
– ARTICLES

– THE (RE)MAKING OF POLYCENTRICITY IN CHINA'S PLANNING DISCOURSE: The Case of Tianjin

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Abstract

Polycentricity is promoted as an ideal urban form to achieve sustainable and balanced development, and it has been widely adopted by planners in China, especially in large cities. However, the rhetoric about polycentricity has rarely been interrogated in planning research in terms of scales, contextuality, power and rationality. To fill this gap, we carried out a Foucauldian discourse analysis in our research to interpret the nature of polycentric practice in City Master Plans, using Tianjin as a case study. Through an analysis of how the discourse of polycentricity is being deployed in planning documents, we develop two principal arguments in this article. First, the conceptual substance of polycentricity evolved alongside the urban transition process in China, and its discursive practice involved multiple scales and spatial elements. Secondly, rather than being mere technocratic practice, the production and legitimization of distinct discourses of polycentricity is an articulation of multi-scalar power involving various stakeholders, which is disguised and justified by the planning profession.

Introduction

Polycentricity literally means the existence of multiple centres in a given territory (Kloosterman and Lambregts, 2001). The emergence of polycentric cities and urban regions worldwide has attracted the attention of many scholars and policy-makers. Since the 1990s, polycentricity has been articulated into the policy agenda and become a spatial planning buzzword in Europe. More recently, it has also provoked academic discussion in China. Researchers have described polycentric transition with reference to the distribution of employment or population (Liu and Wang, 2016; Huang *et al.*, 2017), land-use change (Wu, 1998; Yue *et al.*, 2010), property values (Qin and Han, 2013) and flow data (Liu *et al.*, 2016; Li and Phelps, 2017). Recent studies have also evaluated the performance of polycentric spatial patterns regarding their effects on economic competitiveness, social cohesion and environmental sustainability (Zhang *et al.*, 2017; Li and Liu, 2018; Li *et al.*, 2019; Sun and Wei, 2019). There is, however, little research that investigates polycentricity in China's urban planning theories and practices, although concepts (for example, subcentres, new towns, new areas, new central business districts) that imply polycentricity are used frequently in both the mass media and in official documents. Recent typical cases are the designation of a

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secondary administrative district at Tongzhou and the establishment of Xiong'an New Area in Hebei Province, adjacent to Beijing. Although the origin and application of polycentric ideas in planning in China (Cheng and Shaw, 2017) has received some attention, there is little insight into how the prominent discourse about polycentric development has been constructed and reformulated as part of master planning.

Polycentricity appears to be a pluralist concept whose conceptual ambiguity has enabled multiple interpretations. Therefore it has become a very useful political concept and planning tool (van Meeteren *et al.*, 2016; Rauhut, 2017; Granqvist *et al.*, 2019). In the transition context of China, discursive changes to polycentricity in nuance and underlying meaning need to be interrogated carefully to clarify the rationales of decision-making processes. To fill this gap, this article aims to answer three interrelated questions, using Tianjin as a case study. First, in what ways has the concept of polycentricity been deployed in the city's master plans? Secondly, how has the concept changed over time? And thirdly, in what ways do the formation and legitimation of polycentricity reflect the changing competition for power among stakeholders in China's urban development?

The remainder of the article consists of five sections. In the first section, we review theoretical interpretations from which polycentric development can be explained. In the second section, we discuss the application of Foucauldian discourse analysis in planning research and set out how this research was conducted. The third section provides background information through a discussion of Tianjin's planning context. This is followed by the core section, in which we present a detailed analysis of the substantive content of four key master plans produced between 1978 and 2016 for Tianjin, including not only planning practices but also power and rationality considerations. Finally, in the fifth section, we reflect on what this means for understanding polycentric urban development in China. Data were drawn from the key planning documents of the Tianjin Municipal Government, and from interviews with planners and officials during fieldwork in the city in 2018.

Theoretical interpretations of polycentricity

Specifically, polycentric development could mean different things at different geographic scales (see, for example, Champion, 2001; Kloosterman and Lambregts, 2001; Davoudi, 2003) and from different points of view (see Bailey and Turok, 2001; Davoudi, 2003; Rauhut, 2017). It can be analysed from structural (morphological and functional), institutional and strategic perspectives (Giffinger and Suitner, 2015). There are three main strands of theory on polycentricity. The first two—technicism and agglomeration theories, outlined below—are often taken as the theoretical foundation for planning ideas.

– Technicism and polycentricity

The evolution of urban spatial structure is sometimes seen as driven by technological advances and corresponding transitions in the mode of production. This theoretical strand regards polycentricity as a spontaneous process that takes place alongside technical improvements. The innovation of efficient, long-distance transport and technological change in information processing and telecommunications altered the economic structure and spatial pattern of cities (Hall, 1993; 1999; Castells, 1996; Anas *et al.*, 1998; Gaspar and Glaeser, 1998). Combined with these changes, the shift to post-Fordist production led to the growth of service activities and 'new industrial space' in peripheral areas (Hall, 1999; Scott, 2001; van Criekingen *et al.*, 2007). One of the typical consequences of this shift is the rise of a polycentric spatial pattern.

– Agglomeration theories and polycentricity

Both urban economics and geography help us further understand urban spatial structure. The most recent agglomeration theories provide better options for interpreting the rationality and transformation process of polycentricity at both

urban and regional scales. Acknowledging various agglomeration economies and their spatial influences can help us understand the origins of polycentricity in comparison to traditional strands (scale, function and morphology) (van Meeteren *et al.*, 2016).

Three different approaches to conceptualizing agglomeration economies exist (Camagni and Capello, 2015). At the micro level, technological and pecuniary externalities encourage enterprises to become located close together. As a result of 'agglomeration diseconomies' and 'proximity economies', a polycentric rather than dispersed spatial pattern tends to form, with interacting clusters of activities. The new centres are not formed randomly but are based on spatial heterogeneity (Anas *et al.*, 1998) and the existence of shadow economies (Camagni and Capello, 2015). Secondly, in the geographical approach to agglomeration economies, the influence of space is central (Parr, 2002). Via the process of 'borrowed size', economic externalities can be regionalized and shared by a group of settlements within a wider configuration (Phelps *et al.*, 2001; Parr, 2002; Meijers and Burger, 2010). The third approach highlights networking and cooperation capabilities in a larger territory under which agglomeration economies can be fully exploited in different size classes of cities. This approach is related to 'urban network externality' (Capello, 2000) and can be termed a process of 'borrowed function' (Camagni and Capello, 2015).

– Planning and polycentricity

Beyond the market mechanisms discussed above, government policies and planning play an important role in shaping cities via land-use regulation and the provision of social infrastructure (Anas *et al.*, 1998). Planning related to polycentricity can be categorized into *planning for* and *planning of* polycentricity. Planning for polycentricity is evident in classical concepts such as the garden city, the new town and the growth pole, which influenced the formation of new urban centres and hence led to a polycentric spatial pattern. Hall (2014) claims that the garden city model is the prototype of polycentricity. New town policy, as a planned dispersal policy derived from that of the garden city, became a doctrine with distinct economic and social objectives in the postwar period (Echenique *et al.*, 2012). The aim of the adoption of growth pole strategies was to rectify spatial configurations based on size, hierarchical level, frequency and location through the activation of planned growth centres (Parr, 1999).

Polycentricity has become a key theme of planning discourse in Europe, and planning of polycentricity sprang up in the context of deindustrialization, European integration and globalization (Blotevogel, 1998). One of the most important policies is the European Spatial Development Perspective (ESDP), approved in 1999, in which a balanced and polycentric urban system is emphasized (CEC, 1999). It offers an alternative to the typical core–peripheral model of the European territory (Copus, 2001; Davoudi, 2003; Meijers *et al.*, 2005). Polycentricity can bridge conflicting objectives (competitiveness and cohesion) and power relations (multi-level and multi-sector) in the same policy framework and is often reproduced across scales and regions (Richardson and Jensen, 2000; Shaw and Sykes, 2004; Dabinett, 2010).

In practice, the application of polycentricity in planning is subject to multiple interpretations. Differences in origin (morphological and political) determine the challenges that regions face and lead to different concerns and opinions about polycentrism between policymakers and planners (Lambregts, 2006; Schmitt, 2013). Therefore, before examining the application of polycentricity in a specific place, the particularities of the social and geographic context should be considered.

