

# Regional resilience and governance modes: Two great transformations of Dongguan in China's post-1978 reform era

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## ABSTRACT

Dongguan, known as the world's factory due to its globally influential manufacturing, has experienced two phases in its post-1978 development: before and after 2008. Through secondary data and interviews, this paper investigates the relationship between regional resilience and governance modes in these two transformations. The first phase was the transformation from an agricultural county to an industrial city-region through primary industrialisation. Within a polycentric governance system, this transformation has been driven by labour-intensive, export-oriented industries on collectively owned land through bottom-up channels. The second phase was upgrading industries after 2008. Within a continued polycentric governance system, some recentralising tendencies, as monocentric elements emerged. This shift was pushed by high-tech enterprises, mainly on state-owned land, through top-down pathways. These two transformations indicate regional resilience in Dongguan, which was closely related to the changing governance modes. Polycentric governance helped build regional resilience in the first phase; however, polycentric governance alone was not enough in the second phase, and some monocentric elements became necessary. A two-layer decision-making system is introduced to offer a further understanding of how governance modes changed within an authoritarian regime, through adjusting planning, policies and regulations.

## 1. Introduction

### 1.1. Basic information of Dongguan

Dongguan Municipality, located in southeastern Guangdong Province, China, on the eastern bank of the Pearl River, is the gateway to the Pearl River Delta. In terms of its name, 'Dong', meaning east, indicates its location east of Guangzhou, the capital of Guangdong Province and the centre of South China. "Guan" refers to Guan weed (guancao), which is commonly used in Dongguan as a raw material for paper-making

(ECCDM, [Editorial Committee of the Chronicle of Dongguan Municipality, 1995](#)). Dongguan is in the middle of the Guangzhou–Shenzhen Economic Corridor and is approximately one hour from Hong Kong and Macau by sea. Its territory includes 2460 km<sup>2</sup> of land, 97 km<sup>2</sup> of sea, 115.94 km of coastline, and Humen Port (DMBS and SONBSD, [Dongguan Municipal Bureau of Statistics, and Survey Office of the National Bureau of Statistics in Dongguan, 2021](#)).

As a municipality, Dongguan differs from other Chinese cities in terms of administrative structure. Normally, the county level is subordinate to a municipality, and towns are lower than counties. However,

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Dongguan is close to a municipality, and there is no county level within its administrative structure. Twenty-eight towns, four streets and the Songshan Lake Hi-tech Zone, which is at an administrative level equal to that of a towns and a street, compose the whole territory, and the municipal government is located on Nancheng Street (see Fig. 1). In 2021, the GDP of the city was 1.0855 trillion CNY, making Dongguan a member of the ‘1 trillion club’, which refers to Chinese cities that had more than 1 trillion CNY of GDP in the past year (The paper, 2022). Dongguan's GDP has increased to around 1.3 trillion CNY in 2025 (Fig. 2) (China Daily, 2026).

The object of this research is the whole territory of Dongguan, rather than just the central city, which includes Nancheng, Guancheng, Dongcheng and Wanjiang. This is because Dongguan has a mix of rural and urban spaces, similar to McGee's concept of ‘Desakota’ in describing Southeast Asian countries; not only the central city but also the whole territory with rural and urban space can be analysed as a city region (Xu & Zhou, 1994; Guldin, 1996; Yang, 2020). The starting point of this study is 1978. Since then, during the process of the reform and opening up, the development of Dongguan has become much more significant in a global sense.

1.2. Reasons for analysing Dongguan

The development process of Dongguan can be divided into two phases: the first transformation occurred between 1978 and 2008, and the second occurred after 2008. The first phase was driven by the bottom-up channel of ‘three supplies and one compensation’

(sanlaiyibu) enterprises on collectively owned land, which transformed the agricultural county into the world's factory. In 1978, the GDP of Dongguan was 0.611 billion CNY, and the proportions of GDP produced by the primary (agricultural), secondary (industrial), and tertiary (service) industries were 44.6%:43.8%:11.6%. In 2008, its GDP rose to 371.568 billion CNY, and the proportions of the three categories shifted to 0.4%:51.5%:48.2%. The transformation in the second phase after the 2008 financial crisis was realised through more top-down channels, namely, the upgrading of high-tech enterprises on state-owned land, as a shift from ‘made in China’ to ‘innovated in China’. In 2008, Dongguan had 153 national-level high-tech enterprises and exported 20.149 billion USD of high-tech products; these numbers changed to 10,200 national-level high-tech enterprises and 318.811 billion CNY of high-tech products exported in 2024 (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2009, 2025). In 2009, the number of advanced manufacturing enterprises above the designated size (guimoyishangqiye) was 2333, with 264.9 billion CNY in total income; by 2022, the figure had risen to 8130 enterprises with 1380.4 billion CNY in income (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2010; Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2022).

