the so-called tax-sharing reform and the establishment of markets for land, the combination of which made local authorities more entrepreneurial (He and Wu, 2009; Tao et al., 2010; Wu, 2018). Hsing (2010) illustrates the shifting agenda of the local authorities from industrial production to place production in the words: "*As city leaders rely on urban expansion for territorial consolidation, accumulation, and legitimation, and identify themselves as city builders and boosters, and as urban construction dominates local development agendas, urban modernity, rather than industrial modernity, has become the hegemonic ideology of the new era* (Hsing, 2010, p.114) *"*. Based on the current literature, we identify a regime for producing local urbanisation, in which a government-led growth coalition with interest groups including developers is formed based on land value capture (Figure 16) (He and Wu, 2009; Qian, 2007; Zhang, 2002).

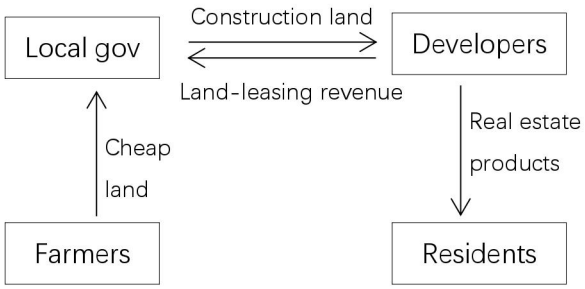

Figure 16. Regime for place production

The current literature identifies two main ways in which high-tech zones such as NHTIDZs are affected by the local urbanisation process and the regime of place production. First, the merger of development zone committees and district level governments has opened a window for integrated urban development of development zones while also offering opportunities for property-led development under the local urbanisation regime. For example, Qian (2007) reports that a local government-led growth coalition emerged as a result of Hangzhou's NHTIDZ which then resulted in new dynamics of resource allocation. Second, district level governments can use neighbouring NHTIDZs for attracting businesses and promoting local urban growth. Wang and Leng (2012) report that Yangpu district government of Shanghai used the Zhangjiang NHTIDZ as a means of city branding for developing local commercial and residential property development. In both ways, the real estate sector made headways into high technology development zones for property-led place production. There is even a special term for this type of development, "technology property" (*keji dichan*), which means developing real estate in development zones and science and technology parks (Xinghua News, 2017). The development of the real estate sector is regarded as more successful than that of technological innovation in the case of Shanghai's

NHTIDZ (Wang and Leng, 2012). Booming real estate and a regime in which local urban growth prevails has created an environment where it is difficult for small and medium-size innovative enterprises to thrive, as they are forced to escape escalating rents and land prices and suffer from a lack of venture capital (Zhou, 2007). Despite having an image of fast modernisation and urbanisation, the growth mechanism as it exists in Chinese cities has been criticized in the literature. Wei (2015) argues that local governments in China are less committed to controlling urban growth and land expansion while they encourage the promotion of development zones and projects. The fever in urban projects and growth has not only led to high levels of local debt but also to wasteful development, corruption and social unrest. This has brought in view limitations to the current mode of building technopoles; administrative reforms and policy change may be due to create new forms of urban place production.

5.2.3 Towards a new regime?

According to Dorren Massey's concept of 'sedimentation of historical layers', "the structure of local economies can be seen as a product of combination of 'layers' of the successive imposition over years of new rounds of investment, new forms of activity" (Massey, 1984, p.114). NHTIDZs can be understood as a product of space where different kinds of regimes, including the regime of global industrial production and the regime of local place production, contest with and are superimposed on each other, shaping and reshaping the space of NHTIDZs with multiple rounds of development. Although NHTIDZs have made possible remarkable achievements in China's technological, economic and urban development, the existing types of regimes limit the future development of NHTIDZs in various ways. Chinese

cities keep introducing and experimenting with new types of high-tech urban projects such as science and technology parks, university towns, and smart and innovative cities. However, as most of the city-level planning experiments cannot generate any paradigmatic change in the current regimes, Xiong'an New Area can be seen as one of the most important national experiments in decades for developing new forms of economic development, urban planning and governance and has the potential to address the issues mentioned above.

5.3 Xiong'an as a new model?

5.3.1 Historical context

Xiong'an New Area is a city "born with a golden spoon in its mouth". On 1 April 2017 the State Council and the Central Committee of the Communist Party of China (CCCP) announced the project of Xiong'an as a national new area after Shenzhen special economic zone and Shanghai Pudong new area (Xinhua News, 2017). Located in Hebei province, 105 km Southwest of Beijing, 105 km West of Tianjin, and 50 km east of downtown Baoding, Xiong'an new area is established at the confluence of three counties, Xiong, Anxin, and Rongcheng with a total population of 1.4 million in 2017 (Figure 17). On 21 April 2018, the official planning guidelines for Xiong'an were published specifying its long-term goal for the mid-21st century: building a high quality socialist modernised city with characteristics of sustainable development, innovative base, regional integration, and a global centre for opening-up (Xiongan.gov, 2018).

Within the "Jing-Jin-Ji (Beijing-Tianjin-Hebei)" regional urban agglomeration system, Xiong'an aims to rebalance the region as a new development pole within Hebei province. Compared with other two major regional urban agglomerations in China, the Pearl River Delta (PRD) and Yangtze River Delta (YRD), Jing-Jin-Ji is regarded as the least integrated because of the absolute dominant position of the nation's capital Beijing extraction of valuable economic and social resources from Hebei province (Lu et al., 2020). Hebei has been regarded as a "landfill" for Beijing for relocating all undesirable and heavily polluting industries and it has been plagued by one the worst levels of air pollution in China. Previous attempts to build a third development pole next to Beijing and Tianjin in the Hebei capital city of Shijiazhuang are generally regarded as unsuccessful. Thus, though the project of Xiong'an is formally administered by Hebei province, politically it is directly under the supreme national leadership of President Xi. Furthermore, Xiong'an can be understood as "the second capital" as one of its key missions is to become home to Beijing's so-called "noncapital functions". Although an exact definition of noncapital functions is missing, the purpose of this strategy is to improve the living environment of Beijing which has been long criticised as congested and overpopulated. Previous attempts to outsource noncapital functions to Tongzhou district as Beijing's second administrative centre in 2015 showed limited results, as Tongzhou enjoyed low attractiveness and can simply be seen as just another commuter town (*shuicheng*) within Greater Beijing. Hence, the high-profile project of Xiong'an is aimed at fulfilling this task.

Figure 17. Location of the Xiong'an New Area.

5.3.2 New features of the urban development approach

The original narrative behind Xiong'an reveals a strong motivation to create a new approach for urbanisation and away from the dominant government-led but pro-growth oriented regime based on land value capture. On 2 April 2017, just one day after the news on the Xiong'an project was officially released, the real estate market reacted very quickly with local property prices skyrocketing to 11,000 yuan per square metre from the previous 4,000 to 8,000 yuan (BBC Chinese, 2017). Large groups of people from Beijing lined up at bus stations to visit the existing counties of Xiong'an and planned to buy properties there in advance to make profits out of its future development (NetEase, 2017). Within 48 hours, the central government froze the property exchange market there, and one county official was

even arrested for making profit based on insider information (BBC Chinese, 2017). One year later, the official planning guidelines of Xiong'an specified its land and property development strategies as "strictly prohibiting large scale real estate development", and "establishing multi-dimensional social housing policies" (Xiongan.gov, 2018). The principle of land development in Xiong'an is "no land finance (*buyao tudi caizheng*)", which refers to the mode in the existing regime in which local governments rely on one-time land-leasing revenues to cover the costs of infrastructure construction and complement local government expenditure on municipal services. Until November 2020, three and a half year after its release, there had been 29 land deals completed in Xiong'an with total 25.07 km^2 of residential and commercial land. All but one was made with direct transfer; only one through an auction in the land-leasing market. All 29 parcels were obtained by the City Development and Investment Corporation of Xiong'an Group, a fully state-owned company functioning as the local government's financing platform for urban and infrastructure development (NetEase, 2020). Hence, thus far Xiong'an has not yet opened its land market to the private sector and the development of the city is heavily, if not fully, reliant on public funding. Although the land market of Xiong'an is still frozen, its objective is to test innovative land policies for the future reform of China's land management. The planning guidelines specify several strategies in land supply and exchange: (1) transferring land to infrastructure constructors, usually transit providers, as public capital investment for infrastructure development; (2) renting land, or "first rent, then transfer" policy (Xiongan.gov, 2018). The land rental system suggests a form of public ownership not only for land-leasing, but also for land expropriation. Local governments will no longer pay one-time land compensation for land expropriation, but instead compensate a certain amount of money per area per year

with proper resettlement so that the relocated residents become shareholders of their own urban land.

Xiong'an also aimed to create innovation to the social management system with information and communication technologies (ICTs), especially regarding to the establishment of China's social credit system. Although Xiong'an still follows the current household registration system (Hukou) and temporal resident permit system as the main access to public services, it has shown the ambition to become China's first social credit system demonstration zone based on the block-chain technology and big data for the monitoring, evaluation and risk assessment of the social credits of corporations and individuals (Xiongan.gov, 2019). The social credit system for individuals will become a fundamental social management institution that not only influences access to public services but also affects nearly every aspect of their daily lives ranging from housing, employment and mortgages to children's education. With the social credit system on the way, Xiong'an has been already testing its "scoring system" with the Poverty Reduction Program (PRP). With the famous slogan "to eliminate poverty in 2020", the PRP is President Xi's signature policy as well as a nation-wide movement to mobilise the entire population of grass-roots civil servants and let them provide economic and social assistance to the underprivileged class. The PRP scoring system in Xiong'an covers all 4850 families living in poverty in the local three counties. With a newly developed smart phone application, grassroots civil servants will visit each family once a month and award scores on the application based on seven dimensions: living environment, family harmony, employment, education, social behaviour, poverty reduction policy, and personal appearance and spirit. If it earns a high enough score,

each household can exchange daily necessities at both online and offline platforms. It is not unreasonable to expect that the social credit system will play an important role in distributing social resources across groups of people, including access to housing. For example, talented and highly skilled workers that can contribute to high-tech development in Xiong'an are likely to gain social credit advantages and obtain priority in renting or purchasing houses.

Xiong'an shows state strong involvement in the application of the latest ICT technologies including artificial intelligence (AI) and block-chain in its urban, infrastructure and social management systems. The main strategy is to establish a so-called "national team" of technology innovation platforms with the involvement of top Chinese internet-based companies. They are invited to invest and test their latest technologies in Xiong'an's urban development and management process. For example, the first four national AI innovation platforms were released by the end of 2017: (1) a smart traffic system in collaboration with Baidu on driverless car development; (2) an urban cognition and simulation system in collaboration with Ali Cloud for the benefit of an AI public management system; (3) an AI medical imaging system developed by Tencent; and (4) an automatic speech recognition technology developed by iFlytek (Sina finance, 2017). These innovation platforms are more than mere research centres as they are granted permission to apply their technologies in Xiong'an's public infrastructure development and public management systems. iFlytek's speech recognition technology has already been applied to the local judicial system as a part of a project to develop Chinese "smart courts". Underlying the AI public management system developed by Alibaba Group's Ali Cloud is the objective to build Xiong'an's smart infrastructure for city simulation, risk management and real-time monitoring based on the

company's technological knowledge base in cloud computing, big data, smart logistics and e-commerce.

5.4 Governance Modernisation

"Governance modernisation" is a prominent recent narrative of the Chinese Communist Party (CCP). It first appeared in the CCP's 19th Central Committee in 2017 when the "two one hundred" policy goals were also published: (1) in 2021, one hundred years since the establishment of CCP, completing the building of a moderately prosperous society (xiaokang shehui) in all respects; (2) in 2049, one hundred years since the establishment of People's Republic of China, completing the building of a great modern socialist country. In order to achieve these two national development goals, "the modernisation of the Chinese governance system and governance capacities" is needed to improve, institutionalise, and standardise the way of party, state and societal issues are governed (Zhu, 2018). However, how exactly governance modernisation works in practice and how it differs from previous governance modes remains unclear. Since Xiong'an is regarded as a national leading project and heavily branded as a demonstration of governance modernisation with Chinese characteristics (Li and Zhang, 2019), it provides an opportunity to check whether governance modernisation indeed represents a new style of governance. It can be analysed from a political, economic, and societal angle.

First, from the political point of view, governance modernisation sticks to the core objective of "upholding the CCP leadership" by showing the institutional advantage to "concentrate

power for great achievements". As one of the Soviet system legacies, concentration of resources and power is one the basic characteristics in CCP's style of ruling. Great achievements in return are the guarantee of the party-state's legitimacy. The project of Xiong'an branded as "Millennium Plan, National Event" delivers a strong message that Xiong'an is not merely an urban project, but also a great national political achievement. Especially under Xi Jinping's leadership, the grand narrative of nationalism and great national achievements have been more heavily emphasized than during previous governments, for example, Xi Jinping proposed the concept of the "China dream", and that of "the great rejuvenation of the Chinese nation" soon after he came to power (Xinhua News, 2013). Hence, governance modernisation can be understood as a recentralisation of power. Another example is the fight against the COVID-19 pandemic in China and national narrative promulgated afterwards. The ability to concentrate national resources and power is the key to fight and contain the virus, which has become evidence of China's institutional advantage under the CCP leadership and ability of the governance system and its modernisation to provide future direction to (Tong, 2020).