Foucauldian discourse analysis in planning studies

Spatial planning research, which is influenced by disciplines such as geography and cultural studies, has begun to highlight the role of discourse (or language) and to incorporate discourse analysis into the policy process (Richardson, 1996; Healey,

1999; Richardson and Jensen, 2000). Discourse analysis can be categorized as either text-oriented or as Foucauldian (Sharp and Richardson, 2001). The former has been criticized for its restricted view of the nature of planning, which is often characterized as being a dynamic, conflictual process (Hastings, 2000).

Foucauldian discourse analysis is more widely applicable in planning and policy research (Hajer, 1995; Jensen, 1997; Flyvbjerg, 1998). 'Discourse' here not only refers to text, but also embraces systems of thought, material practice and power rationality (Hajer, 1995; Richardson and Jensen, 2000). Discourse, power and knowledge are key concepts (Foucault, 1980; 1990) and, compared to the text-oriented approach, the Foucauldian approach is not so much linguistically based but more interested in the links between power and knowledge (Richardson, 1996). Foucauldian analysis of planning therefore aims to capture the dynamics of power and its relationship with rationality and space.

This article adopts a scaled discourse-analytical approach to study polycentric discourse in city planning in China. First, plan making is based on the definition of urban development problems and how solutions are framed. This process is relatively selective and determined by power and rationality in the form of strategic decisions. Secondly, the task of planning is to coordinate conflicting interests within a process during which institutional structures, practices and actions need to be considered. Thirdly, in Chinese planning the master plan persists as an urban development blueprint that defines future development in a grand way. Language use in Chinese City Master Plans, especially about spatial patterns, tends to be simple and straightforward. Therefore, beyond the text, our analysis focuses more on the context and the power that is embedded in the planning content. Fourthly, when we consider the hierarchical and centralized nature of planning in Chinese cities, it becomes clear that power relations often involve a range of stakeholders, such as central and local government, public agencies and the private sector. It is desirable, therefore, to add 'politics of scale' into discourse analysis (Keil and Debbané, 2005; Xu, 2016).

Foucauldian discourse analysis has not always been consistently applied in empirical research because of its flexibility and abstraction and because there is no precise methodological principle for conducting it. This research draws on previous researchers' analytical frameworks (Jensen, 1997; Healey, 1999; Richardson and Jensen, 2000; Sharp and Richardson, 2001) to analyse each round of planning by roughly following five procedures:

- 1 Identifying the discourse object. The object of discourse in this research is specified as polycentricity, but it is a complex entity that is constructed and transformed in the process of new discursive formation.
- 2 Context setting. The formation and transformation of discourse objects should be situated in social, economic and historical context and explore the factors that make new discursive practice possible, necessary or inevitable.
- 3 Discursive construction. This process does not refer to the use of the concept of polycentricity explicitly. It includes links to other plans and policies, modes of problematization, the use of specific vocabulary and concepts, the rhetorical mode, components and scales, and claims about knowledge. Texts were therefore categorized according to these aspects to examine their underlying meaning, using coding to provide reliability and comparability.
- 4 Mechanisms of power. The strategies and dynamics of power in the planning process are central to our analysis. The analysis focuses on inter-scalar political relations and investigates who is involved, what their claims and purposes are, and how their contested and mutual interests and values are articulated and hence how previous discourse is reshaped.

- 5 Discourse institutionalization. To analyse how discourse is translated into, or legitimized by, concrete policies and actions when operationalized, changes in institutional structures and tools for plan implementation are highlighted. Recognizing that there is a reciprocal relationship between multi-scalar politics, institutionalization practices and discursive practice is essential to the process of analysis.

Key data included planning archives and master plan documents. Since the 1980s, Tianjin has produced four master plans. Our text analysis is mainly based on these, while power relations and institutionalization processes are traced through planning archives and interviews. Because all these planning documents were written in Chinese, there is a risk that the translation into English may have led to a loss of conceptual equivalence (Wolf and Fukari, 2007). To minimize the influence of translation, we attempted to retain the original meaning as closely as possible and included the original Chinese planning jargon for Chinese readers.

The changing City Master Plan: an arena for polycentric rhetoric

In China, content related to the spatial distribution of resources (industries, population, land) can be readily identified in various statutory and non-statutory regional and urban plans. There are three major series: Economic and Social Development Plans (or Five-Year Plans), Urban and Rural Plans, and Land Use Plans. Among the second group, the City Master Plan (also known as the Comprehensive Plan or the Overall Plan) is regarded as the most important (Yu, 2014). For municipalities and provincial capitals, a master plan is statutory and must be approved by the State Council. Its legal basis is provided by the planning acts. City Master Plans rationalize the size, function and spatial structure of infrastructure, land use and urban settlements. The planning process is politically highly charged, reflecting political and economic shifts and multisectoral and multi-scalar urban governance (Ng and Tang, 1999; Wang and Shen, 2017). There have been four phases of master planning since the pre-reform era. These reflect continuities and changes in rationality, functionality and approaches (see Table 1).

Discourses of polycentricity in the Tianjin Master Plans since the 1980s

We selected Tianjin as our case study, because its city administration has strong aspirations for polycentric development. It is embedded in a complex regional system, which means that polycentric discourse must be examined at multiple scales, and consider a range of actors and cultural and historical factors (Albrechts, 2001). As polycentricity is a context-sensitive theory and because we adopt a constructivist approach, we do not regard Tianjin as a representative case, although similar logics and approaches might be encountered in other Chinese cities.

The concept of polycentricity has already been evident since Tianjin's initial master plan, in the 1930s.¹ In the course of several rounds of administrative adjustments, the city administration extended its territory into the surrounding areas, which led to a rudimentary, historically created polycentricity. Therefore, Tianjin has a significantly larger territory and population than large cities in Western countries (see Figure 1). Traditional cities, counties and subcentres with their hinterlands together make up the Tianjin 'city-region',² offering multiple spatial scopes through which development can be regulated (Cheng and Shaw, 2017). The socioeconomic dynamics of Tianjin, which have led to dramatic urbanization, economic growth and spatial reconfiguration since the 1980s, also affect the governance and implementation of polycentricity (Schmitt,

1 The early modern master plans suggested integration of Tanggu port and Tianjin Special Municipality during the years of the Republic of China and Japanese occupation.

2 According to Parr's (2008) definition of city-regions, Tianjin city as a whole is treated as a secondary city-region, while the larger Beijing-Tianjin-Hebei region is treated as a primary city-region.

TABLE 1 Changes in Chinese master planning

Period	Master Planning Phases	Planning Rationale	Function of Planning	Approach and Practice of Plan-making	Development Control	Urban Planning Knowledge	Planning Area
Pre-reform	Before 1978	Physical and technical plan	To guide urban production and living; To materialize economic planning through site selection and physical design	Socialist planning system; Blueprint approach outside the political process; Confidential internal government document	Directives and controls of central economic planning	Architecture and civil engineering in terms of aesthetics	City proper
	1979-1989	Comprehensive plan; Extended technical interpretation	To guide development of the city/town system and urban infrastructure; To prepare new spaces for the reform and opening-up policy; To minimize development cost under uncertain conditions	Rational planning approach; Consideration of local context; Confidential internal government document	Urban Planning Regulation provided guidelines		Urban system plan (regarding towns, counties and villages as points); Urban area plan
Post-reform	1990-2007	Comprehensive plan; An instrument for growth promotion	To facilitate and justify urban development; To enhance economic competitiveness and promote investment	More strategic and policy-oriented; Political rationality	'One report and two permits' (Site Selection Recommendation Report, Land Use Planning Permit, Building Construction Permit)	Dynamics of cities and regions from the subjects of economy, geography and social science; Urban planning administration and implementation	
	Since 2008	Comprehensive plan; Strategies and tactics to control economy and society	To enhance spatial governance of the central and local state; To pursue more sustainable development	Spatial planning approach; Political rationality; Integration and incorporation of elements from other plans	'One report and three permits' (Site Selection Recommendation Report, Land Use Planning Permit, Building Construction Permit, Rural Construction and Planning Permit)		Entire area of jurisdiction

SOURCES: Authors' summary of literature cited (Xie and Costa, 1993; Ng and Tang, 2004; Qian and Wong, 2012; Gu et al., 2014; Yu, 2014; Wu, 2015; Zhao, 2015; Wang and Shen, 2017)