These two transformations are significant examples of reform and economic growth in China after 1978. In contrast to Shenzhen, Dongguan has not received a large amount of support from the central state; rather, Dongguan has adapted to a changeable environment by

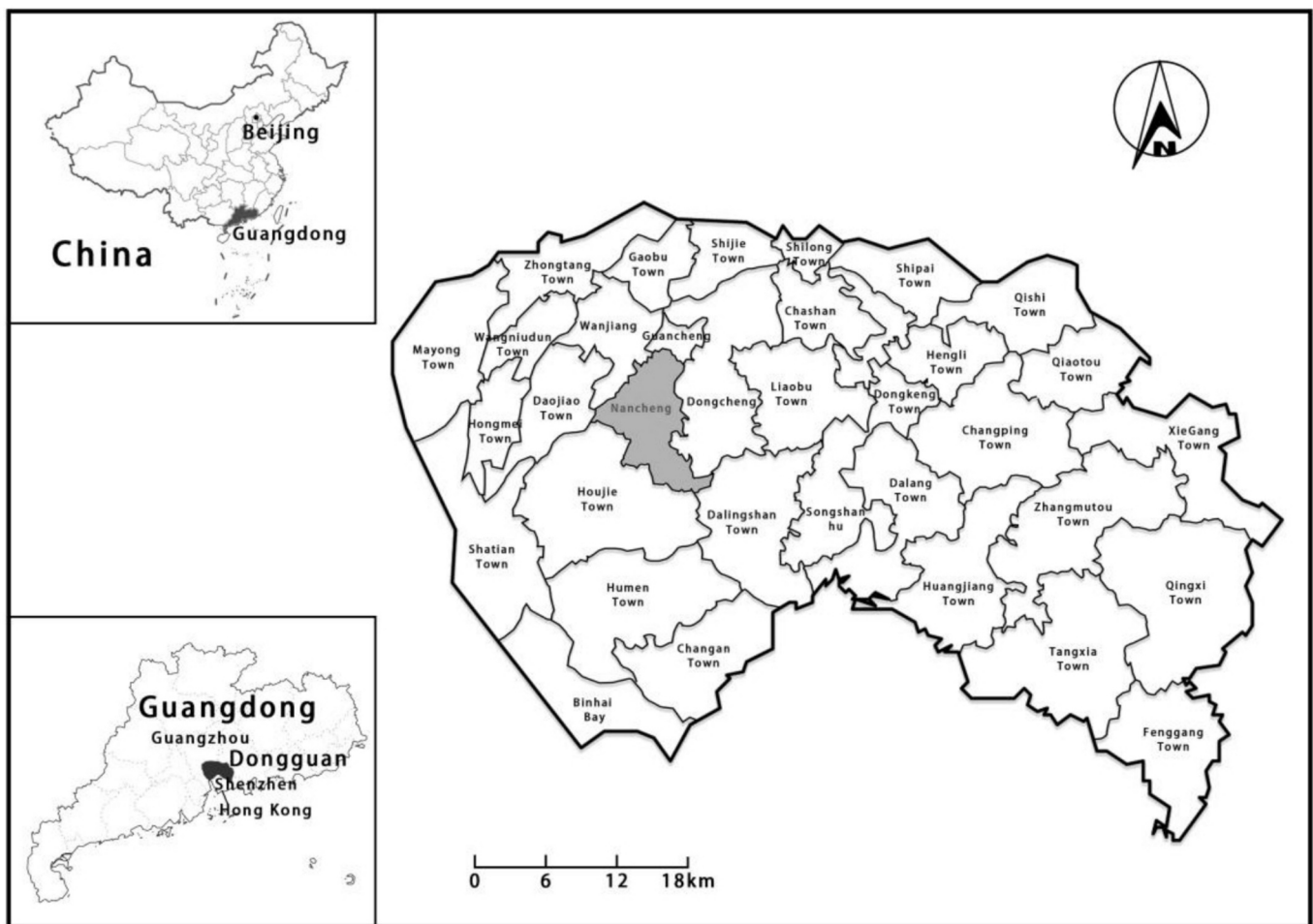


Fig. 1. Location, territory and subordinate towns of Dongguan (Nancheng is marked in gray and red because it is the location of the municipal government) (Source: Author's drawing). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