Second, economically we can observe a comeback of the state in the governance mode of Xiong'an regarding the state-market relation. Xiong'an has adopted a very different approach to urban development that clearly rejects the existing mode of land finance. It shows a departure from the neo-liberal and entrepreneurial style of urban governance in which a coalition is formed between local government and private sector players to capture land value through urban growth and development. Xiong'an has imposed very strict restrictions on the land market for private players such as developers and on the property

market for individual households. Currently no developer is allowed to enter into land market transactions in Xiong'an, but that does not mean a complete return to the planned economy in which the public sector produces everything. Developers will only be allowed to construct and develop on the government's behalf, while property rights will remain publicly owned. Xiong'an aims to fulfil Xi Jinping's famous quote on the direction of reform in China's housing policy as "The house is for living, not for speculation" (People.cn, 2017b). It has shown the characteristics of "state entrepreneurialism" (Wu, 2018) in which the state maintains its power with "planning centrality" while using "market instruments" to achieve development. However, it also implies that the development of Xiong'an fully relies on public funding from the central government. This governance mode is thus unlikely to be transferred to other cities under the current institutional system.

Third, from a societal angle, Xiong'an follows a trend of growing social control through information and communication technologies (ICTs). The "modernisation" of governance in social management refers to using the latest "smart technologies", intense application of ICT, especially internet and smart-phone based technologies. On 12 December, 2020, the Xiong'an new area party working committee stated as one of its main objectives for modernising social governance the construction of Xiong'an "*to speed up the construction of smart communities, smart villages; to strengthen the security work of the new area and consolidate its function as the 'political moat' of the capital Beijing*" (Hebei News, 2020). In China's current social governance, "maintaining stability" (weiwen) is the ultimate goal as it is often linked with social, political and national security. The national annual budget for maintaining stability has surpassed the expenditure on military affairs since 2011 (BBC

Chinese, 2014). Xi Jinping's government has shown particularly great interest in applications regarding facial recognition, social media, and internet-based applications for social control. One example is the famous smart phone application "XueXiQiangGuo" developed by the Alibaba Group which every party member is obliged to install and use to learn the latest party news every day, which is regarded as the modern internet version of Mao's litter red book (*HongBaoShu*) (BBC Chinese, 2019). Another example is the introduction of a "health QR code" on smart phones in 2020 which has played an important role in monitoring, controlling and quarantining mass populations during the pandemic (Xinhua News, 2020).

5.5 A new-style technopole?

There are currently 157 National High Technology Industrial Development Zones (NHTIDZs) in China but very few of them are considered as successful national bases for technological innovation, with the possible exceptions of Zhongguancun NHTIDZ in Beijing, the Zhangjiang NHTIDZ in Shanghai and the Suzhou Industrial Park in the province of Jiangsu. The successful ones tend to have more intensive collaboration with local universities and research institutes. However, high level education and research resources are extremely unevenly distributed in China, as most of the research power and innovation and high-tech companies are located in the most developed regions like Beijing, Shanghai and Shenzhen. Taking the AI innovation base as an example, 28 out of 50 of the AI unicorns in China are located in Beijing and 21 of them located in the Haidian district where Zhongguancun NHTIDZ and Tsinghua University are located (Aiera, 2019). Thus, most of

the remaining NHTIDZs, especially those in central and west China, actually operate as development zones for global industrial production. And the differences between these NHTIDZs and other export-oriented development zones such as NETDZs is not obvious. As nearly every major city in China has established its own NHTIDZ and concomitant preferential policy to attract high technology industry and research institutes, the competition among NHTIDZs is so fierce that corporations consider many other factors beyond the NHTIDZ itself. A city's overall development conditions tend to come more strongly to the fore including factors such as economic performance, business environment, regional and international transportation accessibility, as well as supporting factors such as social equality, stability, the built environment and living standards. Hence, high technology space production is obviously interwoven with local urban development processes.

From the perspective of building a technopole, Xiong'an new area has shown a much higher degree of integration between high technology space and overall urban project development and governance. In comparison with regular space production in NHTIDZs, segmentation between development zone space and urban space can be avoided in Xiong'an. The major difference between Xiong'an and the currently successful examples of NHTIDZ such as Zhongguancun in Beijing, is that Xiong'an can function as a real-world test-bed agglomeration for the application of high technology solutions towards an integrated smart city development and management. Being granted access to the public administrative and management systems, high technology giants are not only attracted to try their latest technologies, but also examine the prospects for their future wider application to other Chinese cities. Xiong'an not only creates and provides goods and services for the market,

but also for the state. The concentration of the information-based industries enables greater application of social control in any future form of governance. On the other hand, Xiong'an's new approach in land development and finance forestalls the dominance of property-led development in urban space production. Its progressive housing policy emphasises affordability and equity and promotes the migration of talented and highly skilled workers to allow innovative industries to thrive.

Xiong'an can certainly be analysed and examined as an emergent technopole, but its ambition levels go far beyond the scope of a technopole alone in the sense that it has high political significance. Xiong'an's regime provides a new approach to producing high technology space exceeding the current space production for global industrialisation and local urbanisation. Its space production is in fact based on highly concentrated state power and resources. When viewing the changes in governance mode in Xiong'an, its future development will still be highly dependent on direct investment from the central government. There is not yet in place a new economic model or regime that can replace the existing one. Consequently, Xiong'an is under normal circumstances not a space production model that can be transferred to or learned by other cities. What Xiong'an can claim to become is a model for the integration of high technology, urban physical infrastructure and social management. It is still too early to tell what type of new technopole Xiong'an will represent as it will take decades to see if this area can develop into a genuine technopole of global impact. A key consideration will be whether Xiong'an will prove able to generate a propitious environment for small and medium innovative business to thrive: this has been an

important characteristic of successful technopoles like Silicon Valley. Otherwise it is more likely to evolve into a socialist ideal monument city with high-tech characteristics.

5.6 Conclusions

Xiong'an is of great importance in Jing-Jin-Ji's regional development as its third development pole in Hebei ready to receive and host all outsourced noncapital functions from Beijing. While most cities in China compete to attract qualified migrants for local economic development, Beijing is one of the cities trying to curb its population growth. This is not an easy task, given that very few people will voluntarily leave the nation's capital and access to the highest quality of public services. With the construction of the interconnected high-speed transit network, Xiong'an aims to provide a built environment and living conditions including affordable housing as well as job opportunities that may be up to this tremendous job.

Xiong'an New Area can indeed be regarded as a national project to build a whole new city. With the name "new area" instead of "city", Xiong'an links back to China's history of national development zones. Since the 1980s, China has used the concept "development zone" to designate a form of independent, sometimes even isolated, testing field. Shenzhen special Economic Zone (SEZ) was the first type of development zone to test a capitalist market economy in the post-Mao era. NETDZs were established in 1984 to attract export-oriented industries and foreign investments. NHTIDZs were established in the early 1990s to stimulate national innovation and high technology development. Soon after, Shanghai

Pudong New Area was established to make headways into the international financial system. Each type of development zone represented a new and different economic model greatly affecting China's economic and urban development process for the following decades.

Xiong'an also seeks to develop new approaches in land development, establishing new forms of social relations and space production reflecting the regimes for industrial production and place production. On the one hand, the regime for globalised industrial production in traditional NHTIDZs has its limitations in the development and application of high technologies due to its exclusive use of industrial space for labour-intensive production for the global market. On the other hand, the regime for place production and urban development shows an increasing reliance on the land-driven economy and property-led development which poses risks for urban overdevelopment and local debt accumulation, as well as social inequity, conflict and polarisation. Xiong'an's new regime not only indicates a strong ambition to integrate high-tech production with urban space, but also introduces strong control mechanisms on the land-driven economy, emphasizing social distribution and restraining market speculation. Overall, space production in Xiong'an exhibits processes of both deterritorialization and reterritorialization. Xiong'an New Area can therefore be considered as an "ideal city model", developed by the central government using its political and administrative power to establish new forms of space production and social relations.

Seen as an incubator for high-tech innovation, Xiong'an certainly has characteristics allowing it to evolve into a technopole. With progressive institutional adjustments adjudicated to land development policies, housing policies, and social management policies,

Xiong'an has shown a novel type of space production that departs from global industrial space production in existing NHTIDZs and local property-led space production undertaken by entrepreneurial local governments. Stronger state involvement and a stronger position of the state vis-à-vis market players can also be observed. The state also aims to take the lead in conceiving and applying high-tech information technologies on Xiong'an. In cooperation with the Chinese Artificial Intelligence giants, Xiong'an has established innovation platforms where the latest information and communication technologies can be deployed to its urban infrastructure development and social management system to test the effects of integrated smart city solutions. Facial recognition, big data, and 5G in combination with a new social credit system have been the first steps in installing mass social surveillance. It is not far-fetched to claim that Xiong'an, beyond being just a technopole for a new era in space production, it is also an attempt at introducing a new economic governance regime where the public sector is the brain and private sector the hands of economic production and consumption, and a future urban model with a life-style that demonstrates all great technological and infrastructure achievements generated by an emerging state-led hegemon.

Conclusions

6

6.1 Main contributions

An existing body of literature provides a detailed account of urban pro-growth practices and governance in Chinese cities (He and Wu, 2005; Jiang et al., 2017; Li et al., 2014; Liu and Yau, 2020; Sun and Huang, 2016; Xu and Yeh, 2005; Zhang, 2002), particularly the work of Wu who employs Harvey's notion of urban entrepreneurialism and applies it to the Chinese context, proposing the concept of 'state entrepreneurialism' (Wu, 2017, 2018) and emphasizing China's particularities, especially the role of the state. Building on this body of

knowledge, this study has examined the policy and practice of urban growth that seeks to deliver sustainable urban transitions. More specifically, the study has examined China's urban growth practices in three contexts: (1) in the more advanced southeast coastal cities with abundant political and economic resources; (2) in low and moderately advanced cities in central China which have received relatively little attention in both academic and policy literature; (3) in a new generation of science and technology developments (technopoles) which are employing different forms of urban governance. By exploring the changing state-market relations and governance arrangements in these three contexts, this study has identified nuanced changes in land management, financial mechanisms and entrepreneurial behaviours.

In terms of the theoretical contribution and development, this study has contributed to the concept of state entrepreneurialism in China with in-depth case studies which have illustrated how state entrepreneurialism affects urban practices that try to incorporate sustainable concepts and objectives, a subject area which has not been very extensively covered in the existing literature. The findings illustrate that even though the local state is the leading actor in governing various types of urban development, there is still an implementation gap when it comes to promoting sustainable urban transition. Even though there is clear policy change at central government level, which emphasizes ecology and sustainability and could be seen as a potential paradigm shift, implementation at the local level has proven to be limited or non-existent where pro-growth urban practices still prevail. The research has shown that sustainable urban transition at the local level has only occurred in policy rhetoric rather than

institutional practices and the physical development of cities. Thus, a paradigm shift towards sustainable urban development still remains to be seen.

This study has contributed to the debate of whether it is appropriate to apply the neoliberal model in describing the Chinese urban growth process in which a certain degree of marketisation and decentralisation can be identified. The findings have shown that the dominance of the Chinese local state in urban governance is the biggest difference from the typical neoliberal models. The case of Xiong'an has further shown a change in governance with not only a dominance of the state in urban development and social provision, but also restrictions of market mechanisms and speculation in land development, which indicates a possible challenge to state entrepreneurialism in the future urban governance in China that may be more about the 'state' and less about 'entrepreneurialism'.

Last but not least, state entrepreneurialism is in essence closely related to urban entrepreneurialism but with more state-led characteristics. The major difference between these two concepts is not about 'state' versus 'urban', but more about whether the public-private partnerships of urban growth are led by political elites or business elites or, in other words, 'state-led' versus 'business-led'. As China's urban growth practices have shown that urban entrepreneurialism can also work with state-led partnerships, it could make more sense to refer to these two concepts as 'state-led urban entrepreneurialism' and 'business-led urban entrepreneurialism'. In this way, the theory of urban entrepreneurialism can be more systematic and straightforward in analysing different urban governance from various political and economic contexts.

6.2 Reflecting on the research questions

This section reflects on the overall findings from the case studies in terms of the overarching research question and the four sub-questions outlined in Chapter 1.

Sub-question 1. How do local governments of the developed cities develop their land finance and development model for the overall strategies of new town development with sustainable concepts?

Focusing on four economically relatively developed cities in the Pearl River Delta region, namely Guangzhou, Shenzhen, Foshan and Zhuhai, local tax and land-leasing revenues were compared, and the local government's dependency on land-leasing revenue was calculated. Close examination of their local overall development strategies reveals a close link between land-revenue dependency and urban pro-growth strategies: the higher the dependency on land-leasing revenue in a city's local government, the higher possibility of an urban pro-growth approach as the overall urban strategy in developing new towns. The empirical evidence also reveals that new town development has become a major means of land development and urban expansion in these developed cities. Despite extensive emphasis of sustainable concepts in new town developments, such as eco-city, low-carbon city, and smart city, these labels are often little more than branding techniques used by local governments to promote urban growth. In other words, even in more advanced cities with abundant

economic and political resources for sustainable urban development, it is very likely that sustainable concepts are used only as labels to promote pro-growth urban projects, especially in situations when local governments are heavily reliant on land-leasing revenues.

This study confirms that local governments have a leading role in state entrepreneurialism in China in line with research by (Wu, 2017, 2018). Local governments not only participate in speculative activities in urban development but also subject themselves to some high economic risks associated with such activities. The research has illustrated that local governments in the Pearl River Delta even lead speculative activities, going beyond budgetary constraints in mobilising resources of land and capital for urban growth and political objectives. This has created risks of overspending and excessive investment in urban development. Although urban overdevelopment is less likely to occur in more advanced cities with high rates of population growth, their reckless pro-growth strategy can still cause misallocations of resources, waste of land, and potential debt crises, which are all potentially damaging from the perspective of long-term urban sustainable development.

Sub-question 2. How do local governments of the developed cities develop innovative governance and partnerships for more detailed project-based sustainable urban and transport development?