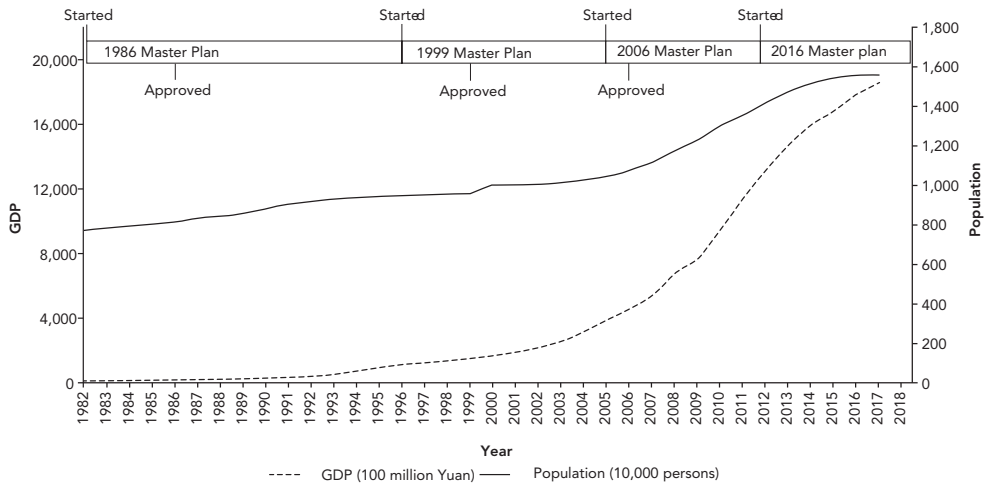


FIGURE 1 Planning cycles and socioeconomic conditions in Tianjin (source: data extracted from the Tianjin statistics yearbooks, various dates)

2013). To guide this development, four master plans have been produced since the 1980s, each marking a different stage of urban change (see Figure 1).

– Confirmation of polycentric urban settlements: the 1986 Master Plan

The discourse of the 1986 Master Plan refers to a polycentric urban system at the Tianjin city-regional scale with the aim of facilitating a degree of polycentricity among existing urban settlements. From the late 1970s, China had initiated a series of policies to revive urban planning. However, the 1976 Tangshan earthquake delayed the planning process for Tianjin and constrained the government's capacity to initiate new development. A new round of planning began in 1982, much later than that of other large cities, and the resultant master plan was approved by the State Council only in 1986.

Early on in the reform era, central planning ideology shaped the main policy rhetoric in Tianjin. The discourse of the polycentric urban system was in line with central state policy, which reasserted its support of the urban development principle that had first been proposed in 1958: 'Control the size of large cities, rationally develop medium cities, and rigorously develop small cities' (Xie and Costa, 1993). Local government was required to compile an urban system plan for its jurisdiction according to the top-down Urban Planning Regulation (State Council, 1984). In response to this requirement, the 1986 Master Plan was declared to be strictly based on the central state's development principle. A multi-level urban system was proposed, comprising the Central District, Binhai Area,³ satellite towns and county towns (TJMG, 1986: 2).

Planners ascribed the urban problems of the 1980s to inefficient spatial layout, and claimed that the purpose of the new polycentric urban system was to ease urban problems and strictly control the size of the overcrowded Central District through the decentralization of industry (*ibid.*: 3). The implication of this relocation approach was that development was dispersed to the Binhai Area, to previous satellite towns, and to a new industrial park in the middle section of the Hai River. Binhai Area consisted of three industrialized and separated urban areas (Tanggu, Hangu and Dagang) and two newly planned development zones (Tianjin Economic and Development Area—or TEDA, and Haihe Downstream Industrial Park—or HDIP). Based on the concept of

3 In terms of planning, Binhai Area (called Binhai New Area after 1994) includes Tanggu, Hangu, Dagang and parts of Dongli and Jinnan District.

agglomeration diseconomies, an interpretation of Central Place Theory was employed to support the rationality of future spatial patterns and new developments outside the Central District. Planners believed that the formation of an urban system comprising large, medium and small settlements would promote the economic development of both urban and rural areas, protect the natural environment and control the size of urban settlements (*ibid.*: 3).

The proposed polycentric urban system was characterized by a clear hierarchy. The Central District was defined as the locus of politics, business, education and research, while Binhai Area and the satellite towns were destinations for industrial relocations. County towns comprised the lowest tier and were to provide local service functions. In practice, planners used Central Place Theory rather loosely and combined it with a contradictory concept: the discourse of 'polycentric hierarchical settlements' was employed to emphasize the morphologically dispersed and historically formed settlements in Tianjin and, more importantly, to justify a settlement size control policy.

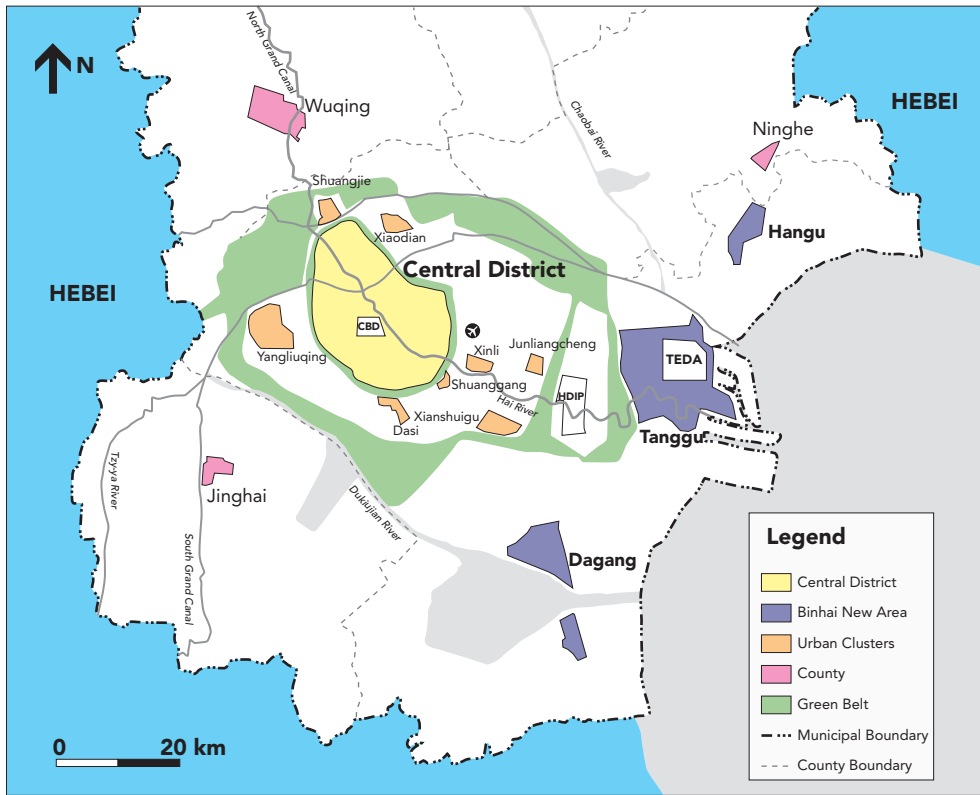
The adjustment of layers and rank-size distribution of urban systems was intertwined with power and rationalities. Moreover, the upgrading of Binhai Area reflected the central state's aspirations and intended interventions. At the time, innovative practices, including Special Economic Zones, Open Cities and National Economic and Technology Development Zones, had been implemented selectively by the central state in the eastern coastal area of China to facilitate the state's reform and opening-up process. Planners and politicians at both central and municipal levels recognized that the port had not been fully exploited during the earlier planned-economy period. A new special zone, the Tianjin Economic and Development Area (TEDA—see Figure 2), was approved by the central state in line with Tianjin's designation as one of 14 Open Cities in 1984. During the planning approval process, the central state insisted that Tianjin include this designation in its master plan. Meanwhile, the municipal government proposed another important new development in Binhai Area in the form of a large industrial park. Consequently, the spatial development strategy switched to 'moving industries eastwards' (*gongye dongyi*) (TJMG, 1986: 3, 10), to consolidate the status of Binhai Area. The government invoked a metaphor for balance—'one stick shouldering two buckets' (*yige biandan tiao liangtou*) (*ibid.*: 3)—to describe this new structure.