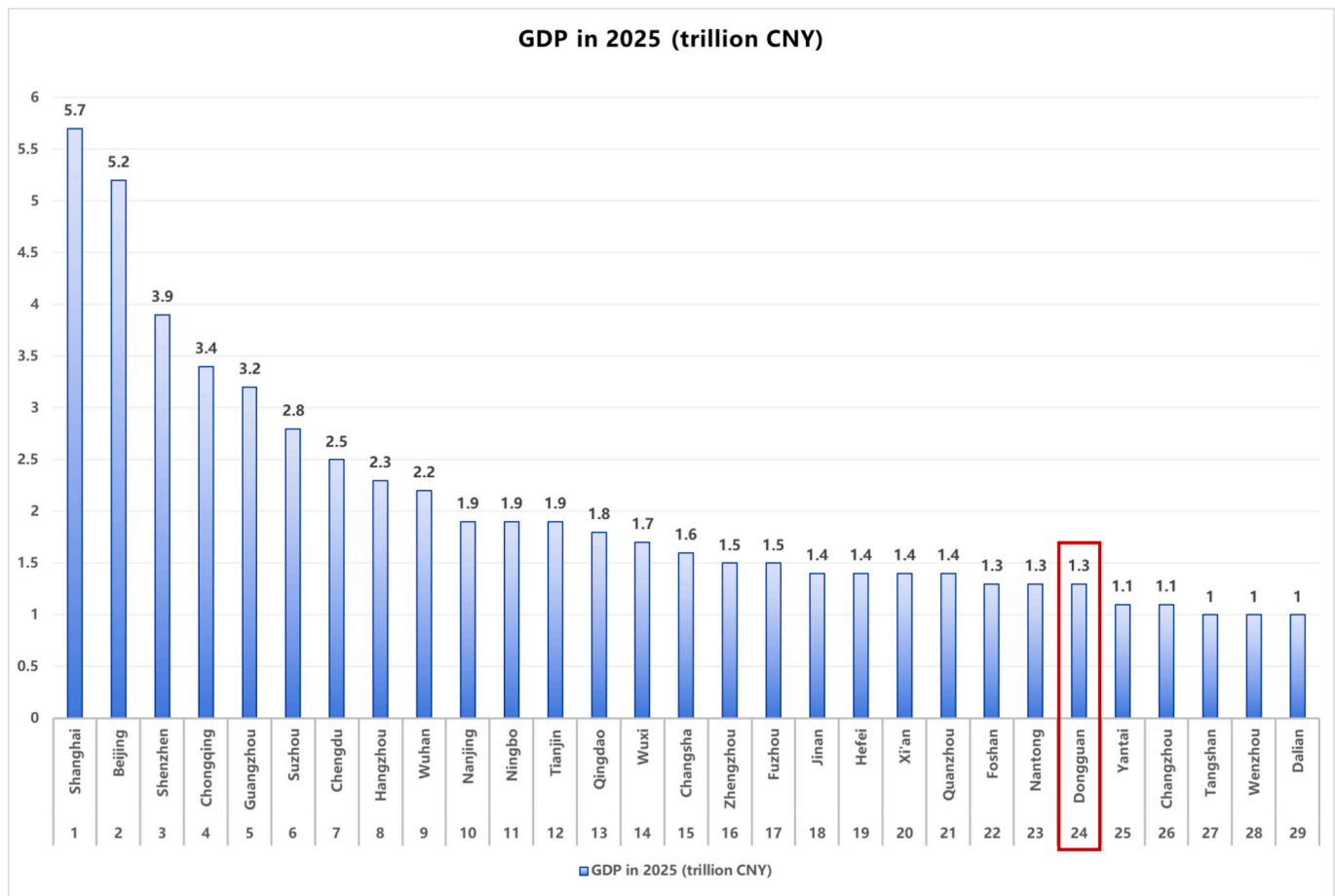


Fig. 2. Chinese cities in the 'trillion club'. Source: [China Daily, 2026](#).

matching its resources to external demands. Such transformations therefore reflect the ability of Dongguan to adapt to a development environment that is continually changing. In the first phase, Dongguan spent 30 years realising industrialisation, which is perhaps a much shorter period than those experienced by developed countries, such as the U.S. and the U.K. In Dongguan, the proportion of the secondary industry in GDP peaked in 2006 at approximately 58%. During that year, the output value of the secondary industry reached 152.229 billion CNY. This marked a substantial increase compared with the output value of 268 million CNY recorded in 1978, representing a remarkable growth of approximately 568 times over a span of 28 years ([Dongguan Municipal Bureau of Statistics, 2007](#)). In China as a whole, the highest proportion of the secondary industry in GDP was observed in 2011, accounting for 46.4% of the total. The GDP attributed to the secondary industry was 22.64 trillion CNY, a significant surge from the 48.3 billion CNY recorded in 1958. This represents an increase of approximately 570 times over a period of 53 years ([National Bureau of Statistics of China, 2022](#)). In comparison, the United States reached its peak secondary industry proportion in 1965 at 36.84%, with the secondary industry value reaching 273.979 billion U.S. dollars. In contrast, in 1840, the secondary industry value was approximately 500 million U.S. dollars, reflecting a growth of approximately 550 times over a period of 125 years ([U.S. Bureau of Economic Analysis, 2022](#)). Thus, Dongguan stands out as a rapid case of industrialisation within China, achieving its development at a notably faster pace than the historical trajectory of the United States.

In the second phase, owing to problems and challenges, such as decreased international market demand, a low-end position in the production chain, pollution, and policy changes from higher levels, Dongguan had to push its second transformation of upgrading industries at an

even faster rate than in the first phase. This high-speed nature of development in Dongguan reflects crucial features of the growth of Chinese cities, namely, a polycentric governance mode and institutional mechanisms to adapt to problems and challenges. Such an adaptation results from the pragmatism and strong power of the Chinese local government to control and mobilise capital and communities. These capacities enabled the state to select appropriate governance modes and construct diverse approaches to pursue different developmental goals in response to distinct environments. In short, from a global perspective, Chinese cities have experienced historically rapid development supported by their adaptive capacities in response to external demands. Among Chinese cities, Dongguan might be considered one of the best examples of such regional resilience in its two transformations.

### 1.3. Analytical perspective

The study is analysed from the perspective of regional economic resilience and governance and these two terminologies can summarise the characteristics of two major transformations in Dongguan after 1978. Regional economic resilience can be defined in terms of capacities and performance: the long-term capacities of a regional economy are resistance, recovery, reorientation and renewal as responses to unexpected pressures and challenges, and performance as outcomes indicate the changes within an existing developmental path (adaptation) or the creation of a new channel of growth (adaptability) ([Boschma, 2015](#); [Keessen et al., 2013](#); [Martin, 2012](#)). Adaptability might be supported by regional capacities to learn, adjust and experiment within a diversified economic pattern, a loose social network and a weak institutional environment; in contrast, adaptation may benefit from the capacities to mobilise resources, enforce and monitor within a specialised pattern, a

tight network and a strong governance structure (Boschma, 2015; Hassink, 2010; Swanstrom, 2008).