This research has sought to address the gap between the theory-building and conceptualisation of state entrepreneurialism and the analysis of physical changes in cities. This study has sought to fill this gap by looking into community-scale, project-based practice

of transit-oriented development in Guangzhou and Shenzhen, analysing how different forms of public-private partnerships and entrepreneurial governance are formed and work. The research findings illustrate that the current institutions of planning and land management systems are primarily designed for urban growth which act as barriers to the development of TOD practices. In the case studies, three different types of TOD practices were identified, representing different forms of innovative governance and partnerships that can bypass institutional barriers.

One type of practice follows a strategy to maximize land-leasing revenue around transit stations which is a typical pro-growth strategy under entrepreneurial governance. This type of practice can be regarded as a default development model in which little TOD concept is implemented, resulting in no more than transit-adjacent development (TAD). The second type practice of R + P development, on the other hand, involves more tightly woven coalitions of local government, transit company and developers in more unified project management. Local governments no longer follow a maximizing land-leasing revenue strategy but instead use the land as capital investment for transit infrastructure. Through such informal arrangements, the transit company can act as a leading role in developing a more integrated urban and transport project. Similarly, a third type of practice has also involves a certain degree of a coalition between transit providers and local governments but here local government takes the lead role in developing a new town project.

This study has shed light on state entrepreneurialism in project-based practice in which specific pro-growth governance driven by land-leasing revenue is found as a default model

of local government in land and urban development including those around transit stations. However, the land-revenue-driven model is not always found in some special transit nodes like transport hub stations, where informal arrangements among local government, transit providers and developers are formed to achieve better integration of transit and land development. This leads to a more nuanced finding on TOD practice in China: the overall the implementation of TOD is hampered by the institutional barriers and pro-growth governance driven by land-leasing revenue, but particular informal arrangements and innovative governance and partnerships with specific station-based practice can also be found achieving a certain degree of integrated land and transit development. However, genuine TOD requires a city-level planning framework and strategies with specific TOD principles supported by policies from various agencies.

Sub-question 3. How do local governments of the average developed cities to develop and implement their urban transport sustainable policies with rather limited resources?

This study helps to understand the development dilemmas faced by Chinese cities with a medium-sized population and moderate economic performance. The situation in these cities is mostly overlooked or underdeveloped in the academic and policy literature. As a single city case study, in-depth research was conducted via interviews with local officials from various departments which provided extensive empirical evidence on local development dilemmas concerning urban growth and sustainability. The case study provides not only a deep understanding of urban development and sustainability policies in medium-sized cities,

but also a research roadmap for future studies on medium-sized, moderately developed cities in China.

Focusing on the issue of policy paradigms, the case study examined policy-making and implementation processes, unpacking local government's urban and transport policy-making styles and ideas in terms of values, goals and instruments. Comparing road infrastructure and high-speed rail policies in the city of Yongcheng, the research illustrates that there is a significant gap between the policy idea level and policy material level. This goes beyond policy implementation issues which can be found more or less in every city government due to different ability of management and access to resources, and more about active choices made by the local government in the allocation of natural, financial and administrative resources in deciding the urban future. In other words, even if sustainability has been emphasized multiple times on paper, pro-growth policies such as large scale infrastructure and new town development plans still have the priority in implementation which then consume most local resources. The suboptimal outcomes of sustainable policies are not due to the limited resources of medium-sized cities but because the policy-making and decision-making ideas of local leaders are still following the vision of a pro-growth urban future which is becoming increasingly costly and risky. Thus, a policy paradigm shift from pro-growth development to sustainable development has not occurred in medium-sized cities like Yongcheng.

The study has also revealed that local leaders of medium-sized cities face a dilemma regarding urban development. On one hand, there has been increasing political pressure of

sustainable and ecological development from central government, as more and more policies and evaluation criteria are formulated. On the other hand, economic performance and growth remain strong in the Cadre Evaluation and Appointment System, which determines the political career of all local leaders. Although it is not easy for cities to balance economic development and ecological protection, it is particularly difficult for medium-sized average cities because the more advanced larger cities are able to transfer their heavy polluting industries to the less developed, medium-sized cities while attracting labour and talent from these cities. As a consequence, many medium-sized cities are facing simultaneous environmental deterioration, shrinking population, and economic stagnation. Although development options are limited in these cities, local leaders are often engaged in trying to convince residents that their city still has a prosperous future. This is very much evident from the work of Long and Gao (2019) who identified 180 Chinese cities with shrinking populations that are still planning for urban growth. Large-scale urban infrastructure development is frequently used to reverse the fortunes of these cities, despite the high financial and environmental risks.

Sub-question 4. What kind of new urban governance and sustainable land finance and urban development model is developed in a high-profile national level mega-urban project representing China's future form of urban governance?

The empirical research contained in Chapter 5 focused on detecting signs of new forms of urban governance in China. Xiong'an New Area, the latest national-level urban project with the endorsement of President Xi himself, was selected as a case study to examine the

significant changes in China's urban governance model, including its land finance system and social management system. The case study not only made a contribution to the understanding of the highly significant project of Xiong'an itself, but also to the understanding of the central government's ambitious attempts in developing a new model of urban growth.

Seeing Xiong'an as a technopole, this study adopts the theory of space production and reviews the two major types of space production in China's traditional technopoles, such as the National High Technology Industrial Development Zones (NHTIDZ). The first one is the regime for globalised industrial production which can be seen as an exclusive space production making use of land and labour for the global market. The second one is the regime for place production of urban development which builds upon the land-driven economy and property-led development. Both regimes can be found in China's existing technopoles that limit future high technology and urban development. The study found that Xiong'an has developed a new form of regime to integrate high technology with urban development, while strictly controlling land finance mechanisms and property market speculation. With great political and administrative power, Xiong'an aims to develop a new economic governance regime beyond technopole, where the state is the brain and private sector the hands of production and consumption, and future urban pathways with a lifestyle equipped with next-generation technologies enhancing the state hegemon.

Due to President Xi's direct political endorsement of Xiong'an, its potential implications for China's future urban governance, institutional and policy change are much greater than the

project itself. Xiong'an has shown a clear departure from the existing urban pro-growth governance that based on land-leasing revenue and finance model. It has strict regulations and controls not only on land development, but also on property exchange, to an extent that housing is mainly provided and distributed by the state rather than by the market. In other words, it suggests a change in urban governance that is no longer entrepreneurial. It indicates a retreat of market exchange and the dominance of the state in social provision, moving in the opposite direction from what Harvey described in neoliberalism and urban entrepreneurialism (Harvey, 2007). It still has characteristics of state entrepreneurialism (Wu, 2017, 2018) which suggests market as an instrument of the state, while downplaying entrepreneurial and speculative activities and partnerships in urban governance. At the moment, Xiong'an's model is not replicable and transferrable to other cities as the project itself is in essence very much a political achievement in building a historic socialist ideal city at all costs. Nevertheless, it depicts an ideal form of urban governance from the party-state's perspective which gives clues on China's future reform on urban growth mechanisms and governance.

How has the state (i.e. national and sub-national government) sought to form and reform urban governance to achieve its agenda in urban development?

In terms of the overarching research question, a range of general conclusions can be drawn. This study recognises Wu's adjustment of Harvey's urban entrepreneurialism to the Chinese context, where the state plays a leading role in urban governance. The formation of the current pro-growth governance with characteristics of state entrepreneurialism reflects the

decentralisation process of administrative power of urban planning and local fiscal spending, as well as the marketisation process in land and property exchange. However, it is not precise to describe these processes as 'neo-liberalisation' as there is no sign of a significant retreat of the state and the possible dominance of the market. Instead, there is a tendency of the state to see the market as an instrument rather than an actor in forming coalitions and partnerships for urban growth. Even so, the dominance of the state however does not necessarily mean it would be any easier to promote policy change of sustainable transition in urban development. Our findings have shown that even if sustainable and ecological policies have been emphasized multiple times on the central government level, there is no fundamental paradigmatic change of the overall land finance mechanism and pro-growth governance in local governments. But looking to the future, the central government has also shown its determination to thoroughly change its land finance model, which can be observed clearly from its latest high-profile urban project of Xiong'an new area.

Pro-growth urban governance with characteristics of state entrepreneurialism has been dominated the urban growth process for the past few decades and it has a profound influence on China's economy, society and environment. On the economic side, urban pro-growth governance is coherent with China's economic development model in its fast growth period. Urban development and infrastructure investment has become an important engine for its economic growth. However, when China's economy slows down, the pro-growth governance, especially its land finance model, is becoming more and more unsustainable. The problem is that personal saving is high and consumer demand is fairly weak which increases dependency on investment, mostly on urban and infrastructure development. In

other words, to maintain its economic growth, China keeps its urban growth machine running, which increases the risks of a property bubble and urban overdevelopment. According to Kenneth and Yang (2021), China invested much more in real estate than the U.S. during its housing bubble and financial crisis of the 2000s, both in terms of absolute value and share of GDP. Central government is walking a tightrope to keep GDP growing while trying to avoid overdevelopment and a real estate bubble. The reason why it is so difficult to reform its land finance mechanism and pro-growth governance is that they are so intertwined with China's economic structure.

On the societal side, there has been a wide range of social suppression accompanied China's rapid urban growth. The land expropriation process led by the coalition of the local state and private actors has caused a number of social conflicts, some of them violent. Soaring housing prices on the other hand have deepened income inequality and created new forms of class struggles. Furthermore, social organisations have no role in coalitions of urban pro-growth governance, and public participation remains very limited. Even in Xiong'an, China's newest urban project that incorporates new forms of urban governance, there is still very little opportunity for the involvement of social actors in decision-making. On the environmental side, sustainable urban concepts have become more popular but their implementation remains rather weak. Very often, these concepts are used by local government as a place-promotion or branding technique to attract investment for urban development. Such situations can be found not only in medium-sized cities with limited resources but also in more advanced megacities. A genuine sustainable urban transition

requires a paradigmatic shift of its urban pro-growth governance, especially in land finance mechanisms.

6.3 Research limitations

Clearly, building a big picture of urban governance across a wide range of Chinese cities, including more developed and less developed ones, and across different spatial scales, including city, district and neighbourhood scales, brings with it some limitations. First, by looking into local urban governance of more advanced first-tier cities, the focus was mainly on local urban governance and local innovative partnerships among local governments, public organisations and private actors. Less attention was paid to the interaction of the central, provincial and local governments, especially regarding the central government's latest institutional reform attempting to integrate the former separated planning systems including strategic planning, land use planning, urban master planning and ecological planning. As this institutional reform is underway, first-tier cities are now planning their first version of integrated spatial planning, which will highly likely have a great influence on their current urban governance, as well as their sustainable transition policies.

In the second part of the empirical research, attention was focused on a single in-depth case study of Yongcheng. Like all single case study examples, questions of generalisability apply. Although Yongcheng is to a large extent a typical and representative city with average performance in many respects, additional case study analysis on average cities would help to illustrate the extent to which the findings from Yongcheng are more widely generalisable.

Third, this research focuses mostly on coalition and partnerships in forming urban pro-growth governance, where the local state and private actors play key roles. One of the limitations of this research (and many other studies on state entrepreneurialism) is that there is limited attention to the agency of residents, including communities and other social organisations. As mentioned above, there is almost no room for social organisations in China to participate in large scale urban development. However, this does not mean that local residents and communities do not create any of their own space. This can be seen as a research gap in many studies of state entrepreneurialism in China and urban growth and sustainable transition more generally.

6.4 Policy recommendations and research outlook

This section identifies a set of recommendations both for the future policy and research. First, if the Chinese states and cities genuinely pursue urban sustainable transition, the conflict between GDP growth and sustainable development must be addressed. Currently GDP growth is a "hard" goal that a set number of growth is formulated and published by the central government every year and then is imposed on every local government. It has become a highly prioritized mission to every local leader as local GDP growth is one of the most important factor in the Cadre Appointment System in evaluating the performance of local leaders. Contrarily, sustainability is comparatively a "soft" mission, especially in the field of urban development in which standards of sustainability are less clear and specific. The central government should gradually phase out the set number of annul GDP growth target

if quality growth is regarded as more important than quantity growth as suggested in the eco-civilisation policy. Only by then, local government should have space to pursue alternative approach of urban growth rather than urban expansion.

Second, the central government should phase out the land finance model through significant institutional reform, rather than changes in policy instruments and settings. In recent years, there are indeed a number of attempts and interventions from the central government to control the land finance model of local governments, including the control on LGFVs through the new Budget Law. However, these changes cannot solve the problem of revenue deficit of local governments which are already heavily relied on land-leasing income. We suggest that there has to be a significant institutional reform, for example, in the tax-sharing system to find alternative revenue model rather than land finance. Property tax is a long-discussed alternative revenue to replace land-leasing revenue, but it also has many problems, such as the lack of legitimate basis due to the public and state ownership of land and property in China.

Third, there should be a more comprehensive spatial planning on local level that outlines the boundary between urban space and open land. The mismatch of the current urban master plan and land use plan results in many cases of unrealistically ambitious urban master planning in pursuit of great urban expansion. Currently the promotion of "National Spatial Planning" and the integration of multiple planning systems are undergoing in China. The actual effect of this reform is yet to know, but this will be a very good research topic in the future.

Fourth, more public participation is needed in local decision-making process of urban development, from city level strategy to neighbourhood level development. Currently the level of public participation in the urban growth process is close to zero. This has caused obvious suboptimal outcomes of urban development, as the voice of local residents is always absent. For examples, metro station location planning sometimes deliberately surpasses established communities and aligns with land development and new urban projects. However, it is very unlikely that the future approach of urban development in China will have more room for public participation. The Chinese state seeks more and more control in nearly every aspects of social management rather than the other way around.