– Designing 'functional' polycentricity: the 1999 Master Plan

The next master plan was prepared in 1994 and approved by the State Council in 1999. The discourse of polycentricity in this plan emphasized functional specialization in different clusters rather than a settlement morphology. Discursive changes in the plan were closely related to changes in institutional and governance forms.

Tianjin had to deal with a new political and economic environment in the early 1990s. The state had launched a reform of its land-use and property-rights systems to establish land and housing markets in cities. As a result of the transition to decentralization, marketization and globalization (Wei and Jia, 2003), urban planning decisions had to be made in a new context of cooperation between state and market, and between political interests and a new economic rationality (Zhu, 2000). As a result of economic decentralization, municipal governments as urban land agents acquired more autonomy. This led to tensions between the central government and local government, although the municipal rather than the central government was dominating planning discourse.

Although the central state still emphasized control of city size, the Tianjin Municipal Government had high ambitions for economic growth, spatial expansion and intercity competition. The 1999 Master Plan aimed to develop Tianjin as the economic centre of the Bohai region (the entire region surrounding Bohai Bay, which included the Beijing-Tianjin-Hebei region and parts of Shandong and Liaoning Provinces). To



NOTE: CBD—Central Business District; TEDA—Tianjin Economic and Technological Development Area; HDIP—Haihe Downstream Industrial Park

FIGURE 2 Polycentric vision in the 1999 Tianjin Master Plan (1996–2010) (source: map produced by the authors, based on the 1999 Master Plan)

achieve its goal, it sought to change Tianjin's dominant industry from manufacturing to services, envisaging an increase in services from 39% to 55% by 2010 (TJMG, 1999: 2). The city government also realized the importance of the economic and commercial role of the city centre in meeting its new goals, and included a new Central Business District (CBD) and a Central Commercial District (CCD) in its plans. The CBD was to be a key project that would boost the development of a modern service industry and was intended to be a place marketing tool as China began emerging into the global economy. Another five city-level commercial centres were proposed for other locations in Tianjin.

Although the area's overall spatial layout did not change significantly, the 1999 Master Plan enlarged the planning area to include the entire territory of Tianjin. It proposed two concepts, the Central District (*zhongxin chengqu*) and the Central City (*zhongxin chengshi*), to distinguish the city centre area from the metropolitan area. This measure created a new scale for the operation of polycentric discourse. Based on the new plan, the focus of the Central District was on business and commercial activities, and its spatial structure was adjusted to a 'multiple nucleated and clusters group pattern' (*duozhongxin zutuanshi*) (*ibid.*: 66). The spatial scope of the Central City was extended to include the Binhai New Area. The Tianjin Municipal Government applied to the central state to have Binhai designated a national New Area, like Shanghai Pudong, but this application was soon rejected. Then, in 1994, the municipal government decided

to develop Binhai New Area without state help, with support from key political leaders, ‘basically to build up Binhai New Area within ten years’ (TJLRCC and TJPB, 2015). The new planned parts of Binhai New Area stretched far beyond the port to include a much larger coastal area, with the intention of reinventing Tianjin’s identity and invigorating its development. A further eight urban clusters (see Figure 2) near the Central District were earmarked for future expansion—the size of the area projected to reach 65 square kilometres and attain a population of 65,000 by 2010 (TJMG, 1999). The Central City, consisting of the Central District and Binhai New Area, and the eight urban clusters surrounding them, was designated polycentric (*ibid.*: 13).

The plan emphasized the specialization of and functional interconnection between these urban centres at the Central District and Central City scale. It encouraged service industries to agglomerate in the Central District, while Binhai New Area with its new economic development focus should concentrate on port-related modern manufacturing, and on the transportation and energy industries (*ibid.*: 7, 8). The surrounding clusters were to function as residential areas and centres for specialized high-tech industries. A green belt (see Figure 2) separated the Central District, its surrounding clusters and Binhai New Area (*ibid.*: 8). In sum, the overall aim of the plan designed by an increasingly entrepreneurial municipal government was to promote the growth of Tianjin. The central state’s principle of controlling city size was discarded on the grounds that growth could be properly managed through functional specialization combined with some environmental protection practices.

– Creating polycentric growth nodes: the 2006 Master Plan

Tianjin experienced significant growth in both its GDP and its population during the 2000s (see Figure 1). The 2010 population target for the Central District was reached eight years earlier than anticipated (TJLRCC and TJPB, 2015), and so the 1999 Master Plan quickly became outdated. Tianjin therefore started a new round of planning, which culminated in the approval of a new master plan in 2006.

During the planning process for the 2006 Master Plan, a new growth-oriented discourse coalition was formed, and this plan became suffused with an undisguised entrepreneurial discourse. It promoted a polycentric spatial pattern consisting of many growth nodes. At the macro level, the central state had shifted its development emphasis to large cities. The 10th National Five-Year Plan (2001–2005) proposed urbanization as the main approach to economic development (Wang and Shen, 2017). The governance mode was also upscaled to the (city-)region level (Wu, 2016). To facilitate economic growth and boost the competitiveness of the Beijing–Tianjin–Hebei region, Binhai New Area was upgraded to a national-level New Area in the 11th National Five-Year Plan (2006–2010) to represent a third growth pole in China, after the Shenzhen Special Economic Zone and Shanghai Pudong New District (State Council, 2006). Thus the development of Binhai New Area was no longer simply a local ambition but involved opposing interests at regional and national scales. The spatial proposal for the Central City was accordingly changed to ‘two centres with multiple clusters’ (*shuang zhongxin duo zutuan*). In contrast to the earlier plans, the new plan identified a new ‘core’ within Binhai New Area and designated this ‘the subcentre of Tianjin’ (*Tianjin fuzhongxin*) (TJMG, 2006: 11), which was to provide and enhance urban functions, such as business and finance services, as well as public services. A new international CBD, based on state-led planning and investment, was also proposed for Binhai New Area. This new CBD was to be integrated into global economic networks and enhance producer service functions. Binhai would thus become the engine of economic development not only for the Bohai region but for the whole of northern China (*ibid.*: 17).

The ideological changes that characterized the central state’s approach and intensified local ambition further activated government entrepreneurialism, even at the district and county levels. By 2000, a ‘local growth coalition’ based on land had

been formed to capture financial gains and to compete with other localities. This led to bottom-up development initiatives becoming increasingly important for urban development (Zhu, 1999; Lin, 2002). At lower government levels in Tianjin, local growth-oriented discourses influenced the corresponding discourse in the master plans. The classic concept of the new town (*xincheng*) was employed in Tianjin to embrace an inter-scalar growth vision. The 2006 Master Plan therefore proposed 11 new towns as a new component of the urban system, located at the secondary tier. The storyline of this new discourse was 'to form a pattern of multiple growth poles' (*duoji zengzhang geju*) (TJMG, 2006: 12) to promote economic and urban expansion rather than any social objectives.

Most of the new towns were not really new, but were formed through the expansion of former district and county towns. Two new towns were to be newly built in Jinghai and Baodi districts (see Figure 3). When these areas were converted to urban districts in 2002, both revised their own master plans and proposed their own polycentric development through new subcentres that were located at a distance from the traditional county centres (TJLLRCC and TJPB, 2015). The conversion of counties to urban districts helped strengthen the competitiveness of the Central City, solve internal conflicts and consolidate metropolitan governance (Wu, 2016). Therefore, these polycentric concepts were initially developed by district officials and business representatives, but were eventually included in the City Master Plan. New town development corporations were set up; these were to be responsible for planning, land leasing, attracting investment and construction procurement. In a nutshell, top-down planning principles and bottom-up development aspirations were merged into the master plans by the municipal government through rescaling and selective strategies. The polycentric discourse thus articulated the ambitions of multi-level governments for economic growth and urban expansion.