Regional governance is considered key to building the resilient capacities of diverse actors under pressure, but it remains inadequately studied (Peng et al., 2017). Among the various modes, polycentric governance may particularly benefit adaptability (Vandergert et al., 2016). Emerging as an alternative mode to challenge the dominant paradigm of monocentric governance in American metropolitan areas in the 1960s, the polycentric system offers better performance in delivering place-based public services (Ostrom et al., 1961). Such a polycentric concept has been applied to manage common-pool resource problems, global climate change issues and beyond (Jordan et al., 2015; Ostrom, 1990, 2010; Wiechman et al., 2024). Polycentric governance can be defined as a system with three characteristics: multiple autonomous decision-making centres, overlapping jurisdictions, and mutual adjustment among centres (Carlisle & Gruby, 2019; Schröder, 2018; Thiel & Moser, 2018; Tormos-Aponte & García-López, 2018; Vantaggiato & Lubell, 2022). Empirically, these three characteristics might lead to institutional mechanisms, such as decision-making autonomy, strong individual incentives and institutional fit enabled by tighter feedback loops, timely information and local knowledge because of the proximity between decision-making centres and governed objects (Carlisle & Gruby, 2019; Heikkilä et al., 2018; Lebel et al., 2006; Villamayor-Tomas, 2018). These mechanisms tend to generate capacities to operate site-specific experiments, to learn by doing through information sharing and experimentation, and to coordinate in a bottom-up manner (Berardo & Lubell, 2016; Dorsch & Flachsland, 2017; Galaz et al., 2012; Hassink, 2010; Heikkilä et al., 2011; Morrison et al., 2023). By contrast, monocentric governance may employ controlling leadership, centralised incentives, standardised institutional templates, command-control information and expert knowledge as institutional mechanisms to support intermediate capacities for top-down resource mobilisation and enforcement (Aligica & Tarko, 2014; Booher & Judith, 2010; Evans, 2011; Lebel et al., 2006; Villamayor-Tomas, 2018).

Conceptually, the relationship between governance and regional resilience might be organised as a four-step chain: governance mode–institutional mechanisms–intermediate capacities–resilience performance (see Fig. 3). Connections between these four steps may be highly possible according to the literature, but are not guaranteed in reality. Governance configurations and resilience trajectories are often hybrid, and are displayed as a gradient spectrum in between. Trade-offs between

governance choices happen; a combined governance mode is possible according to regional conditions (Boschma, 2015; Hassink, 2010).

To study the relationship between governance and regional resilience in the development of Dongguan after 1978, an analytic framework should be established. A framework is designed to reveal patterns through repetitions in different phases; such patterns help to build models that describe how things work and, further, theories that explain phenomena (Swanstrom, 2008). Regional resilience can be defined as capacities and performance in facing challenges (Sutton & Arku, 2022). Such capacities are displayed in responding to disturbances through the adoption of appropriate strategies (Christopherson et al., 2010; Peng et al., 2017). Governance modes are the core elements to support such strategies through holistic instruments (Christopherson et al., 2010). Following the four-step possible chain (governance mode - institutional mechanisms - intermediate capacities - resilience performance), holistically operating the governance mode leads to outcomes as resilience performance. Such a framework includes (1) challenges, (2) strategic choices as responses, (3) governance mode and its instruments supporting strategic choices, (4) institutional mechanisms and intermediate capacities, and (5) outcomes. The first four elements represent resilience capacities, and the last element represents performance. Regional resilience is indicated by the match between challenges, strategic choices and outcomes (see the framework in Fig. 4).

By organising empirical materials in two transformations, the framework aims to reveal the patterns of Dongguan in facing challenges and pressures. The repeated pattern may be described as the Dongguan model of regional resilience as a representative of Chinese cities. On the basis of an analysis of the Dongguan model, a theoretical conversation about the relationship between governance modes and regional resilience is presented; the possible contribution of this research might emerge in such a conversation (see Fig. 4).

## 2. History of Dongguan before 1978

Dongguan was first established as a county in the 6th year of Xianhe, Dongjin Dynasty (331 CE), named Baoan, belonging to Dongguan Jun. In the second year of Zhide, Tang Dynasty (757 CE), it was renamed Dongguan County, and its county seat shifted from Wucheng (Nantou) to Yong (Guancheng). At the beginning of the Song Dynasty (960 CE), the city walls of the county seat of Dongguan, Guancheng, were built with bricks. Its east–south edge was the Desheng Bridge, and the western

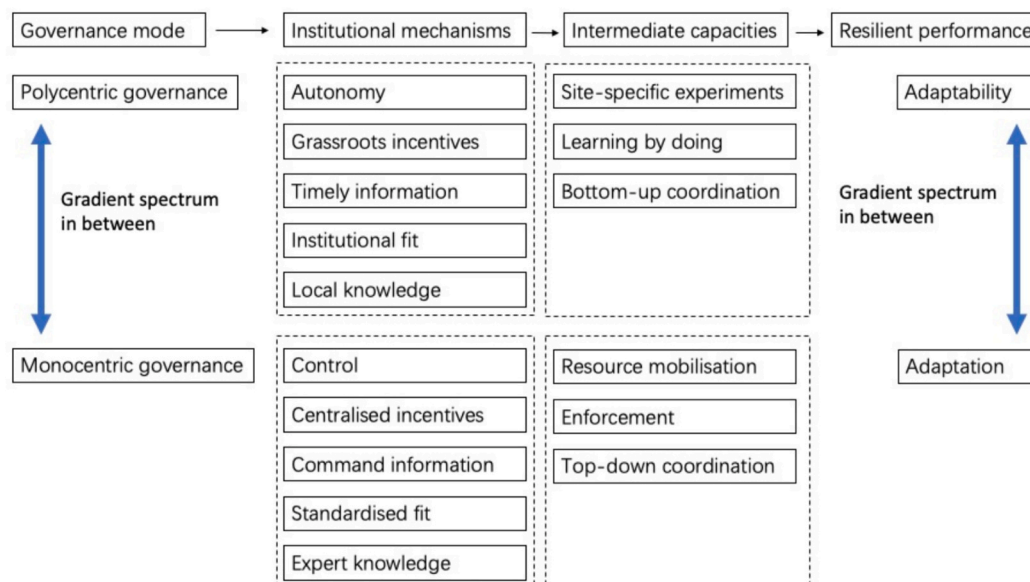


Fig. 3. Relationship between governance and regional resilience. Source: authors' drawing, 2026.