In terms of the future research agenda, more attention could be given to the post-reform integrated planning system and its impact on local planning strategy, practice and form of urban governance, especially regarding land conversion, open land protection, and the implementation of ecological planning practice. Second, after the implementation of the undergoing property tax policy, the potential impact on local government's fiscal structure, especially the share of land-leasing revenue, as well as the potential change of local development strategy and urban governance, is worth to be investigated. Third, more attention could be given to moderately developed, medium-sized cities like Yongcheng. Whether these cities are facing similar development dilemmas and how they react to a series of the ongoing institutional reforms to the planning system and property taxation could be interesting questions to consider, especially in comparison with those more advanced cities. Fourth, as the Xiong'an new area project is still under implementation, further study is

needed to investigate how and to what extent the policy experiment on land finance mechanism being implemented, which can provide more detail about contemporary shifts in urban governance. Fifth, the agency of residents, communities and social organisations in the process of urban growth practice offers another possible subject for future research. Such a study could help to address a current gap in understanding about the agency of social and community actors in studies of state entrepreneurialism.

All in all, we hope this study is helpful for the those who have interests in the study of urban growth mechanisms, sustainable transition, and China's particularities. We also hope that policymakers, governors, and urban planners in China can understand that urban sustainability is not merely confined to ecological environment protection and rehabilitation, but more about forming a way of urban growth and space production that is efficient in land utilisation, moderate in environment impact, equitable in social distribution and manageable in financial operation.

Chapter 3 Appendix A

Detailed information of interviewees

Interviewee No.	Respondent's host organisation	Respondent's position
1	Guangzhou Urban Planning and Design Institute	Urban planner working on R+P projects in Guangzhou
2	Shenzhen Urban Planning and Land Resource Research Centre	Senior urban planner who led several R+P projects and general TOD planning in Shenzhen
3	Foshan City Planning, Design and Research Institute	Urban planner working on R+P project in Foshan
4	Guangzhou Metro Group	Architect is familiar with transit provider arrangements in R+P projects
5	South China University of Technology	Professor with experience in station area development in Guangzhou and Foshan
6	South China University of Technology	Professor with experience in TOD planning and urban growth theory

Chapter 4 Appendix B

Interviewees in Yongcheng between November 2018 and January 2019

Interviewee No.	Respondent's host organisation	Respondent's position
1	Yongcheng Planning and Design Institute	Vice Head
2	Yongcheng Planning and Design Institute	Officer
3	Yongcheng Planning and Design Institute	Officer in technical section
4	Yongcheng Housing and Urban-Rural Development Commission (JHURDC)	Officer
5	Construction Company under the JHURDC	Vice Head
6	Yongcheng Planning Bureau	Officer
7	Yongcheng Development and Reform Commission	Chief
8	Yongcheng Land Investment and Development Company (JLIDC)	Vice Head
9	Yongcheng Bus Company	Chief
10	Yongcheng Urban Management	Officer
11	Yongcheng Bureau of Land and Resources	Officer
12	Yongcheng Traffic Police	Officer
13	Zhanghe New District Management Committee (district-level government)	Officer
Meeting	Meeting with Planning Bureau	Officers
Workshop	Experts Workshop	Experts from Mainland China, Hong Kong and the Netherlands

Summary

During the course of the 21st century, China has experienced one of the fastest urban growth processes in history. Its rapid urban growth has not only contributed to its industrial and technological development but it has also functioned as a key driver of its national economic growth. As well as bringing many benefits, China's rapid urban growth has also brought a number of serious risks and challenges. In addition to its social impacts, such as increasing income gaps, urban and rural inequality and conflicts, urban growth has also posed severe environmental challenges such as the loss of open land, and the increasing burdens of water and air pollution. Moreover, the financial risks of urban development have become increasingly apparent, as witnessed by the very recent misfortunes of some of China's property giants such as Evergrande, and the continuing difficulties faced by several local governments in dealing with severe financial debts. Although China's rapid urban growth has accompanied its economic growth, the situation is becoming more and more unsustainable. In response, the Chinese government has proposed several policy frameworks and development strategies over recent years, such as '*Ecological Civilisation*' and '*New-type Urbanisation*', in order to increase emphasis on sustainability and ecological protection in urban development. To achieve such an urban sustainable transition from a quantity-oriented to a quality-oriented approach, '*Governance Modernisation*' has now been given central stage as one of the newest state narratives after the modernisation of technology and industry[6]. The goal of this thesis is to uncover the kind of changes that have taken place in

[6] 'the Four Modernisations' were a set of overarching goals proposed by Deng Xiaoping in the 1970s to achieve the modernisation of agriculture, industry, national defence, and science and technology in China.

urban governance during the Chinese government's attempts to realise its sustainable transition in urban growth.

The existing academic literature has provided many theoretical foundations for carrying out research on the governance of urban growth. The notion of 'urban entrepreneurialism' developed by David Harvey is one of the key concepts that marks a historical change of urban governance from managerialism to entrepreneurialism in capitalist countries. Building on Harvey's ideas, Fulong Wu's concept of 'state entrepreneurialism' can be seen as an adaptation of urban entrepreneurialism to the Chinese context. Drawing on these two theories, this study aims to contribute to greater understanding about the shifts in urban governance by exploring changes in state-market relations, examining interactions and relationships among central and local states, public and non-public actors in the decision-making and development processes of sustainable urban development strategies and various levels of urban projects. Particular attention is paid to the potential changes in the existing dominant land finance model adopted for local governments under urban pro-growth governance. The overarching research question at the centre of this study is: "*how has the state (i.e. national and sub-national government) sought to form and reform urban governance to achieve its agenda in urban development?*"

This study is based on a series of case studies that provide empirical evidence and insights on China's land politics, finance and urban transformation. Three different situations are chosen for the examination of urban practice: (i) developed cities; (ii) 'average cities'; and (iii) innovative large-scale urban expansion projects. In the first part of the thesis, four cities

are examined from the Pearl River Delta, namely Guangzhou, Shenzhen, Foshan and Zhuhai. In the second part of the thesis, attention is turned to an anonymous medium-sized city of 'Yongcheng' in Hubei province. The third part of the thesis focuses on the latest national level mega-urban project of Xiong'an New Area. As a primarily qualitative study, first-hand data was collected using a variety of research methods including semi-structured and non-structured interviews, focus groups, and fieldworks, as well as supporting data from various types of government reports, statistics, policy documents, plans, and state and non-state news.

Part 1 considers two sets of case studies. Firstly, local tax and land-leasing revenues are compared in four developed cities, revealing a close link between land-leasing revenue dependency and urban pro-growth strategies. New town development has become a major strategy of land development and urban expansion in these developed cities. With a high dependency on land-leasing revenues, sustainable concepts in new town development have often primarily functioned as branding techniques to attract new investment and promote economic growth. Secondly, community-scale, project-based practices related to transit-oriented development (TOD) are examined in Guangzhou and Shenzhen. The analysis reveals a default growth model employed by municipalities where land-leasing revenue around transit stations which acts as a barrier to the implementation of TOD practice. However, informal arrangements among local governments, transit providers and developers can be also found at certain types of transit nodes like depot stations and hub stations which can lead to better integration of transit and land development.

Part 2 contains an exploratory case study based on the medium-sized city of Yongcheng. The research contributes to an understanding of policy changes in sustainable urban development at the central level, and also highlights the tensions and struggles generated within the local state in its policy-making and policy implementation processes. The findings show that even if there are significant ideational changes at central government level, the local state still struggles to move away from its urban pro-growth paradigm. The dependence on state-led investment in urban development is deeply embedded in China's political and economic systems which goes above and beyond the agency of the local state.

Part 3 of the thesis focuses on China's future pathways of new forms of urban governance, through a case study of the national-level project of Xiong'an New Area with extensive political endorsement, including President Xi. The findings show that Xiong'an aims to develop a new economic governance regime beyond the regimes of globalised industrial production and place production in the traditional technopoles. The strictly controlled land finance mechanisms and property speculation in Xiong'an suggests a clear departure from the existing entrepreneurial governance. It depicts an ideal form of urban governance from the state's perspective which emphasizes a retreat of market exchange and the dominance of the state in social provision.

In conclusion, although there is a clear change in policy regarding urban sustainable transition at the central government level, implementation at the local level has proven to be limited where pro-growth urban practices still prevail. The current pro-growth governance approach reflects an underlying mechanism of using investment to boost economic growth

which brings systemic financial risks of overinvestment. The state-endorsed practices of state entrepreneurialism obstruct fundamental paradigmatic change as the state itself is deeply embedded in such mechanisms. The major difference between the concepts of state entrepreneurialism and urban entrepreneurialism is not about 'state' versus 'urban', nor 'China' versus 'West', but about whether the public-private partnership in urban development is led by political elites or business elites or, in another words, 'state-led urban entrepreneurialism' versus 'business-led urban entrepreneurialism'. One of the emerging instruments is a state-led hegemon for urban development and social provision.

In common with all theses of this type, there are of course limitations to the research which are recognised. First, limited attention is paid to the interactions with and interventions from higher tiers of governments, especially regarding the latest institutional reform of planning system integration. Second, limited attention is paid to the agency of local residents, communities and social organisations in the process of urban development. Third, the findings from Yongcheng have limited generalisability and replicability due to its exploratory single case study design.

Based on the results of the research (and its limitations), several recommendations for new areas of study are proposed for the future. The first research area concerns the examination of change in urban governance after the current reform of the planning system as well as the implementation of land and property tax policy. The second area relates to the exploration of the agency of residents, communities and social organisations in the future form of urban governance with a state dominance in development and social provision which could provide

valuable knowledge for the understanding of China's governance model. The third area of research concerns the struggles and dilemmas of policy-makers within moderately developed, medium-sized cities that have largely been overlooked in urban studies to date.

Samenvatting

In de loop van de 21e eeuw heeft China een van de snelste verstedelijkingsprocessen in de geschiedenis doorgemaakt. De snelle stedelijke groei heeft niet alleen bijgedragen aan de industriële en technologische ontwikkeling, maar fungeerde ook als een essentiële motor van zijn economische groei. Naast onmiskenbare voordelen met betrekking tot maatschappelijke welvaart brengt een dergelijk pro-groeimodel brengt echter ook een reeks risico's en uitdagingen met zich mee. Naast de veelbesproken maatschappelijke uitdagingen zoals een groeiende inkomenskloof, ongelijkheid tussen stad en platteland en onteigeningsconflicten; en onvoorstelbare milieu-uitdagingen zoals verlies van landbouwgrond, water- en luchtvervuiling, worden de financiële risico's van stedelijke ontwikkeling ook steeds zorgwekkender aangezien enkele van China's vastgoedreuzen zoals Evergrande recentelijk in grote betalingsmoeilijkheden zijn gekomen en de nationale economie op zijn grondvesten doen schudden, evenals een aanzienlijk aantal lokale overheden die worstelen met ernstige financiële en schuldproblemen. Hoewel de snelle stedelijke groei van China verenigbaar is geweest met zijn economische groeiwonder, wordt bovenstaande situatie steeds onhoudbaarder. Als reactie hierop heeft de Chinese overheid de afgelopen jaren verschillende beleidskaders en ontwikkelingsstrategieën voorgesteld, zoals ‘Ecologische Beschaving’ en ‘Nieuwe Verstedelijking’, waarin de nadruk wordt gelegd op duurzaamheid en ecologische bescherming in stedelijke ontwikkeling. Om zo’n stedelijke duurzame transitie van een kwantiteitsgericht naar een kwaliteitsgericht benadering te realiseren, staat bestuurlijke modernisering (‘Governance Modernisation’) nu centraal als een van de nieuwste partijstaatverhalen volgend op technologische en industriele modernisering. Wat

ons het meest interesseert, is om erachter te komen wat voor soort veranderingen er hebben plaatsgevonden in het stedelijk bestuur met de pogingen van de Chinese regering om een duurzame transitie binnen stedelijke groei te realiseren.

De bestaande wetenschappelijke literatuur heeft veel theoretische bouwstenen opgeleverd om onderzoek uit te voeren omtrent de omgang met stedelijke groei. De notie van 'urban entrepreneurialism' ontwikkeld door David Harvey is een van de sleutelbegrippen die een historische verandering markeert van stedelijk bestuur van ‘managerialism’ naar ondernemerschap in kapitalistische landen. Fulong Wu heeft voortgebouwd op Harveys ideeen en zijn concept 'state entrepreneurialism' worden gezien als een aanpassing van stedelijk ondernemerschap aan de Chinese context. Deze studie put uit hun werk en heeft tot doel bij te dragen aan het begrip van het potentieel veranderende stedelijke bestuur in het duurzame transitieproces door de veranderingen in staat-marktrelaties, de interacties tussen centrale en lokale staten, en tussen publieke en niet-publieke partijen te onderzoeken. We besteden extra aandacht aan de mogelijke veranderingen in het bestaande dominante landfinancieringsmodel dat is aangenomen voor lokale overheden onder de stedelijk pro-groeibenadering. De overkoepelende onderzoeksvraag van deze studie luidt "hoe heeft de staat (d.w.z. de nationale en subnationale overheden) getracht stedelijk bestuur te vormen en te hervormen om zijn beleidsagenda in stedelijke ontwikkeling te verwezenlijken?"

Deze studie is gebaseerd op een reeks casestudies om empirisch bewijs en inzichten te verschaffen over de Chinese landpolitiek, financiën en stedelijke transformatie. Voor het onderzoek van de stedelijke praktijk worden drie verschillende situaties onderscheiden: (i)

ontwikkelde steden; (ii) gemiddelde steden; en (iii) innovatieve grootschalige stedelijke uitbreidingsprojecten. In het eerste gedeelte van deze dissertatie zijn vier steden uit de Parelrivierdelta geselecteerd, namelijk Guangzhou, Shenzhen, Foshan en Zhuhai voor deel 1; de anonieme middelgrote stad 'Yongcheng' in de provincie Hubei is geselecteerd voor het 2e gedeelte; het 3e gedeelte richt zich op het nieuwste mega-stedelijke project op nationaal niveau van Xiong'an New Area. Als een voornamelijk kwalitatieve studie hebben we gegevens uit de eerste hand verzameld van verschillende methoden, waaronder semi-gestructureerde en niet-gestructureerde interviews, focusgroepen en veldwerk, evenals ondersteunende gegevens uit verschillende soorten overheidsrapporten, statistieken, beleidsdocumenten, plannen en staats- en niet-statelijk nieuws.