– The emergence of nested polycentricity: the 2016 draft plan

The most recent Tianjin Master Plan was completed and submitted to the Tianjin Municipal Government for approval in 2016. To date, approval is still pending.⁴ It is evident from this draft plan that the discourse of polycentricity has become even more complicated and multi-faceted. During the preparation of the 2016 draft plan, the national context changed once more. Faced with the consequences of fast urbanization, the central government began to adjust its development principles to achieve 'sustainable development' and 'social justice', as reflected in the National Plan on New Urbanization (2014–2020) (State Council, 2014). In addition, urban agglomerations (*chengshiqun*), consisting of several interconnected cities within the same region, were selected as a new state space for the central state to reassert and enhance its governance capacity for social, economic and environmental crisis management beyond economic competitiveness (Li and Wu, 2012; Wu, 2016). In 2015, the central government approved a regional plan for Beijing, Tianjin and Hebei aimed at diluting over-concentration in Beijing and promoting greater spatial balance within the region (State Council, 2015). This new policy rhetoric is incorporated in the draft plan and therefore represents a new discursive turn.

The draft plan reflects three significant changes in content related to spatial structure. First, the city's positioning and development goals are proposed within the new context. The regional plan envisages the planned integration of the entire Beijing–Tianjin–Hebei region into a polycentric urban region characterized by 'one core, two cities, three axes, four districts, multiple nodes' (*yihe shuangcheng sanzhou siqu duojiedian*) (State Council, 2015). In the 2016 draft, Tianjin is identified as an

4 Owing to a recent institutional system and planning system reform, a proposed Spatial Plan will replace the 2016 Master Plan for Tianjin.

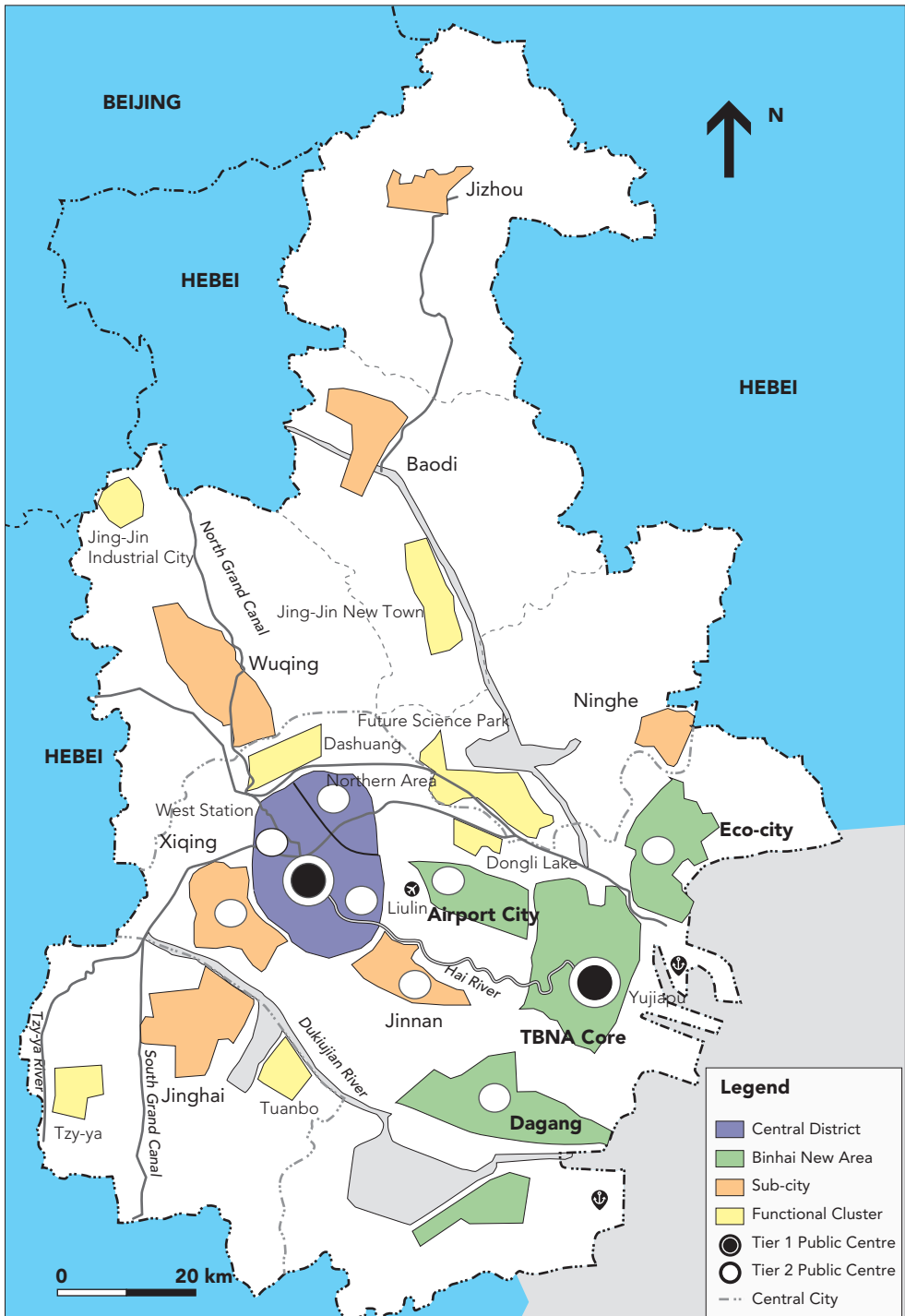


FIGURE 3 Polycentric vision in the 2016 draft Tianjin Master Plan (2015–2030) (source: map produced by the authors, based on the draft 2016 Master Plan)

important city but subordinate to the core city of Beijing; it is therefore meant to take on complementary functions.

Secondly, spatial governance, equity of public service and 'ecological civilization', as advocated by central state, have also now become important planning elements. A spatial regulation plan has been proposed, which focuses mainly on the demarcation of boundaries between designated ecological, basic farmland and urban development areas. This plan is designed to provide a platform for the integration of multiple plans and offers a new morphological framework characterized by large built-up areas that are separated by ecological zones and farmland.

Thirdly, the central state's rescaling strategy has influenced the decision making of regional and urban authorities. In recent years, all counties in Tianjin have become urban districts, to facilitate the implementation of the regional plan. Newly planned development nodes, such as Jing-Jin Industrial City in Wuqing and Future Science Park in Ninghe, have been promoted (see Figure 3). The formation and site selection for these nodes resulted directly from the new development impetus within local district governments in the name of regional cooperation. However, the case of Jing-Jin Industrial City also illustrates that central government holds sway over these newly created governance entities. Because a green belt for environmental protection was demarcated in the 2018 Beijing City Master Plan, Jing-Jin Industrial City has had to be relocated outside the new green belt area.

The demarcation of the growth boundary of the urban development area frames the overall spatial pattern, but there is no detailed spatial structure in terms of urban cluster hierarchy, size and functional relations. Based on spatial regulations, a polycentric spatial pattern was applied at multiple geographical scales, ranging from the regional to the metropolitan, down to the Central District and Binhai New Area. At the city-region scale, the overall spatial development strategy is based on the non-statutory Tianjin Strategic Plan of 2009 (TJLRCC and TJPB, 2015)⁵ whose discourse of 'twin cities, twin ports' (*shuangcheng shuanggang*) was incorporated into the 2016 draft plan without any change (Zhu *et al.*, 2009; TJMG, 2016: 33). The relationship between the Central District and the Binhai New Area is meant to 'change from main centre and subcentre to two equivalent centres' (TJMG, 2016: 33).

There are two reasons for this discursive transformation. First, although the Tianjin Strategic Plan is not a required element of the planning system, the Tianjin Municipal Government legitimized it in a 2011 ordinance, thereby providing it with a legal basis, so its new spatial discourse must be followed in other plans, including the master plan. Secondly, Binhai New Area underwent two rounds of administrative reform to ease political fragmentation. It is therefore no longer merely an economic area, but a subprovincial level administrative district that has more autonomy than other urban districts, including power over planning approval within its jurisdiction.

There have also been changes to the status and governance of the lower tiers of the urban system. On the one hand, the urban functions of the outer suburban districts are being emphasized, the 2016 draft plan proposing a transfer of development zones to comprehensive functional areas (TJMG, 2016: 6). As a result, the former new towns were split into two tiers, namely 'sub-cities' (*fucheng*) and 'functional clusters' (*gongnengzutuan*) (see Figure 3), so that they no longer merely function as growth poles but rather as centres for providing better, more comprehensive public services. On the other hand, the 2016 draft plan argues that 'the subjects of spatial governance for Tianjin city-region should revert to administrative district management from functional zone management' (*ibid.*: 25). The administrative centres of outer suburban districts remain

5 The Strategic Plan is a new type of plan outside the Chinese statutory planning system that has been effective since the 2000s. It is often used as a tool for local development, place marketing or regional cooperation (See Wu and Zhang, 2007).