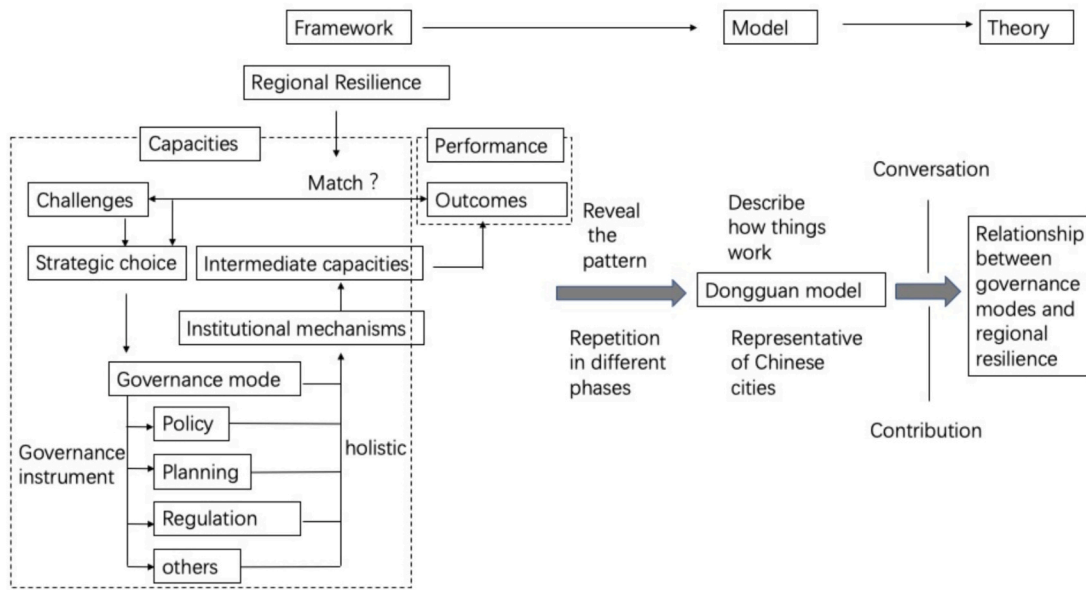


Fig. 4. Framework, model and theory of this study. Source: Author's drawing, 2026.

territory reached the Yong (Shiqiao River) (Allison et al., 1983).

Within the prosperity of the commercial economy in the late Ming Dynasty (before 1644 CE), as a central city in an agricultural area, several market places, such as Shiqiaoxu, Ximenshi, Dongmenshi, Beimenshi, Beimenxu and Jiaochangxu, were built inside and outside Guancheng's city walls. New blocks, such as Yingenxiang, expanded outside the city walls, particularly near the west city gate. Before the end of the Qing Dynasty (1912 CE), the building areas outside the city walls, blocks and roads increased significantly and sprawled from the north gate area to a broad area near the west gate. These two areas connected and mixed with each other as a result of development.

When the Republic of China, the first state in a modern sense, was established in 1912 CE, the government of Dongguan County was still located at Guancheng. Administratively, areas inside the city walls were defined as Zone 1, while blocks and roads outside the walls were defined as Zone 2. In 1925, the township office of Beiyu was built to manage Zones 1 and 2 under the supervision of the county government. In 1938, the Japanese army occupied Guancheng. In October 1949, the Chinese communist army entered Dongguan and controlled its entire territory. In November of the same year, the People's Government of Guancheng was established; in December 1958, it was changed to the People's Commune of Guancheng (Editorial Committee of the Chronicle of Dongguan Municipality, 1995).

In addition to Guancheng, Humen, belonging to Dongguan since the Xijin Dynasty (265–316 CE), is another important town located in the estuary of the Pearl River. Its accent name 'golden lock and copper hurdle (jinsuotongguan)' indicates its military importance. Humen became famous in Chinese history because of its connection to the beginning of modern history in China. The burning of 1,188,127 kg of opium confiscated from British businessmen in Humen (Beach), operated by Zexu Lin in June 1839, is a historical event leading to the First Opium War and the start of modern Chinese history. In May 1840, the First Opium War occurred, and Humen became the main battlefield. In addition, Shilong is a famous town with a long history. People have lived in Shilong since the Nansong Dynasty (1127–1279 CE). In the Qing Dynasty (1636–1911 CE), Shilong was significant for its commercial activities, and it became one of the four most well-known towns in Guangdong (Province), along with Guangzhou, Foshan and Chencun.