Deel 1 bestaat uit twee sets casusstudies. Eerst worden vier ontwikkelde steden onderzocht met een vergelijking van de inkomsten uit lokale belastingen en grondpacht. Er wordt een nauw verband gelegd tussen de afhankelijkheid van inkomsten uit landverhuur en stedelijke groeibevorderende strategieën. De ontwikkeling van 'new towns' is een belangrijke strategie geworden voor projectontwikkeling en stadsuitbreiding in deze ontwikkelde steden. Met een hoge afhankelijkheid van de inkomsten uit grondverhuur, functioneerden duurzame concepten in de ontwikkeling van nieuwe steden vaak alleen als merktechnieken om investeringen aan te trekken en groei te bevorderen. Ten tweede worden Guangzhou en Shenzhen verder geselecteerd voor het onderzoek van de op gemeenschapsschaal gebaseerde, projectmatige praktijk van Transit Oriented Development (TOD). Met de analyse van drie verschillende soorten TOD-praktijken, is een standaardmodel gevonden dat wordt aangedreven door inkomsten uit landverhuur rond stedelijke ontwikkeling rond

doorvoerstations, dat een belemmering vormt voor de implementatie van TOD. In bepaalde typen OV-knooppunten, zoals depotstations en knooppuntstations, zijn echter ook informele afspraken tussen lokale overheden, vervoerders en ontwikkelaars te vinden die leiden tot een betere integratie van vervoer en landinrichting.

Deel 2 bevat een verkennende case study gebaseerd op de middelgrote stad Yongcheng. Het onderzoek draagt in de eerste plaats bij aan een begrip van beleidsveranderingen in duurzame stedelijke ontwikkeling op centraal niveau, en het onderzoekt ook de spanningen en strijd die binnen de lokale staat worden gegenereerd in haar beleidsvormings- en uitvoeringsprocessen. De bevindingen laten zien dat, zelfs als er belangrijke ideeënveranderingen plaatsvinden op het niveau van de centrale overheid, de lokale staat nog steeds moeite heeft om afstand te nemen van zijn paradigma voor stedelijke groei. De afhankelijkheid van door de staat geleide investeringen in stedelijke ontwikkeling is diep verankerd in de politieke en economische systemen van China, die verder gaan dan de lokale overheid.

Deel 3 van de dissertatie richt zich op China's toekomstige wegen van nieuwe vormen van stedelijk bestuur, door middel van een case study van het project op nationaal niveau van Xiong'an New Area met grote politieke steun van president Xi zelf. De bevindingen tonen aan dat Xiong'an ernaar streeft een nieuw economisch regime te ontwikkelen dat verder gaat dan dat van geglobaliseerde industriële productie en de productie in de traditionele technopolen plaatst. De strikte regulering van grondfinancieringsmechanismen en speculatie rond onroerend goed in Xiong'an suggereren een duidelijke afwijking van bestaande

bestuurspraktijken. Het weerspiegelt wat partij en staat zien als een ideale vorm van stedelijk bestuur, waarbij de nadruk ligt op een vermindering van de dominantie van de markt en een navenant groeiende rol van de staat in het realiseren van maatschappelijke voorzieningen.

Concluderend, hoewel er een duidelijke beleidswijziging ten aanzien van duurzame stedelijke transitie is op het niveau van de centrale overheid, is de uitvoering op lokaal niveau beperkt gebleken; daar heeft de op groei gerichte aanpak nog steeds duidelijk de overhand. De vorming van de huidige groeibevorderende benadering weerspiegelt de werking van een essentieel mechanisme waarbij investeringen gebruikt worden om economische groei te stimuleren, leidend tot systematische risico's van overinvestering en opoffering van groene ruimte. De door de staat geleide kenmerken van staatsondernemerschap maken het er niet gemakkelijker op om de veriste paradigmawisseling te bevorderen, aangezien de staat zelf ook diep in dergelijke mechanismen is verankerd. Bovendien gaat het grote verschil tussen de concepten van staatsondernemerschap en stedelijk ondernemerschap niet over 'staat' versus 'stedelijk', noch over 'China' versus 'West', maar over de vraag of het publiek-private partnerschap in stedelijke ontwikkeling wordt geleid door politieke elites of door zakelijke elites, met andere woorden, 'door de staat geleid stedelijk ondernemerschap' versus 'door het bedrijfsleven geleid stedelijk ondernemerschap'. Als we kijken naar de toekomstige opties van China om het stedelijk bestuur te hervormen, voorspellen we ook een opkomende door de staat geleide hegemonie in de benadering van stedelijke ontwikkeling en levering van publieke voorzieningen, waarbij de markt alleen door de staat wordt gebruikt als een van de vele andere instrumenten.

Zoals gebruikelijk bij dit type onderzoek heeft ook deze studie uiteraard een aantal beperkingen. Ten eerste wordt er maar beperkt aandacht besteed aan de interacties met en interventies van hogere overheden, vooral met betrekking tot de laatste institutionele hervorming van de integratie van planningsystemen. Ten tweede is er weinig aandacht voor de inbreng van omwonenden, gemeenschappen en maatschappelijke organisaties in het proces van stedelijke ontwikkeling. Ten derde hebben de bevindingen van Yongcheng een beperkte generaliseerbaarheid en repliceerbaarheid vanwege het verkennende ontwerp van een enkele gevalsstudie.

Op basis van de resultaten van het onderzoek doen we een aantal beleidsaanbevelingen voor de toekomst. De eerste is om de verandering in stedelijk bestuur nader te bezien na de afronding van hervorming omtrent de integratie van het planningssysteem met dat voor grondbeleid en onroerendgoedbelasting, die tot voor kort in China nog gescheiden waren maar recent samen zijn gebracht onder dezelfde leiding. Ten tweede zal het verkennen van de inzet van bewoners, gemeenschappen en sociale organisaties in de toekomstige vorm van stedelijk bestuur met een dominantie van de staat in ontwikkeling en sociale voorzieningen waardevolle kennis opleveren voor het begrip van het Chinese bestuursmodel. Ten derde is er meer onderzoek nodig om de worstelingen en dilemma's in de matig ontwikkelde, middelgrote steden te begrijpen die tot op heden in de literatuur over stedelijke ontwikkeling in China grotendeels over het hoofd zijn gezien.

Acknowledgements

From February 2016 to July 2021, I had been living in the Netherlands for five and a half years. For a PhD journey, it is far from amazing in terms of academic working. For most of the time, it is just me struggling with myself no matter for productivity or creativity, as well as rethinking about life choices. However, it is such an amazing journey as a life experience, that I feel lucky about myself being able to witness all these significant changes in our world from a place that has one of the highest levels of free information flow. Maybe after 10, 20, and even 30 years, I will still feel lucky when thinking about this journey and also when telling others that I was there, in the Netherlands, to witness the Refugee Crisis, the Brexit, the election of Trump, the COVID pandemic. It is a journey for me to know the world, to understand how a society works, to experience a totally different lifestyle. I miss the time when I am able to chat with people with very different backgrounds and values, and we are all free to express ourselves. The level of diversity and freedom in the Dutch society astonishes me. On the other hand, I have learnt that some seemingly long standing values and beliefs can be fragile and people have to keep fighting for what they believe. I have also learnt that it would still be hard to form a simple consensus for everyone when facing a crisis even in a highly mature society, because people can have totally different ways to comprehend the world and different values to believe in. Looking back, those five and a half years in the Netherlands has become one of the most valuable life journeys for me, not only to know the world, but also to know myself.

For the completion of this PhD program, as well as this amazing life journey, I have received a great deal of help, support and accompanying that I want to appreciate. First I would like to thank my supervisors, Professor Martin de Jong and Professor Domonic Stead for not only providing valuable guidance in doing research, but also invaluable mentally support during my difficult time. You always endure my procrastination and encourage and motivates me when I got stuck and lost in doing research. For Martin, I still feel sorry that for several times you had to sacrificed your weekends to edit my work just because I put everything to the last minute. For Dominic, you are always patient to me and keep me calm when I worry too much. You are both kind to me but strict to my research. Without your help, I could have never completed my PhD.

I would like to thank my Chinese colleagues Dr. Haiyan Lu, Dr. Changjie Zhan, Dr. Wei Yang, Dr. Wenting Ma and Biyue Wang for the time we had worked together, for the efforts in the projects that we collaborated, and for the co-authorships. I would like to thank Dr. Hadi Asghari, Dr. Mark de Bruijne, and Dr. Wijnand Veeneman for your help with the teaching and PhD related issues in the TPM faculty. I would like to thank the section secretaries Joy van Eijk and Wendela Nooteboom for smoothing my arrival, stay and departure. I would also like to thank Dr. Negar Noori, Dr Kees Krul and many other colleagues and professors that I cannot list here from the faculties of TPM and BK of TU Delft, and Erasmus University.

I would also like to thank my family and friends for the material and mental support during all these years. Especially my mother, thank you for your love. I would like to thank my

American friend Alex, you are one of the very few close friends during my stay in TU Delft, I had a lot of fun with you. I would like to thank my ex-girlfriend Jiequn for spending time together and giving me a period of wonderful time. I would also like to thank my ex-ex-girlfriend Xiaojing for the support and joy you have been giving as a lifelong friend.

Publication list

1. Song, Y., Stead, D., & de Jong, M. (2020). New Town development and sustainable transition under urban entrepreneurialism in China. *Sustainability* (Switzerland), 12(12), 1–20. https://doi.org/10.3390/su12125179
2. Song, Y., de Jong, M., & Stead, D. (2021). Bypassing institutional barriers: New types of transit-oriented development in China. *Cities* 113(103177), 1-9. https://doi.org/10.1016/j.cities.2021.103177
3. Song, Y., Stead, D., de Jong, M., Yang, W. & Wang, B. Dreaming the wrong dream: An exploratory case study of a policy change towards sustainable urban development in a medium-sized Chinese city. *Journal of Urban Affairs* (accepted)
4. Song, Y., de Jong, M., Liu, Z., & Stead, D. Developing Xiong'an New Area: Smart urban governance in China's latest technopole? *Planning Theory & Practice* (submitted)
5. Lu, H., de Jong, M., Song, Y., Zhao, M. (2020). The multi-level governance of formulating regional brand identities: Evidence from three City regions in China. *Cities.* 100(102668), 1-18. https://doi.org/10.1016/j.cities.2020.102668
6. Yang, W., Veeneman, W., de Jong, M., Song, Y. (2020). Integrated transport management: Lessons from a Chinese city. *Research in Transportation Economics.* 38(100918): 1-9. https://doi.org/10.1016/j.retrec.2020.100918
7. 宋昀，汤朝晖，从经典式到现代式——对中国城市 TOD 规划的启发，*城市规划* (2016)3: 71-85. https://doi.org/10.11819/cpr20160312a

Curriculum Vitae

Yun Song was born on 17 November 1988 and grew up in Guangzhou, China. He obtained his bachelor degree in Urban Planning at South China University of Technology in 2012, where he also obtained the master degree in Architecture later in 2015. Yun Song started his PhD research at the Faculty of Technology, Policy and Management, Delft University of Technology in February 2016. His research focused on the governance of urban growth in China's rapid urbanisation and the ongoing sustainable transition.

Reference:

Aiera (2019) ‘2019 Zhongguo rengong zhineng baipishu’[‘2019 White Paper on AI unicorns in China’]. Available at: http://www.cbdio.com/image/site2/20190916/f42853157e261ee994f501.pdf (accessed 20 May 2019).

Ashworth, G. J., & Voogd H (1990) *Selling the City: Marketing Approaches in Public Sector Urban Planning*. DOI: 10.1016/0264-2751(92)90019-2.

Ashworth GJ and Voogd H (1990) *Selling the City: Marketing Approaches in Public Sector Urban Planning*. London: Belhaven.

Banister D (2008) The sustainable mobility paradigm. *Transport Policy* 15(2). Elsevier: 73–80. DOI: 10.1016/j.tranpol.2007.10.005.

BBC Chinese (2014) ‘Lianghui guancha: Zhongguo junfei he “weiwen” kaizhi’[‘Observing Lianghui:China’s military and “weiwen” expenditure’]. Available at:https://www.bbc.com/zhongwen/simp/china/2014/03/140305_ana_china_npc_army (accessed 5 March 2014).

BBC Chinese (2017) ‘Zhongguo xuanbu de Xiongan xinqu shi zenme yihuishi?’[‘What is going on with China’s newly released Xiong’an New Area?’]. Available at: https://www.bbc.com/zhongwen/simp/chinese-news-39478216 (accessed 3 April 2017).

BBC Chinese (2019) ‘“XueXiQiangGuo”: Xi Jinping “Hongbaoshu” dengshang App paihang bangshou’[‘ “XueXiQiangGuo”: Xi Jingping’s “Hongbaoshu” ranks the 1st

in App download']. Available at: https://www.bbc.com/zhongwen/simp/chinese-news-47250294 (accessed 16 February 2019).

Begg I (1999) Cities and Competitiveness. *Urban Studies* 36(5–6): 795–809. DOI: 10.1080/0042098993222.

Berg PO and Björner E (2014) *Branding Chinese Mega-Cities: Policies, Practices and Positioning*. Cheltenham: Edward Elgar Publishing.