TABLE 2 Discourse of polycentricity in Tianjin's Master Plans

Plan	Discourse of Polycentricity	Geopolitical Context	Scale of Polycentricity	Functional Dimensions	Power Relations	Rationality and Constitutive Knowledges
1986	Polycentric urban settlements	Reform and opening-up policy; Tangshan earthquake; Recovery of urban planning as routine practice	<ul style="list-style-type: none"> • Central District; • City-region 	<ul style="list-style-type: none"> • Urban settlements; • Commercial activities 	Domination of central state through top-down regulation and policy selectivity	Agglomeration diseconomies; Spatial heterogeneity; Central Place Theory; Satellite towns
1999	'Functional' polycentricity	Re-establishment of the urban land and housing market; Success of TEDA and the Duty-Free District; Success of Pudong New Area in Shanghai	<ul style="list-style-type: none"> • Central District; • Central City; • City-region 	<ul style="list-style-type: none"> • Urban settlements; • Commercial and business activities 	Domination of local state as a result of planning devolution and economic decentralization	Agglomeration economy; Rent theory; Growth pole; Green belt
2006	Polycentric growth nodes	Entrepreneurialism and land-based finance; Authorization of Binhai New Area as national development strategy	<ul style="list-style-type: none"> • Central City; • Binhai New Area; • City-region 	<ul style="list-style-type: none"> • Urban settlements; • Commercial and business activities 	Growth coalition involving various levels of government and developers	Agglomeration economy (regional externalities); New towns; Growth poles
2016	Nested polycentricity	New style urbanization; City-regionalism and regional urbanization	<ul style="list-style-type: none"> • Central District; • Binhai New Area; • Central City; • City-region; • Beijing-Tianjin-Hebei urban agglomeration 	<ul style="list-style-type: none"> • Urban settlements; • Commercial and business activities; • Public services 	Reassertion of the central state's regulation for crisis management purposes; Inter-city cooperation and negotiation; Administrative and governance reforms at the local level; Influence of key politicians and planners	Agglomeration economy; Growth boundary; Urban network; Sustainability

SOURCE: Authors' research

at the secondary tier while the secondary new centres in these districts are downgraded to third-tier functional clusters. The integration of clusters within sub-cities is also encouraged to promote their absolute importance, hence facilitating agglomeration economies (*ibid.*: 31).

The Central City area is further enlarged to encompass the entirety of the four suburban districts through a process of 'metropolitanization'. The role of important urban clusters, such as Xiqing Sub-city, Jinnan Sub-city, Airport City, Eco-city and Dagang, is strengthened to support 'network' development (*ibid.*: 33). The Central District and Binhai New Area now both consist of multiple centres. The former has 'one main centre and five subcentres' (*yizhu wufu*) (*ibid.*: 34), including two subcentres proposed in the Tianjin Strategic Plan (TJLRCC and TJPB, 2015). The storyline of 'balancing development of the North and South of Central District' (*nanbei junheng fazhan*) was used to rationalize the proposal of the new Northern Area subcentre. The new plan treats the Binhai New Area as a polycentric sub-city-region. The draft plan incorporates lessons learnt from Randstad, Los Angeles and Shenzhen (Huo, 2016) to propose that Binhai New Area should have a spatial structure characterized by 'polycentric, multiple clusters and networked city-region' (*duozhongxin duozutuan wangluohua*) (TJMG, 2016: 46). Three subcentres in Binhai New Area are based on the notion of 'integrating industrial and urban development' (*chancheng ronghe*) (*ibid.*: 36).

These adjustments in location, spatial scope and governance are the result of politics of scale in subtle ways. The traditional main centre of the Central District is thus fused with the mega-project called the Culture Centre (a collection of museums and other cultural venues alongside a new park) because of a key political leader's special interest. Moreover, in the Central District, the municipal government took over the supervision of Liulin Subcentre from the district government to strengthen its control over this key development area. On the coast, the Sino-Singaporean Eco-city replaced Hangu to become one subcentre of the Binhai New Area, as it is a national project that retains a high level of support from central government (Chang *et al.*, 2016).

The emergence of nested polycentricity also reflects growing functional complexity. Beyond population distribution and commercial activities, the 2016 plan sketches a picture of a 'public centre system' (*gonggong zhongxin tixi*). Higher-level public centres are agglomerations of public facilities (management, health, education, and so on) serving the entire city-region. However, a new dimension of polycentricity emerges through an emphasis on the need to improve citizens' access to public services by aligning their distribution more closely with everyday activities. Therefore, polycentricity is emerging in Tianjin in part in service of a social cohesion policy rather than as a means to facilitate development. It is noteworthy that many of its proposed public service centres overlap with its commercial centres (see Figure 3), so that urban centres are becoming increasingly comprehensive. In short, the discourse of polycentricity in the most recent master plan is nested with multiple spatial elements and spatial scales. It represents a combination of municipal-government coordination of elements at the level of the local developmental state, and of the reassertion of regulation by the central state.

Conclusions

Polycentricity has gradually become a normative goal in Chinese planning (Cheng and Shaw, 2017). However, recent research fails to account for the underlying logic of urban planning and the Chinese-specific context. Other research shows that political interests and planning ideology are mediated by discourse to inform practices (Tang, 2000) and that discourse carrying power is expected to perform persuasive, coordinative and justificatory work in the planning realm (Healey, 1999). The experience of Tianjin shows that an understanding of polycentric practice in China should not be restricted to a technical interpretation because it also involves scalar politics, the creation of new urban identities, and normative rhetoric.

Our analysis shows that polycentricity is a malleable concept and that its conceptual substance evolved over time (see Table 2). Significant discursive turns can be identified in Tianjin's Master Plans. In the first post-reform plan, polycentricity was an embedded urban-system concept. Following the country's transition to a socialist market economy, urban planning became an instrument for growth. In the 1999 Master Plan, specialization and exploitation of the advantages of the CBD and port became the focal point of the polycentric spatial pattern. In the 2006 Master Plan, the discourse of polycentric growth nodes was enhanced by an emerging pro-growth coalition, which included the central state, municipal government, local district governments and developers. In the most recent draft plan, the meaning of polycentricity has become much more complicated, having been influenced by city-regionalization theory and the ideology of sustainability, while still holding on to the idea of polycentricity as a 'rational' approach to spatial planning. Polycentricity has become a normative agenda for a wide range of geographic units, all with conflicting objectives. Another new dimension is that polycentric planning no longer applies only to population and economic activity, but also to the delivery of public services. Meanwhile, the hierarchy between centres is supposedly becoming less significant, and thus the networked and integrated relationship between centres is emphasized. Therefore, Chinese intra-urban polycentricity is emerging as a hybrid of the polycentric city and the polycentric urban region as practiced in Western planning. When studying this polycentricity, even at the intra-urban level only, researchers need to carefully tease out the internal and external dynamics of cities, and the complexity of scale and the functional dimensions within them.

Evidence from Tianjin also shows that the production and legitimation of distinct discourses is primarily a political and multi-scalar process, although it considers urban reality to a certain extent. As far as rationality is concerned, the decentralization trend that was the result of the development of modern infrastructure and market reform has been a key driver of an increasingly polycentric spatial pattern. The distinctive Tianjin city administrative framework also provided a prototype for polycentric urban settlements. Successive plans defined major problems and their corresponding solutions under given geopolitical conditions through attempts to optimize the urban structure. These plans do employ theories such as agglomeration economies and urban network theories to support its spatial proposals. Nonetheless, the recent discursive transition of polycentric development reflects political intentions to a much greater extent than in the past. Many newly planned and developed centres have become 'conceived space', based on Lefebvre (1991)—that is, places characterized by power practices. The state and a technological bureaucracy dominate their development, identity and governance.