Historically, Dongguan has been a crucial agricultural site in southern China because of its geographic conditions. There is 74.3 km of the Dong River, one of the main tributaries of the Pearl River, in the

territory of Dongguan, bringing 27.5 billion tons of water per year. In addition, the western and northwestern parts of Dongguan are filled with rivers and lakes; therefore, water resources are adequate to support agriculture. In terms of weather, the city region has a subtropical maritime climate, with an average temperature of 22.1 degrees Celsius, a frost-free period of 314 days, an average annual sunshine duration of 1986 h, and an annual rainfall of 1800 mm. All these elements are beneficial for agricultural products. As a result, Dongguan was well known as the Hometown of Fish, Rice and Fruits and was home to almost 30,000 families as a rich county in the first year of the Qiande, Song Dynasty (963 CE). Famous products from Dongguan include rice, cassava, legumes, lichee, banana and sugarcane. Lichee has been planted there for more than 1000 years, and banana has been planted since the Yuan Dynasty (1271–1368 CE). Guan weed and guan xiang (white wood fragrance), which are representative agricultural products in Dongguan, have been exported to Southeast Asian countries since the Ming Dynasty (1368–1644 CE). However, the production of guan xiang ended in the early years of the Republic of China. After 1949, during the period of the People's Republic of China, Dongguan acted as a major base in Guangdong Province for producing grains and exporting fresh agricultural products. In 1949, its gross agricultural output was 54 million CNY; in 1978, this number rose to 332.8 million CNY (Editorial Committee of the Chronicle of Dongguan Municipality, 1995).

### 3. First transformation: From an agricultural county to the world's factory (1978–2008)

The year 1978 heralded the beginning of the changes that occurred in the agricultural county, which were synchronous with national policy changes, such as reform and opening up. In the early years of reform, capital from Hong Kong was the major resource input into the Pearl River Delta, especially into Dongguan, which has strong kinship and cultural connections with Hong Kong. In 1996, money from Hong Kong made up 84% of total investment in Dongguan (Lin, 2006). In 2005, the Taiwanese capital subsequently grew and surpassed Hong Kong's capital to become the largest source of investment (Yang, 2007). Through village leadership, the support of Hong Kongese and Taiwanese capital, and 'three supplies and one compensation (sanlaiyibu)' enterprises driving the process of industrialisation (Lin, 2006), the gross industrial output of the city increased from 0.346 billion CNY in 1978 to 663.28 billion CNY in 2008 (Dongguan Municipal Bureau of Statistics and

Survey Office of the National Bureau of Statistics in Dongguan, 2021). In 2008, Dongguan was home to 7704 enterprises from Hong Kong, Macau and Taiwan. Within Guangdong Province, this number was slightly lower than Shenzhen's 8436 but much higher than the 4396 in Guangzhou, the capital of Guangdong (Guangdong Provincial Bureau of Statistics and Survey Office of the National Bureau of Statistics in Guangdong, 2009). Within these 30 years, the annual economic growth ratio was 18.0%. By 2008, Dongguan had become the world's factory. It employs 0.03% of the land in China to produce 1.2% of its national GDP, 0.9% of its state fiscal income and 4.6% of its export income. Its economic outcomes surpassed those of some provinces, even though Dongguan is only one of 21 cities in Guangdong Province (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2009; National Bureau of Statistics, 2009). The first transformation can be analysed through the framework 'challenges – strategic choice as response – governance mode and its instruments supporting strategic choices - institutional mechanisms and intermediate capacities – outcomes - match between challenges, strategic choices and outcomes' (Fig. 4).

### 3.1. Challenges

Dongguan is among the major hometowns of overseas Chinese: more than 200,000 of its former residents lived in other countries, and approximately 700,000 people lived in Hong Kong and Macau originally came from Dongguan. It is believed that 1 out of 10 Hong Kong citizens are from Dongguan (Chen, 2009). Owing to the close social connections and the significant economic gap between Dongguan and Hong Kong, people fled from Dongguan to Hong Kong in several waves after the 1950s; this was a great challenge for the local government (Burns, 1987; China Economic Weekly, 2005). To stop this outmigration, achieving economic growth became an essential target. After 1978, the reform and opening up granted local governments the autonomy to explore new channels for development, while at the same time, regulations regarding individual mobility through hukou, enterprise setting and capital movement were released (Lin, 2006). These institutional changes led to more opportunities for the local state to find its own approaches to pursue economic growth on the basis of its challenges and conditions.

As an agricultural county, Dongguan had the space to transform land from agricultural functions to commercial functions for better returns. Moreover, the operation of the household contract responsibility system (jiatingliananchengbaozerenzhi) increased agricultural productivity. These changes freed more labour from the land to prepare for new industrial activities. In the same period in the 1980s, manufacturing in Hong Kong faced difficulties after enjoying prosperity in the 1970s. Exports from Taiwan and South Korea surpassed those from Hong Kong in the late 1970s. Developed countries, as export destinations, experienced economic decline during this period, reduced their demand and advocated more protectionism. Given the limited space in Hong Kong, land rents rose, and wages and other costs for labourers reached a new level. These factors pushed industrial capital in Hong Kong to find new space (Stephen et al., 1997).

### 3.2. Strategic choice as a response: Three supplies and one compensation

The rapid growth of 'three supplies and one compensation (san-laiyiibu)' enterprises was the strategic choice made to enable Dongguan to adapt to challenges and opportunities in the 1980s. The nature of such a choice was to create a new developmental path from agriculture to industrialisation. This choice represents cooperation among overseas investors, such as those from Hong Kong, in terms of production equipment, raw material, samples and sales combined with the land and labour available in Dongguan to support labour-intensive and low-level technical industries. This response was the mutual best choice and led to rapid industrialisation and urbanisation in Dongguan in the next few decades. For small factories in Hong Kong, which were facing difficulties

and competition, it was reasonable to transfer their productivity to Dongguan, which boasted cheaper land, labour and energy, as well as close kinship connections and convenient transportation. Moreover, the 'three supplies and one compensation' enterprises, which needed limited investment, provided rapid recovery of investment costs and could be easily relocated, making them a low-risk choice for transferring capital. From the perspective of Dongguan, its only advantages were inexpensive land and labour, and it aspired to possess capital, technology, and management experience as scarce resources for economic development. 'Three supplies and one compensation' enterprises needed only land and labour from Dongguan and could obtain the other scarce and essential productive factors to prepare the system for growth.