Berman S (2013) Ideational Theorizing in the Social Sciences since "Policy Paradigms, Social Learning, and the State". *Governance* 26(2): 217–237. DOI: 10.1111/gove.12008.

Bertolini L and Spit T (1998) *Cities on Rail: The Redevelopment of Railway Station Area*. London: Routledge.

Blyth MM (1997) 'Any More Bright Ideas?' The Ideational Turn of Comparative Political Economy. *Comparative Politics* 29(2): 229–250. DOI: 10.2307/422082.

Boyle M (1997) Civic Boosterism in the Politics of Local Economic Development—'Institutional Positions'; and 'Strategic Orientations' in the Consumption of Hallmark Events. *Environment and Planning A: Economy and Space* 29(11): 1975–1997. DOI: 10.1068/a291975.

Campbell JL (2002) Ideas, politics, and public policy. *Annual Review of Sociology* 28: 21–38. DOI: 10.1146/annurev.soc.28.110601.141111.

Campbell JL (2004) *Institutional Change and Globalization*. Princeton University Press. DOI: 10.2307/j.ctv131bw68.

Cao G-Y, Chen G, Pang L-H, et al. (2012) Urban growth in China: past, prospect, and its impacts. *Population and Environment* 33(2–3): 137–160. DOI: 10.1007/s11111-011-

0140-6.

Carson M, Burns TR and Calvo D (2009) *Paradigms in Public Policy : Theory and Practice of Paradigm Shifts in the EU*. Frankfurt: Peter Lang GmbH. Available at: https://www.academia.edu/25558449/Paradigms_in_public_policy_Theory_and_practice_of_paradigm_shifts_in_the_EU.

Cartier C (2002) Transnational urbanism in the reform-era Chinese City: Landscapes from Shenzhen. *Urban Studies* 39(9): 1513–1532. DOI: 10.1080/00420980220151637.

Castells M (1977) *The Urban Question: A Marxist Approach*. Cambridge MA: The MIT Press.

Castells M (1983) *The City and the Grassroots*. Berkeley: University of California Press.

Castells M and Hall P (1994) *Technopoles of the World: The Making of Twenty-First-Century Industrial Complexes*. London and New York: Routledge.

Central Committee (CPC) & State Council (2015) *State Council Integrated Reform Plan for Promoting Ecological Progress*. Beijing, China: Central Committee (CPC) & State Council.

Cervero R (1998) *The Transit Metropolis: A Global Inquiry*. Washington, DC: Island Press.

Cervero R (2004) *Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects*. Transportation Research Board.

Cervero R and Day J (2008) Suburbanization and transit-oriented development in China. *Transport Policy* 15(5): 315–323. DOI: 10.1016/j.tranpol.2008.12.011.

Cervero R and Murakami J (2009) Rail and property development in Hong Kong: Experiences and extensions. *Urban Studies* 46(10): 2019–2043. DOI:

10.1177/0042098009339431.

Chan KW (2010) Fundamentals of China's urbanization and policy. *China Review* 10(1): 63–94.

Chen F (2016) The design dimension of China's planning system: urban design for development control. *International Planning Studies* 21(1). Taylor & Francis: 81–100. DOI: 10.1080/13563475.2015.1114452.

Chen M, Liu W and Lu D (2016) Challenges and the way forward in China's new-type urbanization. *Land Use Policy* 55(2016). Elsevier Ltd: 334–339. DOI: 10.1016/j.landusepol.2015.07.025.

Chen M, Gong Y, Lu D, et al. (2019) Build a people-oriented urbanization: China's new-type urbanization dream and Anhui model. *Land Use Policy* 80(September 2018). Elsevier: 1–9. DOI: 10.1016/j.landusepol.2018.09.031.

Cheshire P (1999) Cities in Competition: Articulating the Gains from Integration. *Urban Studies* 36(5–6): 843–864. DOI: 10.1080/0042098993240.

Chien S-S (2013) New local state power through administrative restructuring – A case study of post-Mao China county-level urban entrepreneurialism in Kunshan. *Geoforum* 46: 103–112. DOI: 10.1016/j.geoforum.2012.12.015.

Chinanews (2021) China has 93 cities over one million population. Available at: https://www.chinanews.com/gn/2021/04-20/9458761.shtml (accessed 20 April 2021).

Clark JJ (2014) Siting 'scientific spaces' in the US: The push and pull of regional development strategies and national innovation policies. *Environment and Planning C: Government and Policy* 32(5): 880–895. DOI: 10.1068/c1271r.

Cohen JP, Cughin CC and Ott LS (2009) Auctions as a vehicle to reduce airport delays and achieve value capture. *Federal Reserve Bank of St. Louis Review* 91(6): 569–587. DOI: 10.20955/r.91.569-588.

Cox KR (1995) Globalisation, Competition and the Politics of Local Economic Development. *Urban Studies* 32(2): 213–224. DOI: 10.1080/00420989550013059.

Curtis C, Renne J and Bertolini L (2009) TODs for a Sustainable Future: Key Principles to 'Make TOD Happen'. In: *Transit Oriented Development: Making It Happen*. Farnham: Ashgate Publishing Ltd, pp. 256–267.

Curtis C, Renne JL and Bertolini L (2009) *Transit Oriented Development: Making It Happen*. Farnham, UK: Ashgate Publishing Ltd. Available at: http://books.google.com/books?id=afDiim_RVAUC&pgis=1.

Daigneault P-M (2014) Reassessing the concept of policy paradigm: aligning ontology and methodology in policy studies. *Journal of European Public Policy* 21(3): 453–469. DOI: 10.1080/13501763.2013.834071.

Daigneault P-M (2015) Can You Recognize a Paradigm When You See One? Defining and Measuring Paradigm Shift. In: *Policy Paradigms in Theory and Practice*. London: Palgrave Macmillan UK, pp. 43–60. DOI: 10.1057/9781137434043_3.

Daugbjerg C (1997) Policy networks and agricultural policy reforms: Explaining deregulation in Sweden and re-regulation in the European Community. *Governance* 10(2): 123–141. DOI: 10.1111/0952-1895.341997034.

de Jong M (2019) From Eco-Civilization to City Branding : A Neo-Marxist Perspective of Sustainable Urbanization in China. *Sustainability (Switzerland)* 11(20): 5608. DOI: 10.3390/su11205608.

De Jong M, Joss S, Schraven D, et al. (2015) Sustainable-smart-resilient-low carbon-eco-knowledge cities; Making sense of a multitude of concepts promoting sustainable urbanization. *Journal of Cleaner Production* 109: 25–38. DOI: 10.1016/j.jclepro.2015.02.004.

Deleuze G and Guattari F (1987) *A Thousand Plateaus Capitalism and Schizophrenia* (B Massumied.). London/New York: Continuum.

Dittmar H and Ohland G (2004) *The New Transit Town: Best Practices in Transit-Oriented Development*. Island Press. DOI: 10.5860/CHOICE.42-0424.

Doulet J-F, Delpirou A and Delaunay T (2017) Taking advantage of a historic opportunity? A critical review of the literature on TOD in China. *Journal of Transport and Land Use* 10(1): 1–16. DOI: 10.5198/jtlu.2016.633.

Duckett J (1998) *The Entrepreneurial State in China*. London: Routledge.

Fang C and Yu D (2016) *China's New Urbanization*. Berlin, Germany: Springer.

Foshan Bureau of Statistics (2019) *Foshan Statistical Yearbook*. Foshan. Available at: http://www.foshan.gov.cn/gzjg/stjj/tjnj_1110962/.

Galès P Le (2016) Neoliberalism and urban change: Stretching a good idea too far? *Territory, Politics, Governance* 4(2). Taylor & Francis: 154–172. DOI: 10.1080/21622671.2016.1165143.

Gao J, Chen W and Liu Y (2018) Spatial restructuring and the logic of industrial land redevelopment in urban China: II. A case study of the redevelopment of a local state-owned enterprise in Nanjing. *Land Use Policy* 72(September 2017). Elsevier: 372–380. DOI: 10.1016/j.landusepol.2018.01.006.

Governa F and Sampieri A (2020) Urbanisation processes and new towns in contemporary

China: A critical understanding from a decentred view. *Urban Studies* 57(2): 366–382. DOI: 10.1177/0042098019860807.

Greener I (2001) Social learning and macroeconomic policy in Britain. *Journal of Public Policy* 21(2). TU Technische Universiteit Delft: 133–152. DOI: 10.1017/s0143814x01001076.

Guangzhou Bureau of Statistics (2019) *Guangzhou Statistical Yearbook*. Guangzhou. Available at: http://210.72.4.58/portal/queryInfo/statisticsYearbook/index.

Guangzhou Gov (2017) implementation regulations of transit station-complex construction and land development of surrounding areas in Guangzhou. Available at: http://www.gz.gov.cn/gzswjk/2.1.1/201703/b732b621631d41c89671b8dc54b3c810.shtml.

Guo Y, Zhang C, Wang YP, et al. (2018) (De-)Activating the growth machine for redevelopment: The case of Liede urban village in Guangzhou. *Urban Studies* 55(7): 1420–1438. DOI: 10.1177/0042098017729788.

Hackworth J (2007) *The Neoliberal City: Governance, Ideology, and Development in American Urbanism*. Ithaca: Cornell University Press.

Hale C (2014) TOD Versus TAD: The Great Debate Resolved...(?). *Planning Practice and Research* 29(5). Taylor & Francis: 492–507. DOI: 10.1080/02697459.2012.749056.

Hall PA (1993) Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain. *Comparative Politics* 25(3): 275. DOI: 10.2307/422246.

Han M, de Jong M, Cui Z, et al. (2018) City Branding in China's Northeastern Region: How Do Cities Reposition Themselves When Facing Industrial Decline and Ecological Modernization? *Sustainability* 10(2). Multidisciplinary Digital Publishing

Institute: 102. DOI: 10.3390/su10010102.

Harvey D (1989) From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism. *Geografiska Annaler. Series B, Human Geography* 71(1): 3. DOI: 10.2307/490503.

Harvey D (2007) *A Brief History of Neoliberalism*. Oxford: Oxford University Press.

He S and Wu F (2005) Property-led redevelopment in post-reform China: A case study of Xintiandi redevelopment project in Shanghai. *Journal of Urban Affairs* 27(1): 1–23. DOI: 10.1111/j.0735-2166.2005.00222.x.

He S and Wu F (2009) China's emerging neoliberal urbanism: Perspectives from urban redevelopment. *Antipode* 41(2): 282–304. DOI: 10.1111/j.1467-8330.2009.00673.x.

Hebei News (2020) 'Xiongan xinqu: tuijin shiyu shehui zhili xiandaihua shidian jianshe'['Xiong'an new area: pushing the social governance modernisation pilot development']. Available at: http://www.rmxiongan.com/n2/2020/1208/c383557-34461982.html (accessed 8 December 2020).

Hiller HH (2000) Mega-events, Urban Boosterism and Growth Strategies: An Analysis of the Objectives and Legitimations of the Cape Town 2004 Olympic Bid. *International Journal of Urban and Regional Research* 24(2): 439–458. DOI: 10.1111/1468-2427.00256.

Howlett M and Ramesh M (2003) *Studying Public Policy: Policy Cycles and Policy Subsystems*. Oxford, UK: Oxford University Press.

Hsing Y (2010) *The Great Urban Transformation*. Oxford: Oxford University Press.

Hubei News (2017) 'Yi bi "huayuan" yizuocheng sanhuan shidai laile'['One stroke of "circle" for one city, the three ring era is coming ']. Available at:

http://news.sina.com.cn/o/2017-11-06/doc-ifynmvuq8854776.shtml (accessed 28 October 2017).

Jessop B (1998) The narrative of enterprise and the enterprise of narrative: place marketing and the entrepreneurial city. In: *The Entrepreneurial City: Geographies of Politics, Regime and Representation*. John Wiley & Sons Ltd, Chichester.

Jessop B and Sum N-L (2000) An Entrepreneurial City in Action: Hong Kong's Emerging Strategies in and for (Inter)Urban Competition. *Urban Studies* 37(12): 2287–2313. DOI: 10.1080/00420980020002814.

Jiang Y, Mohabir N, Ma R, et al. (2017) Sorting through Neoliberal Variations of Ghost Cities in China. *Land Use Policy* 69(August). Elsevier: 445–453. DOI: 10.1016/j.landusepol.2017.09.001.

Jing J and Zou H (2003) Soft-budget constraint on local governments in China. In: Rodden J, Eskeland GS, and Litvak J (eds) *Fiscal Decentralization and the Challenge of Hard Budget Constraints*. Cambridge MA: MIT Press.

Kong X and Chen D (2016) The influence of suburban development zones on deconstruction of placeness of the host regions: a case of Changsha economic and technological development zone (Chinese literature). *Human geography* 31(4): 26–32.

Kotler P, Haider DH and Rein IJ (1990) *Marketing Places: Attracting Investment, Industry, and Tourism to Cities, States, and Nations*. New York: Free Press.

Kreibich V (2012) The Mode of Informal Urbanisation: Reconciling Social and Statutory Regulation in Urban Land Management. In: Michael Waibel CM (ed.) *Urban Informalities: Reflections on the Formal and Informal*, pp. 149–170.

Kresl PK and Singh B (1999) Competitiveness and the urban economy: Twenty-four large US Metropolitan areas. *Urban Studies* 36(5–6): 1017–1027. DOI: 10.1080/0042098993330.

Kuhn TS (1962) *The Structure of Scientific Revolutions*. Chicago, IL, USA: University of Chicago Press.

Lefebvre H (1992) *The Production of Space*. Wiley-Blackwell.