This study shows that inter-scalar power relations and conflicts are masked by the technical rationality of planning. The formation of polycentric discourse reflects shifts in planning ideologies but also shifts in the power relations embedded within the institutionalization process. Within a context of changing central and local relations, and the interaction of planning factors and market factors, an increasing number of agents are participating in the production of planning rhetoric. Multiple scalar states and important actors adopt different strategies to achieve distinct aims and to legitimate their practices. In the current 'new style urbanization' era, the reinvention of central state and regional regulation lead to particular discourses being imposed on City Master Plans in the name of sustainable development and regionalization. Thus, the municipal state may be inclined towards or coerced into embracing the aspirations of high-level agents while continuing to consider the balance of interests at lower scales. Furthermore, entrepreneurialism has prompted the local state to form discourse coalitions with developers to promote local development and place marketing, and the ideas and perceptions of individual politicians and planners have also influenced the discursive practice. This finding conforms with the dominance of political centrality and the strongly hierarchical administration system in China. The most recent draft

master plan further implies that the public has become part of the audience of master plan discourse, as polycentricity is becoming increasingly associated with the social dimensions of governance.

Together, these discourses of polycentricity act as 'policy glue' and are an articulation of multi-scalar power in China, rather than a process of systematic, technical analysis. The fuzziness and fluidity of the concept creates spaces for accommodating consensus, or allow the interplay of contested interests and policy experiments. This may result in the planning process negating the original aims of polycentric development, such as balanced and cohesive development. Recent research shows that Chinese cities are at risk from the effects of polycentric transition, such as fragmented urbanization, low efficiency and difficulties in developing jointly supported strategies (Berg and Björner, 2014). Individual centres of a polycentric system are often created and promoted heavily by one generation of municipal leaders and their associated representatives in the central government. A change of leadership at both the central and local government level can quickly shift the development focus away from half-finished centres. Inaccurate projections for future developments and unrealistic visions of leading politicians can also result in wasted resources. A recent central-government decision to build the high-profile Xiong'an New Area has in effect downgraded the national importance of Tianjin's Binhai New Area, which is relying heavily on the support of the central state. Furthermore, some Chinese cities, including Tianjin, have become exposed to problems such as a shrinking population and a contracting economy. Indeed, the creation of polycentricity may become unsustainable. Altogether, the essence, governance and performance of polycentric planning and practices demand more future research.

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References

- Albrechts, L. (2001) How to proceed from image and discourse to action: as applied to the Flemish Diamond. *Urban Studies* 38.4, 733-45.
- Anas, A., R. Arnott, and K.A. Small (1998) Urban spatial structure. *Journal of Economic Literature* 36.3, 1426-64.
- Bailey, N. and I. Turok (2001) Central Scotland as a polycentric urban region: useful planning concept or chimera? *Urban Studies* 38.4, 697-715.
- Berg, P.O. and E. Björner (eds.) (2014) *Branding Chinese mega-cities: policies, practices and positioning*. Edward Elgar Publishing, Cheltenham.
- Blotevogel, H.H. (1998) The Rhine-Ruhr metropolitan region: reality and discourse. *European Planning Studies* 6.4, 395-410.
- Camagni, R. and R. Capello (2015) Second-rank city dynamics: theoretical interpretations behind their growth potentials. *European Planning Studies* 23.6, 1041-53.
- Capello, R. (2000) The city network paradigm: measuring urban network externalities. *Urban Studies* 37.11, 1925-45.
- Castells, M. (1996) *The rise of the network society*. Blackwell, Oxford.
- CEC (Commission of the European Communities) (1999) *European spatial development perspective: towards balanced and sustainable development of the territory of the EU*. Office for Official Publication of the European Communities, Luxembourg.
- Champion, A.G. (2001) A changing demographic regime and evolving polycentric urban regions: consequences for the size, composition and distribution of city populations. *Urban Studies* 38.4, 657-77.
- Chang, I.-C.C., H. Leitner and E. Sheppard (2016) A green leap forward? Eco-state restructuring and the Tianjin-Binhai eco-city model. *Regional Studies* 50.6, 929-43.
- Cheng, H. and D. Shaw (2017) Polycentric development practice in master planning: the case of China. *International Planning Studies* 23.2, 163-79.
- Copus, A.K. (2001) From core-periphery to polycentric development: concepts of spatial and aspatial peripherality. *European Planning Studies* 9.4, 539-52.
- Dabinett, G. (2010) Spatial justice and the translation of European strategic planning ideas in the urban sub-region of South Yorkshire. *Urban Studies* 47.11, 2389-408.
- Davoudi, S. (2003) European briefing: polycentricity in European spatial planning: from an analytical tool to a normative agenda. *European Planning Studies* 11.8, 979-99.
- Echenique, M.H., A.J. Hargreaves, G. Mitchell and A. Namdeo (2012) Growing cities sustainably. *Journal of the American Planning Association* 78.2, 121-37.