In terms of policy, in July 1978, the state council announced 'Methods to experiment with export-oriented assembling (kaizhandui-waijiagongzhuangpei-yewushixingbanfa)'. The communist branch of Guangdong Province responded to national policy by selecting 5 counties, Dongguan, Nanhai, Shunde, Panyu and Zhongshan, as a trial for export-oriented assembling businesses, namely, processing. In September 1978, as the first 'three supplies and one compensation' factory in China, the Taiping Handbag Factory was opened in Dongguan only 2 months after the announcement of the national policy.

As the key support for the strategic choice of Dongguan, external investment was the core impetus for the development of 'three supplies and one compensation' enterprises. In the early years, Hong Kong was the most important source of capital for the small, labour-intensive and export-oriented mode of traditional manufacturing to Dongguan. Such capital was allocated to the sectors of making toys, shoes and clothing. Later, in the 1990s, Taiwanese enterprises gradually occupied the largest share of manufacturing, particularly in the IT industry, with greater focus on industrial clusters and supply chains (Yang, 2007).

### 3.3. Governance mode and its instruments supporting strategic choices

#### 3.3.1. Governance mode: Decentralisation as pathway to polycentric governance

The core supporting mechanism was the decentralised governance structure in Dongguan. Decentralisation was undertaken as follows: the central state granted city market autonomy, and the city government granted power to towns, which in turn empowered villages through further decentralisation. Polycentric governance has been formulated. From 1985 to 1989, Dongguan was upgraded one step in the administrative hierarchy of Chinese cities from a county to a city (municipality). As a result, Dongguan Municipality possessed more autonomy in administrative decision-making, such as economic and social policy. Towns have been granted more autonomy, particularly in economic issues (Wang et al., 2011). In the new structure, grassroots units, in particular, villages, were empowered and mobilised for economic development in terms of investment promotion (Lin, 2006; Wu et al., 2017). In such a governance structure without a county-level government, the centre of gravity sank to lower levels to stimulate economic growth in a bottom-up manner. Four wheels, namely, municipality, towns, villages and villager groups as the subordinates of villages, constituted numerous autonomous engines to actuate the expansion of 'three supplies and one compensation' enterprises and support prosperity at the town and village levels. It is called "four wheels run together" (sigelunziyiqizhuan) in official statement (Chinese Communist Party News, 2014).

Such decentralisation brought a polycentric governance structure to Dongguan among the municipality, towns, villages, and villager groups (see Fig. 5). These actors function as multiple autonomous decision-making centres at different scales, with interlinks and overlapping boundaries, in the long-term campaign to attract external investment. In the 1980s, villages and villagers' groups were the main platforms to attract overseas capital to realise industrialisation on rural land, and towns and the municipality tried to invest in the platforms at the level of villages and villagers' groups to share the income. In the 1990s and

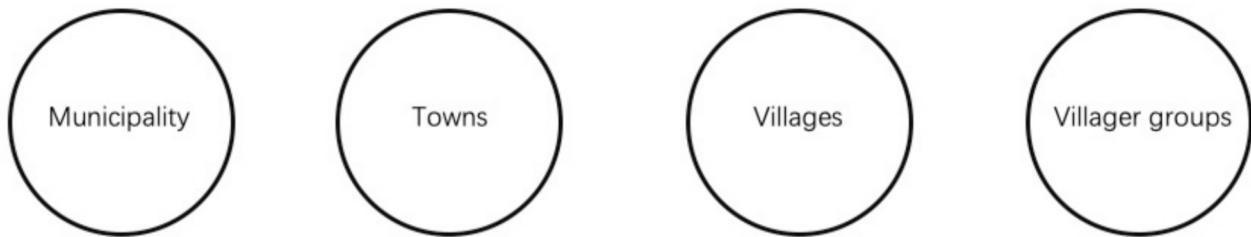


Fig. 5. A polycentric governance structure in Dongguan (four wheels run together). Source: Author's drawing, 2026.

2000s, with more fiscal capacities, towns and the municipality had built up their own industrial parks; villages and villagers' groups had to compete against towns and the municipality. It was mutual adjustment in such a change from cooperation to competition for investment between 'four wheels' after the 1980s.

Between 1978 and 1984, villages had full freedom to develop their collective land without real regulation from above. After 1985, towns became more active in attracting external investment through informally leased industrial land. This led to a boom in the expansion of town land for building factories. After 1999, the revision of the Land Management Law and its relatively stricter regulation brought about more control over land use, but towns and villages still had a high level of freedom in development (interview with Wei, urban planner, 08/07/2025).

In 2008, the Dongguan municipal government obtained 18.3 billion CNY in fiscal income, towns and districts in total received 15.9 billion, and all the villages together captured 18.1 billion in income (Liang et al., 2013); the three different levels have almost the same amount as an indicator of polycentric governance. At the lower level, villages are more flexible in their ability to accept investment in terms of minimum investment capital, time length of investment and pollution level. More importantly, villages have enjoyed a large amount of income from invested companies, which are more or less out of formal regulation from the state. For instance, processing fees, acquired from 'three supplies and one compensation' enterprises, differ across villages according to the results of the negotiations; such fees are considered exemptions for taxes (Yang, 2012). Land leasing fees, management fees acquired from migrant workers and dormitory rents are other sources of income. In return, villages were responsible for providing public goods, such as roads, public security and cleaning works, which are normally provided by higher-level governments in other places (Xue & Wu, 2015). These incomes and responsibilities support the independence of villages in this polycentric governance structure.