Li H and de Jong M (2017) Citizen participation in China's eco-city development. Will 'new-type urbanization' generate a breakthrough in realizing it? *Journal of Cleaner Production* 162. Elsevier Ltd: 1085–1094. DOI: 10.1016/j.jclepro.2017.06.121.

Li H and Zhou L-A (2005) Political turnover and economic performance: the incentive role of personnel control in China. *Journal of Public Economics* 89(9–10): 1743–1762. DOI: 10.1016/j.jpubeco.2004.06.009.

Li N (2016) LGFVs under the new budget law (Chinese literature). *Commercial Accounting* 04(07): 17–19.

Li Y (2018) Quanguo Maidi Shouru Mengzeng 43%, Sheizai Mengyan Kuangben [National land-leasing revenue increased 43%, who is running with eyes closed]. Available at: http://finance.people.com.cn/n1/2018/0724/c1004-30165563.html (accessed 24 July 2018).

Li Y and Wu F (2012) The transformation of regional governance in China: The rescaling of statehood. *Progress in Planning* 78(2): 55–99. DOI: 10.1016/j.progress.2012.03.001.

Li Y and Zhang X (2019) 'Xiongan xinqu yinling xinshidai zhongguo tese chengshi zhili xiandaihua'['Xiong'an new area leads urban governance modernisation with Chinese

characteristics in the new era']. Available at: http://www.81.cn/theory/2019-01/24/content_9413142.htm (accessed 24 January 2019).

Li Z, Li X and Wang L (2014) Speculative urbanism and the making of university towns in China: A case of Guangzhou University Town. *Habitat International* 44. Elsevier Ltd: 422–431. DOI: 10.1016/j.habitatint.2014.08.005.

Liang Y, Du M, Wang X, et al. (2020) Planning for urban life: A new approach of sustainable land use plan based on transit-oriented development. *Evaluation and Program Planning* 80(May 2019). Elsevier: 101811. DOI: 10.1016/j.evalprogplan.2020.101811.

Lin J (2012) An Institutional Analysis of China's 'Urban Disease' (Chinese literature). *Urban Planning Forum* 201(3): 16–22.

Lindau LA, Hidalgo D and Facchini D (2010) Curitiba, the cradle of bus rapid transit. *Built Environment* 36(3): 274–282. DOI: 10.2148/benv.36.3.274.

Liu L (2013) Nine new town plans released in Guangzhou to pay debt. Available at: http://finance.sina.com.cn/china/dfjj/20130629/000915958146.shtml (accessed 29 June 2013).

Liu W and Qin B (2016) Low-carbon city initiatives in China: A review from the policy paradigm perspective. *Cities* 51. Elsevier B.V.: 131–138. DOI: 10.1016/j.cities.2015.11.010.

Liu Y and Yau Y (2020) Urban Entrepreneurialism Vs Market Society: The Geography of China's Neoliberal Urbanism. *International Journal of Urban and Regional Research* 44(2): 266–288. DOI: 10.1111/1468-2427.12859.

Liu Z, de Jong M, Li F, et al. (2020) Towards Developing a New Model for Inclusive

Cities in China—The Case of Xiong'an New Area. *Sustainability* 12(15): 6195. DOI: 10.3390/su12156195.

Loftman P and Nevin B (1996) Going for Growth: Prestige Projects in Three British Cities. *Urban Studies* 33(6): 991–1019. DOI: 10.1080/00420989650011708.

Long Y and Gao S (2019) Shrinking Cities in China. In: Long Y and Gao S (eds) *Shrinking Cities in China: The Other Facet of Urbanization*. Singapore: Springer, pp. 3–21. DOI: 10.1007/978-981-13-2646-2.

Lu D (2012) The Proposition to Avoid the Over Advance and Inappropriate Construction of China′s Transport Infrastructures (Chinese literature). *Scientia Geographica Sinica* 32(1): 2–11.

Lu H, de Jong M, Song Y, et al. (2020) The multi-level governance of formulating regional brand identities: Evidence from three Mega City Regions in China. *Cities* 100(March). Elsevier: 102668. DOI: 10.1016/j.cities.2020.102668.

Lyu G, Bertolini L and Pfeffer K (2016) Developing a TOD typology for Beijing metro station areas. *Journal of Transport Geography* 55. Elsevier B.V.: 40–50. DOI: 10.1016/j.jtrangeo.2016.07.002.

Ma X, Chen X, Li X, et al. (2018) Sustainable station-level planning: An integrated transport and land use design model for transit-oriented development. *Journal of Cleaner Production* 170. Elsevier Ltd: 1052–1063. DOI: 10.1016/j.jclepro.2017.09.182.

Massey D (1984) *Spatial Divisions of Labor: Social Structures and the Geography of Production*. New York: Routledge.

Mcgranahan G and Satterthwaite D (2014) *Urbanisation concepts and trends*.

International Institute for Environment and Development.

Medda F (2012) Land value capture finance for transport accessibility: A review. *Journal of Transport Geography* 25. Elsevier Ltd: 154–161. DOI: 10.1016/j.jtrangeo.2012.07.013.

Miao JT, Benneworth P and Phelps NA (2015) *Making 21st Century Knowledge Complexes: Technopoles of the World Revisited*. New York: Routledge.

Molotch HL and Logan JR (1987) *Urban Fortunes: The Political Economy of Place*. Berkeley, CA, USA: University of California Press.

Murakami J (2012) *Transit Value Capture: New Town Codevelopment Models and Land Market Updates in Tokyo and Hong Kong*. Available at: https://www.lincolninst.edu/sites/default/files/pubfiles/2198_1524_LP2011_ch12_Transit_Value_Capture_0.pdf.

National Bureau of Statistics of China (2019) *Statistic year book of China*. Beijing. Available at: http://www.stats.gov.cn/tjsj/ndsj/2019/indexch.htm.

National Bureau of Statistics of China (2020) China Statistical Yearbook 2020. Available at: http://www.stats.gov.cn/tjsj/ndsj/2020/indexch.htm.

NDRC (2018a) 'Guanyu tuijin gaotiezhan zhoubian quyu heli kaifa jianshe de zhidao yijian'['Guideline about suitable urban development surrounding High-speed Rail stations']. Available at: http://www.gov.cn/xinwen/2018-05/07/content_5288710.htm (accessed 8 May 2018).

NDRC (2018b) Instructions for reasonable development of surrounding areas of high-speed railyway stations. Available at: http://www.gov.cn/xinwen/2018-05/07/content_5288710.htm.

NetEase (2017) Pictures of crowds visting Xiong'an for property purchase. Available at: https://money.163.com/photoview/251H0025/30198.html?from=tj_xgtj#p=CH1MSCMU251H0025 (accessed 3 April 2017).

NetEase (2020) 'Xiongan xinqu churang de tudi douzai zhelile, quangbu bei zhejia gongsi nale'['All of transferred land of Xiong'an obtained by this company']. Available at: http://mp.163.com/article/FQJ05UJP0517QRHO.html (accessed 4 November 2020).

Ngok K (2007) Redefining development concept in China: Towards a new policy paradigm in the new century (Chinese literature). *Chinese public policy review* 1: 46–64.

Noesselt N (2020) A Presidential Signature Initiative: Xiong'an and Governance Modernization under Xi Jinping. *Journal of Contemporary China* 00(00). Routledge: 1–15. DOI: 10.1080/10670564.2020.1744378.

North DC (1991) Institutions. *Journal of Economic Perspectives* 5(1): 97–112. DOI: 10.1257/jep.5.1.97.

Oh DS (2002) Technology-based regional development policy: Case study of Taedok Science Town, Taejon Metropolitan City, Korea. *Habitat International* 26(2): 213–228. DOI: 10.1016/S0197-3975(01)00044-3.

Oi JC (1995) The Role of the Local State in China's Transitional Economy. *The China Quarterly* (144): 1132–1149.

Ong A (2007) Neoliberalism as a mobile technology. *Transactions of the Institute of British Geographers* 32(1): 3–8. DOI: 10.1111/j.1475-5661.2007.00234.x.

Peck J and Tickell A (2002) Neoliberalizing Space. *Antipode* 34(3): 380–404. DOI: 10.1111/1467-8330.00247.

Peng J (2014) 20 years after tax-sharing reform (Chinese literature). *Research on Financial and Economic Issues* 366(5): 71–78. DOI: 10.19654/j.cnki.cjwtyj.2014.05.011.

Pengpai News (2019) 40 billion debt left by the arrested county leader in Guizhou. Available at: https://finance.sina.com.cn/china/gncj/2019-11-19/doc-iihnzahi1915459.shtml (accessed 19 November 2019).

People.cn (2017a) 'Kexue jishu shi diyi shengchanli'['Science and technology are primary productive forces']. Available at: http://cpc.people.com.cn/n1/2017/0119/c410539-29036094.html (accessed 19 January 2017).

People.cn (2017b) 'Xiongan xinqu: zhufang zushou bingju zhengfu youxian huigou'['Xiong'an new area: mixed renting and purchaing housing policy, government will buy back property from the market first']. Available at: http://politics.people.com.cn/n1/2017/0919/c1001-29545525.html (accessed 19 September 2017).

Porter M (1990) *The Competitive Advantage of Nations*. London: Macmillan.

Qian Z (2007) Institutions and local growth coalitions in China's urban land reform: The case of Hangzhou High-Technology Zone. *Asia Pacific Viewpoint* 48(2): 219–233. DOI: 10.1111/j.1467-8373.2007.00341.x.

Renne JL (2009) From transit-adjacent to transit-oriented development. *Local Environment* 14(1): 1–15. DOI: 10.1080/13549830802522376.

Sandroni P (2010) A New Financial Instrument of Value Capture in São Paulo: Certificates of Additional Construction Potential. In: Ingram G and Hong. Y (eds) *Municipal Revenues and Land Policies*. Cambridge MA: Lincoln Institute of Land Policy.

Scott D (2003) 'Creative Destruction': Early Modernist Planning in the South Durban

Industrial Zone, South Africa. *Journal of Southern African Studies* 29(1): 235–259. DOI: 10.1080/030570703200006045 8.

Shen J and Wu F (2017) The Suburb as a Space of Capital Accumulation: The Development of New Towns in Shanghai, China. *Antipode* 49(3): 761–780. DOI: 10.1111/anti.12302.

Shenzhen Bureau of Statistics (2019) *Shenzhen Statistical Yearbook*. Shenzhen. Available at: http://tjj.sz.gov.cn/zwgk/zfxxgkml/tjsj/tjnj/.

Shepard W (2015) *Ghost Cities of China: The Story of Cities without People in the World's Most Populated Country*. London: Zed Books.

Shin HB (2009) Residential Redevelopment and the Entrepreneurial Local State: The Implications of Beijing's Shifting Emphasis on Urban Redevelopment Policies. *Urban Studies* 46(13): 2815–2839. DOI: 10.1177/0042098009345540.

Shin HB (2016) Economic transition and speculative urbanisation in China: Gentrification versus dispossession. *Urban Studies* 53(3): 471–489. DOI: 10.1177/0042098015597111.

Sina finance (2017) 'Rengong zhineng "guojiadui" xiongan dengchang jiang zheyang gaibian nide shenghuo'['AI "national team" of Xiong'an will change your life like this']. Available at: http://finance.sina.com.cn/china/dfjj/2017-11-30/doc-ifyphxwa7201680.shtml (accessed 30 November 2017).

sohu news (2021) Real estate related business has grown 73.8% in 20 years. Available at: https://www.sohu.com/a/446587699_100081248 (accessed 25 January 2021).

Song Y, Stead D and de Jong M (2020) New Town development and sustainable transition under urban entrepreneurialism in China. *Sustainability (Switzerland)* 12(12): 1–20.

DOI: 10.3390/su12125179.

Sorace C and Hurst W (2016) China's Phantom Urbanisation and the Pathology of Ghost Cities. *Journal of Contemporary Asia* 46(2): 304–322. DOI: 10.1080/00472336.2015.1115532.

Spear J (2006) Urban Transport Themes in China and Lessons from International Experience. In: *European Transport Conference*, 2006, pp. 1–23.

State Council (2014) Changes about the classification of cities in terms of size. Available at: http://www.gov.cn/xinwen/2014-11/20/content_2781156.htm (accessed 20 November 2014).

State Council (2016) To improve the cites' management of urban planning and development. Available at: http://www.mohurd.gov.cn/zxydt/201602/t20160222_226694.html.

Stoker G (1995) Regime theory and urban politics. In: Judge D, Stoker G, and Wolman H (eds) *Theories of Urban Politics*. London: Sage.

Stone CN (1989) *Regime Politics: Governing Atlanta, 1946-1988*. lawrence, kansas: University Press of Kansas.

Sun X and Huang R (2016) Extension of State-Led Growth Coalition and Grassroots Management: A Case Study of Shanghai. *Urban Affairs Review* 52(6): 917–943. DOI: 10.1177/1078087415605187.

Suzuki H, Cervero R and Iuchi K (2013) *Transforming Cities with Transit*. The World Bank. DOI: 10.1596/978-0-8213-9745-9.

Suzuki H, Murakami J, Hong Y-H, et al. (2015) *Financing Transit-Oriented Development with Land Values: Adapting Land Value Capture in Developing Countries*. The

World Bank. DOI: 10.1596/978-1-4648-0149-5.

Tao R, Su F, Liu M, et al. (2010) Land Leasing and Local Public Finance in China's Regional Development: Evidence from Prefecture-level Cities. *Urban Studies* 47(10): 2217–2236. DOI: 10.1177/0042098009357961.

Tong X (2020) 'Yiqing fangkong shi dui woguo zhili tixi he zhili nengli de yici dakao'['The pandemic is a major examination to our governance system and governance ability']. Available at: http://theory.people.com.cn/n1/2020/0701/c40531-31767084.html (accessed 1 July 2020).