- Flyvbjerg, B. (1998) *Rationality and power: democracy in practice*. University of Chicago Press, Chicago, IL.
- Foucault, M. (1980) *Power/knowledge: selected interviews and other writings, 1972-1977*. Pantheon Books, New York, NY.
- Foucault, M. (1990) *The history of sexuality. Volume 1: an introduction*. Pantheon Books, New York, NY.
- Gaspar, J. and E.L. Glaeser (1998) Information technology and the future of cities. *Journal of Urban Economics* 43.1, 136-56.
- Giffinger, R. and J. Suitner (2015) Polycentric metropolitan development: from structural assessment to processual dimensions. *European Planning Studies* 23.6, 1169-86.
- Granqvist, K., S. Sarjamo and R. Mäntysalo (2019) Polycentricity as spatial imaginary: the case of Helsinki City Plan. *European Planning Studies* 27.4, 739-58.
- Gu, C., L. Hu, J. Guo and I.G. Cook (2014) China's urban planning in transition. *Urban Design and Planning* 167.5, 221-36.
- Hajer, M.A. (1995) *The politics of environmental discourse: ecological modernization and the policy process*. Clarendon Press, Oxford.
- Hall, P. (1993) Forces shaping urban Europe. *Urban Studies* 30.6, 883-98.
- Hall, P. (1999) The future of cities. *Computers, Environment and Urban Systems* 23.3, 173-85.
- Hall, P. (2014) *Cities of tomorrow: an intellectual history of urban planning and design since 1880*. Wiley-Blackwell, Malden, MA, and Oxford.
- Hastings, A. (2000) Discourse analysis: what does it offer housing studies? *Housing, Theory and Society* 17.3, 131-39.
- Healey, P. (1999) Sites, jobs and portfolios: economic development discourses in the planning system. *Urban Studies* 36.1, 27-42.
- Huang, D., Z. Liu, X. Zhao and P. Zhao (2017) Emerging polycentric megacity in China: an examination of employment subcenters and their influence on population distribution in Beijing. *Cities* 69 (September), 36-45.
- Huo, B. (2016) *Zouxiang kexue fazhan de chengshi quyue: Tianjin Binhai Xinqu chengshi zongti guihua fazhan yanjin* [City-region towards scientific development: the evolution of Tianjin Binhai New Area Master Plan]. Phoenix Science Press, Jiangsu.
- Jensen, O.B. (1997) Discourse analysis and socio-spatial transformation processes: a theoretical framework for analysing spatial planning. Working paper No. 61, Department of Town and Country Planning, University of Newcastle upon Tyne, Newcastle.
- Keil, R. and A.-M. Debbané (2005) Scaling discourse analysis: experiences from Hermanus, South Africa and Walvis Bay, Namibia. *Journal of Environmental Policy & Planning* 7.3, 257-76.
- Kloosterman, R.C. and B. Lambregts (2001) Clustering of economic activities in polycentric urban regions: the case of the Randstad. *Urban Studies* 38.4, 717-32.
- Lambregts, B. (2006) Polycentricism: boon or barrier to metropolitan competitiveness? The case of the Randstad Holland. *Built Environment* 32.2, 114-23.
- Lefebvre, H. (1991) *The production of space*. Basil Blackwell, Oxford, and Cambridge, MA.
- Li, Y. and X. Liu (2018) How did urban polycentricity and dispersion affect economic productivity? A case study of 306 Chinese cities. *Landscape and Urban Planning* 173 (May), 51-59.
- Li, Y. and N.A. Phelps (2017) Knowledge polycentricity and the evolving Yangtze River Delta megalopolis. *Regional Studies* 51.7, 1035-47.
- Li, Y. and F. Wu (2012) The transformation of regional governance in China: the rescaling of statehood. *Progress in Planning* 78.2, 55-99.
- Li, W., B. Sun and T. Zhang (2019) Spatial structure and labour productivity: evidence from prefectures in China. *Urban Studies* 56.8, 1516-32.
- Lin, G.C.S. (2002) The growth and structural change of Chinese cities: a contextual and geographic analysis. *Cities* 19.5, 299-316.
- Liu, X. and M. Wang (2016) How polycentric is urban China and why? A case study of 318 cities. *Landscape and Urban Planning* 151 (July), 10-20.
- Liu, X., B. Derudder and K. Wu (2016) Measuring polycentric urban development in China: an intercity transportation network perspective. *Regional Studies* 50.8, 1302-15.
- Meijers, E.J. and M.J. Burger (2010) Spatial structure and productivity in US metropolitan areas. *Environment and Planning A: Economy and Space* 42.6, 1383-402.
- Meijers, E., B. Waterhout and W. Zonneveld (2005) Polycentric development policies in European countries: an introduction. *Built Environment* 31.2, 97-102.
- Ng, M.K. and W.-S. Tang (2004) Theorising urban planning in a transitional economy: the case of Shenzhen, People's Republic of China. *Town Planning Review* 75.2, 173-203.
- Parr, J.B. (1999) Growth-pole strategies in regional economic planning: a retrospective view. Part 2: implementation and outcome. *Urban Studies* 36.8, 1247-68.
- Parr, J.B. (2002) Agglomeration economies: ambiguities and confusions. *Environment and Planning A: Economy and Space* 34.4, 717-31.
- Parr, J.B. (2008) Cities and regions: problems and potentials. *Environment and Planning A: Economy and Space* 40.12, 3009-26.
- Phelps, N.A., R.J. Fallon and C.L. Williams (2001) Small firms, borrowed size and the urban-rural shift. *Regional Studies* 35.7, 613-24.
- Qian, H. and C. Wong (2012) Master planning under urban-rural integration: the case of Nanjing, China. *Urban Policy and Research* 30.4, 403-21.
- Qin, B. and S.S. Han (2013) Emerging polycentricity in Beijing: evidence from housing price variations, 2001-05. *Urban Studies* 50.10, 2006-23.
- Rauhut, D. (2017) Polycentricity—one concept or many? *European Planning Studies* 25.2, 332-48.
- Richardson, T. (1996) Foucauldian discourse: power and truth in urban and regional policy making. *European Planning Studies* 4.3, 279-92.
- Richardson, T. and O.B. Jensen (2000) Discourses of mobility and polycentric development: a contested view of European spatial planning. *European Planning Studies* 8.4, 503-20.
- Schmitt, P. (2013) Planning for polycentricity in European metropolitan areas—challenges, expectations and practices. *Planning Practice and Research* 28.4, 400-19.
- Scott, A.J. (ed.) (2001) *Global city-regions: trends, theory, policy*. Oxford University Press, Oxford.
- Sharp, L. and T. Richardson (2001) Reflections on Foucauldian discourse analysis in planning and environmental policy research. *Journal of Environmental Policy and Planning* 3.3, 193-209.
- Shaw, D. and O. Sykes (2004) The concept of polycentricity in European spatial planning: reflections on its interpretation and application in the practice of spatial planning. *International Planning Studies* 9.4, 283-306.
- State Council (1984) Chengshi guihua tiaoli [Urban planning regulation]. State Council Document No. 2, Beijing.
- State Council (2006) Guanyu tuijin Tianjin Binhai Xinqu kaifa kaifang youguan wenti de yijian [Opinions on promoting Binhai New Area development and opening up]. State Council Document No. 20, Beijing.
- State Council (2014) *Guojia xinxing chengzhenhua guihua (2014-2020)* [National plan on new urbanization (2014-2020)]. State Council, Beijing.
- State Council (2015) *Jingjinji xietong fazhan guihua gangyao* [Outline of collaborative development of Beijing, Tianjin and Hebei]. State Council, Beijing.
- Sun, B. and X. Wei (2016) *Zhongguo chengshi quyue de duozhongxin jiegou he fazhan zhanlue* [Polycentric spatial structure and development strategy of urban regions in China]. Science Press, Beijing.
- Tang, W.S. (2000) Chinese urban planning at fifty: an assessment of the planning theory literature. *Journal of Planning Literature* 14.3, 347-66.
- TJLRCC and TJPB (Tianjin Local Record Compilation Committee and Tianjin Planning Bureau) (2015) Tianjin

- shizhi guihuazhi (1990-2010) [Planning record of Tianjin (1990-2010)]. Guangming Daily Press, Beijing.
- TJMG (Tianjin Municipal Government) (1986) *Tianjin Master Plan (1984-2000)*. Unpublished government document. Tianjin.
- TJMG (Tianjin Municipal Government) (1999) *Tianjin Master Plan (1996-2010)*. Unpublished government document. Tianjin.
- TJMG (Tianjin Municipal Government) (2006) *Tianjin Master Plan (2005-2020)*. Unpublished government document. Tianjin.
- TJMG (Tianjin Municipal Government) (2016) *Tianjin Master Plan (2016-2030)*. Unpublished government document. Tianjin.
- TJSB (Tianjin Statistics Bureau) (1983-2018) *Tianjin statistics yearbooks*, various years. Tianjin.
- van Criekingen, M., M. Bachmann, C. Guisset and M. Lennert (2007) Towards polycentric cities: an investigation into the restructuring of intra-metropolitan spatial configurations in Europe. *Revue Belge de Géographie* 1, 31-50.
- van Meeteren, M., A. Poorthuis, B. Derudder and F. Witlox (2016) Pacifying Babel's tower: a scientometric analysis of polycentricity in urban research. *Urban Studies* 53.6, 1278-98.
- Wang, L. and J. Shen (2017) The challenge of spatial plan coordination in urban China: the case of Suzhou city. *Urban Policy and Research* 35.2, 180-98.
- Wei, Y.D. and Y. Jia (2003) The geographical foundations of local state initiatives: globalizing Tianjin, China. *Cities* 20.2, 101-14.
- Wolf, M. and A. Fukari (eds.) (2007) *Constructing a sociology of translation*. Benjamins, Philadelphia, PA.
- Wu, F. (1998) Polycentric urban development and land-use change in a transitional economy: the case of Guangzhou. *Environment and Planning A: Economy and Space* 30.6, 1077-100.
- Wu, F. (2015) *Planning for growth: urban and regional planning in China*. Routledge, New York, NY.
- Wu, F. (2016) China's emergent city-region governance: a new form of state spatial selectivity through state-orchestrated rescaling: China's emergent city-region governance. *International Journal of Urban and Regional Research* 40.6, 1134-51.
- Wu, F. and J. Zhang (2007) Planning the competitive city-region: the emergence of strategic development plan in China. *Urban Affairs Review* 42.5, 714-40.
- Xie, Y. and F.J. Costa (1993) Urban planning in socialist China: theory and practice. *Cities* 10.2, 103-14.
- Xu, J. (2016) Environmental discourses in China's urban planning system: a scaled discourse-analytical perspective. *Urban Studies* 53.5, 978-99.
- Yu, L. (2014) *Chinese city and regional planning systems*. Routledge, Ashgate, and Burlington, VA.
- Yue, W., Y. Liu and P. Fan (2010) Polycentric urban development: the case of Hangzhou. *Environment and Planning A: Economy and Space* 42.3, 563-77.
- Zhang, T., B. Sun and W. Li (2017) The economic performance of urban structure: from the perspective of polycentricity and monocentricity. *Cities* 68 (August), 18-24.
- Zhao, P. (2015) The evolution of the urban planning system in contemporary China: an institutional approach. *International Development Planning Review* 37.3, 269-87.
- Zhu, J. (1999) Local growth coalition: the context and implications of China's gradualist urban land reforms. *International Journal of Urban and Regional Research* 23.3, 534-48.
- Zhu, J. (2000) Urban physical development in transition to market: the case of China as a transitional economy. *Urban Affairs Review* 36.2, 178-96.
- Zhu, L., Z. Pan, H. Xu and C. Liu (2009) Cong 'yizhu yifu' dao 'shuangcheng shuanggang': Tianjin kongjian fazhan zhanlue yanjiu de kongjian jieda [From 'one main centre and one subcentre' to 'twin cities twin ports': a study of Tianjin's strategic plan]. *City Planning Review* 33.4, 35-40.