Tsai Y-L (2015) Behind the Economic Success of Taiwan's Hsinchu Science Industrial Park: Zoning Technologies under Neo-liberal Governmentality, Ongoing Primitive Accumulation, and Locals' Resistance. *Journal of Comparative Asian Development* 14(1): 47–75. DOI: 10.1080/15339114.2014.1000352.

Wakeman R (2016) *Practicing Utopia: An Intellectual History of the New Town Movement*. Chicago, IL, USA: The University of Chicago Press.

Walder AG (1995) Local governments as industrial firms : An organizational analysis of China's transitional economy. *American Journal of Sociology* 101(2): 263–301.

Walker R and Buck D (2007) The chinese road: Cities in the transition to capitalism. *New Left Review* (46): 39–66.

Wang D and Chai Y (2009) The jobs-housing relationship and commuting in Beijing, China: the legacy of Danwei. *Journal of Transport Geography* 17(1). Elsevier Ltd: 30–38. DOI: 10.1016/j.jtrangeo.2008.04.005.

Wang J and Leng T (2012) Production of Space and Space of Production: High-Tech

Industrial Parks in Beijing and Shanghai. *Cross-Currents: East Asian History and Culture Review* 1(1): 47–73. DOI: 10.1353/ach.2012.0007.

Wang J, Samsura DAA and van der Krabben E (2019) *Institutional Barriers to Financing Transit-Oriented Development in China: Analyzing Informal Land Value Capture Strategies*. Elsevier Ltd. DOI: 10.1016/j.tranpol.2019.07.010.

Wang S, Wu Y and Li Y (1998) Development of technopoles in China. *Asia Pacific Viewpoint* 39(3): 281–301. DOI: 10.1111/1467-8373.00070.

Wei YD (2015) Zone fever, project fever: development policy, economic transition, and urban expansion in China. *Geographical Review* 105(2): 156–177.

Williamson OE (2000) The new institutional economics: Taking stock, looking ahead. *Journal of Economic Literature* 38(3): 595–613. DOI: 10.1257/jel.38.3.595.

Wilson PA (1995) Embracing Locality in Local Economic Development. *Urban Studies* 32(4–5): 645–658. DOI: 10.1080/00420989550012816.

Wood A (1998) Making sense of urban entrepreneurialism. *Scottish Geographical Magazine* 114(2): 120–123. DOI: 10.1080/00369229818737040.

Wood A and Brock T (2015) Urban Entrepreneurialism. In: *International Encyclopedia of the Social & Behavioral Sciences: Second Edition*, pp. 795–799. DOI: 10.1016/B978-0-08-097086-8.74050-5.

Wu F (1999) The 'game' of landed-property production and capital circulation in China's transitional economy, with reference to Shanghai. *Environment and Planning A* 31(10): 1757–1771. DOI: 10.1068/a311757.

Wu F (2000) Place promotion in Shanghai, PRC. *Cities* 17(5): 349–361. DOI: 10.1016/S0264-2751(00)00031-7.

Wu F (2002) China's Changing Urban Governance. *Urban Studies* 39(7): 1071–1093. DOI: 10.1080/0042098022013549.

Wu F (2003) The (Post-) Socialist Entrepreneurial City as a State Project: Shanghai's Reglobalisation in Question. *Urban Studies* 40(9): 1673–1698. DOI: 10.1080/0042098032000106555.

Wu F (2015a) *Planning for Growth:Urban and Regional Planning in China* (R Upton, J Grant, and S Wardeds). First. New York: Routledge. DOI: 10.1080/02665433.2015.1100009.

Wu F (2015b) Planning Under Urban Entrepreneurialism. In: *Planning for Growth: Urban and Regional Planning in China*. Didcot, UK: Taylor & Francis, pp. 79–117.

Wu F (2016) China's Emergent City-Region Governance: A New Form of State Spatial Selectivity through State-orchestrated Rescaling. *International Journal of Urban and Regional Research* 40(6): 1134–1151. DOI: 10.1111/1468-2427.12437.

Wu F (2017) State entrepreneurialism in urban China. In: Pinson G and Morel Journel C (eds) *Debating the Neoliberal City*. Abingdon, Oxon: Routledge, pp. 153–173. DOI: 10.4324/9781315576046.

Wu F (2018) Planning centrality, market instruments: Governing Chinese urban transformation under state entrepreneurialism. *Urban Studies* 55(7): 1383–1399. DOI: 10.1177/0042098017721828.

Wu F and Phelps NA (2011) (Post)suburban development and state entrepreneurialism in Beijing's outer suburbs. *Environment and Planning A* 43(2): 410–430. DOI: 10.1068/a43125.

Xinghua News (2017) A few thoughts on the development of science and technology parks

of the new era. Available at: http://www.xinhuanet.com//money/2017-10/28/c_1121880030.htm (accessed 28 October 2017).

Xinhua News (2013) ‘Texie: Xi jingping jiuti “zhongguo meng”’[Close-up:‘Xi Jinping mentioned “China dream” nine times’]. Available at: http://www.xinhuanet.com//2013lh/2013-03/17/c_115054547.htm (accessed 17 March 2013).

Xinhua News (2017) ‘Zhonggong zhongyang, guowuyuan jueding sheli Hebei Xiong’an xin qu’ [‘The Central Committee and the State Council decide to establish Xiong’an New Area in Hebei province’]. Available at: http://politics.people.com.cn/n1/2017/0401/c1001-29185929.html (accessed 1 April 2017).

Xinhua News (2018) China’s urbanization rate reached 58.52%. Available at: http://www.xinhuanet.com/2018-02/04/c_1122366246.htm (accessed 4 February 2018).

Xinhua News (2020) ‘Tanjiu “jiankangma” beihou d naxie shier’[‘Let’s check what is behind “health QR code”’]. Available at: http://www.xinhuanet.com/2020-06/08/c_1126088493.htm (accessed 8 June 2020).

XinhuaNet (2019a) How to avoid ‘yiguanjiusi, yifangjiuluan’. Available at: http://www.xinhuanet.com/politics/2019-12/25/c_1125385181.htm (accessed 25 December 2019).

XinhuaNet (2019b) ‘Zhaoshang Yinhang Ding Anhua: Penggai zhengce deshikao’[‘Ding Anhua from CMB: Pros and Cons of the Shantytown renovation policy’]. Available at: http://www.xinhuanet.com/money/2019-07/11/c_1210191051.htm (accessed 11

July 2019).

Xiongan.gov (2018) ‘Hebei Xiongan Xinqu Guihua Gangyao’[Planning guidelines of Xiong’an New Area, Heibei]. Available at: http://www.xiongan.gov.cn/2018-04/21/c_129855813_2.htm (accessed 21 April 2018).

Xiongan.gov (2019) ‘Xiongan xinqu jiang chuangjian shehui xinyong tixi jianshe tese shifanqu’[‘Xiong’an new area will establish a demonstration zone for social credit system’]. Available at: http://www.xiongan.gov.cn/2019-06/25/c_1210169133.htm (accessed 25 June 2019).

Xu J (2009) Governing city-regions in China: *Theoretical issues and perspectives for regional strategic planning*. *Town Planning Review* 79(2): 157–186. DOI: 10.3828/tpr.79.2-3.2.

Xu J and Yeh AGO (2005) City repositioning and competitiveness building in regional development: New development strategies in Guangzhou, China. *International Journal of Urban and Regional Research* 29: 283–308. DOI: 10.1111/j.1468-2427.2005.00585.x.

Xu J and Yeh AGO (2010) Governing global city regions in China and the West. *Progress in Planning* 73(1): 17–22. DOI: 10.1016/j.progress.2009.12.001.

Xu X (1985) Guangzhou: China’s Southern Gateway. In: *Chinese Cities: The Growth of the Metropolis since 1949*. Hong Kong: Oxford University Press.

Xue L and Fang W (2015) *Rail Plus Property Development in China: The Pilot Case of Shenzhen (in Chinese)*. Beijing. Available at: http://www.wri.org.cn/publication.

Yang C (2009) Strategic Coupling of Regional Development in Global Production Networks: Redistribution of Taiwanese Personal Computer Investment from the

Pearl River Delta to the Yangtze River Delta, China. *Regional Studies* 43(3): 385–407. DOI: 10.1080/00343400802508836.

Yang D and Wang H (2008) Dilemmas of Local Governance under the Development Zone Fever in China: A Case Study of the Suzhou Region. *Urban Studies* 45(5–6): 1037–1054. DOI: 10.1177/0042098008089852.

Yang J, Chen J, Le X, et al. (2016) Density-oriented versus development-oriented transit investment: Decoding metro station location selection in Shenzhen. *Transport Policy* 51. Elsevier: 93–102. DOI: 10.1016/j.tranpol.2016.04.004.

Yang J, Quan J, Yan B, et al. (2016) Urban rail investment and transit-oriented development in Beijing: Can it reach a higher potential? *Transportation Research Part A: Policy and Practice* 89. Elsevier Ltd: 140–150. DOI: 10.1016/j.tra.2016.05.008.

Yang J, Zhu L, Duan Y, et al. (2020) Developing metro-based accessibility: Three aspects of China's Rail+Property practice. *Transportation Research Part D: Transport and Environment* 81(March). Elsevier: 102288. DOI: 10.1016/j.trd.2020.102288.

Yang PPJ and Lew SH (2009) An Asian model of TOD: The planning integration in Singapore. In: Curtis C, Renne JL, and Bertolini L (eds) *Transit Oriented Development: Making It Happen*. Farnham, UK: Ashgate Publishing Ltd, pp. 91–106.

Yao L and Hu Y (2020) The impact of urban transit on nearby startup firms: Evidence from Hangzhou, China. *Habitat International* 99(January). Elsevier Ltd: 102155. DOI: 10.1016/j.habitatint.2020.102155.

Yeh AGO and Wu F (1996) The new land development process and urban development in

Chinese cities. *International Journal of Urban and Regional Research* 20(2): 330–353. DOI: 10.1111/j.1468-2427.1996.tb00319.x.

Yeh AGO, Yang FF and Wang J (2015) Economic transition and urban transformation of China: The interplay of the state and the market. *Urban Studies* 52(15): 2822–2848. DOI: 10.1177/0042098015597110.

Yiman L and Xiang K (2020) Production of space and multi-dimension segmentation characteristics of China's hi-tech parks (Chinese literature). *Studies in Science of Science* 38(5): 806–812.

Young C and Kaczmarek S (1999) Changing the Perception of the Post-Socialist City: Place Promotion and Imagery in Łódź, Poland. *The Geographical Journal* 165(2): 183. DOI: 10.2307/3060416.

Yu T, Chen Z and Zhu P (2012) Characteristic and mechanism of high speed rail-driven suburbanization in China: A case study of Beijing-Shanghai high-speed rail (Chinese literature). *Scientia Geographica Sinica* 32(9): 1041–1046.

Zhai B, Jia Y and Xu Q (2004) A long Way to Go: the coordinative Development in the capital Region of China? In: *40th ISoCaRP Congress*, Geneva, Switzerland, 2004, pp. 1–11. Available at: http://www.isocarp.net/Data/case_studies/434.pdf (accessed 31 January 2005).

Zhang F and Lin L (2011) TOD-China revisited: A travel outcome-based perspective. In: *2011 5th International Association for China Planning Conference*, 2011. DOI: 10.1109/IACP.2011.5982033.

Zhang J (2013) Marketization beyond Neoliberalization: A Neo-Polanyian Perspective on China's Transition to a Market Economy. *Environment and Planning A: Economy*

and Space 45(7): 1605–1624. DOI: 10.1068/a45589.

Zhang T (2002) Urban Development and a Socialist Pro-Growth Coalition in Shanghai. *Urban Affairs Review* 37(4): 475–499. DOI: 10.1177/10780870222185432.

Zhao S and Yang Z (2007) Rail transit oriented urban development in Dalian: towards a new urban form. In: *European Transport Conference*, 2007.

Zhao Y (2015) 'China's leading historical and cultural city': Branding Dali City through public–private partnerships in Bai architecture revitalization. *Cities* 49: 106–112. DOI: 10.1016/j.cities.2015.07.009.

Zheng Z, Wang L and Li X (2016) Reform of local government financing platforms in the background of supply-side reform in China (Chinese literature). *Macroeconomic Management* (10): 61–68. DOI: 10.19709/j.cnki.11-3199/f.2016.10.017.

Zhou Y (2007) *The Inside Story of China's High-Tech Industry: Making Silicon Valley in Beijing*. Lanham, MD: Rowman & Littlefield.

Zhu B (2018) 'Shixian "Liangge yibainian"fendou mubiao de neizai luoji'['the internal logic of acheiving the "two one hundred" goals']. Available at: http://theory.people.com.cn/n1/2018/0309/c40531-29858071.html (accessed 9 March 2018).

Zhu J (2004) Local developmental state and order in China's urban development during transition. *International Journal of Urban and Regional Research* 28(2): 424–447. DOI: 10.1111/j.0309-1317.2004.00527.x.

Zhu YP (2013) Policy Networks and Policy Paradigm Shifts: Urban housing policy development in China. *Journal of Contemporary China* 22(82): 554–572. DOI: 10.1080/10670564.2013.766380.

Zhuang L and Ye C (2020) Changing imbalance: Spatial production of national high-tech industrial development zones in China (1988-2018). *Land Use Policy* 94(February). Elsevier: 104512. DOI: 10.1016/j.landusepol.2020.104512.

Zhuhai Bureau of Statistics (2019) *Zhuhai Statistical Yearbook*. Zhuhai. Available at: http://tjj.zhuhai.gov.cn/tjsj/tjnj/.

TU Delft Delft University of Technology

FACULTY OF ARCHITECTURE AND BUILT ENVIRONMENT
FACULTY OF TECHNOLOGY, POLICY AND MANAGEMENT