### 3.3.2. Governance instrument supporting strategic choices

#### (1) Limited planning control.

Compared to Guangzhou and other large cities, Dongguan municipality had relatively strictly launched its planning control only in central urban areas, such as Nancheng and Guancheng, rather than its whole territory (Wu et al., 2017). Due to the polycentric governance structure in the city-region, towns, as the majority of Dongguan's territory, had strong incentives to expand their construction land to attract more investment to fuel their economic growth. Such a growth was supported by limited planning control from the municipal level which only served as guidance in terms of scale, function and spatial forms outside the central areas (Yuan et al., 2020). Villages and villagers' groups, as the other two decision-making centres in the polycentric governance system, were also highly motivated to pursue capital from Hong Kong, Taiwan and other places by their collectively owned land which is less controlled by the planning system (Xue & Wu, 2015).

#### (2) Policies on industrial investment.

In the 1980s and 1990s, almost every Chinese city realised that

international capital, particularly from Hong Kong, was key for local development. Therefore, Dongguan mobilised every town, every village and even every individual to participate in competition against other cities to attract external investment. The first move occurred at the end of 1978, when the Dongguan County government founded a leading group with leaders from various governmental departments to serve 'three supplies and one compensation' enterprises. This leading group occupied several offices in the government building; relevant officials gathered in various ways to respond to diverse demands from enterprises in their distinct stages of investment and production. For instance, activities of negotiation before signing contracts and approving projects upon agreement of investment could be located in 2 neighbouring rooms. It could take less than 1 day to finish the process from bargaining, agreement and application to the approval of arrangements for transporting equipment (Li & Yan, 2013). Towns and villages were encouraged to operate their own industrial parks to attract investment from Hong Kong and Taiwan, and to share incomes from rents and taxes (Yuan et al., 2020). Such a polycentric industrialisation process could be described as 'every town is lit up, every village is filled with smoke (zhengzhendianhuo, cuncunmaoyan)' (Wu et al., 2017).

*(In the 1980s and 1990s), village leaders came to Hong Kong and tried to sell their land to potential investors with self-made billboards on the street.* (interview with Wei, urban planner, 08/07/2025).

*Prior to 2001, before China entered the World Trade Organization (WTO), investment from Hong Kong and Taiwan was the primary target of promotion. However, post-2001, there was a notable increase in the involvement of foreign capital from regions beyond Hong Kong and Taiwan.* (interview with Huang, urban planner, 19/03/2024).

(3) Absent regulation of land leasing, labour rights and environmental protection.

With a relatively weak municipal authorities, towns, villages and villagers' groups were actively leasing their land to overseas investors, mainly through informal channels (Huang et al., 2021; Xue & Wu, 2015). Before 2008, the municipal government had fewer incentives to control land-leasing processes to earn fiscal income; this situation gave towns and villages more space to pursue their own economic goals.

Since the 2000s, the emergence of the real estate industry and associated land-finance mechanisms has provided municipal governments with greater incentives to control urban land and the corresponding land-leasing incomes. However, this trend did not become influential until the 2008 financial crisis (interview with Huang, urban planner, 19/03/2024).

Labour rights were less considered in the first stage of transformation. A large number of migrant workers were willing to work overtime with minimal additional salary required, which was even a summary of competitiveness of Dongguan to attract investment (Yeung, 2001). Regulation in another field, environmental protection, was partially ignored for the sake of lower the cost of production in the early years (Flynn & Yu, 2020).

#### (4) Supportive infrastructure.

To benefit the entry and operation of capital and productive forces, Dongguan constructed strategic infrastructures in the first period,

mainly through self-financing assisted by external investment. Transport and communication were the priorities. Dongguan built a citywide digital telephone system in 1987, making it the first Chinese city to do so. In addition, Dongguan was the first city in China to plan, finance and construct its highway system independently (Airriess, 2008; Lin, 2006). In terms of ports, the Humen Passenger Port, Railway Port and Humen Cargo Port were established in 1984, 1994 and 2003. The operation of these supportive infrastructures supported the sustainable development of manufacturing in Dongguan (see Fig. 6). In 1992, the total length of Class I highways (yijigonglu) in Dongguan increased from 5.5 km to 151 km, after which roads were built and development followed (Wang et al., 2011; Ye & Li, 1999). Funding to build this infrastructure was provided mainly locally, not from higher administrative levels; for example, between 1980 and 1987, 89% of infrastructure construction funding came from the local level (Lin, 1997).

3.4. Institutional mechanisms and intermediate capacities

Between 1978 and 2008, the Dongguan municipality, towns, villages and villagers' groups were the autonomous decision-making centres

with overlapping jurisdictions in economic development. Mutual adjustments had happened between these four types of centres. Within this polycentric governance, institutional mechanisms emerged. The right of development, in particular, the land use right of development, had been granted to multiple autonomous centres to produce individual incentives to attract investment. Interests were shared between the four types of centres, while the municipal authorities obtained the political merits, towns grasped taxes from industrial parks, and villages and villagers' groups more directly possessed rents both from investors and migrant workers. Due to the close distance between decision-making centres and their governed objects, frequent interaction between entities and short feedback loops, timely information, institutional fit and local knowledge were produced in such a polycentric governance system. As a result, site-specific experiments had the space to operate in adjusting strategies to attract more investment and to increase profits, through trial-and-error learning processes. Such processes indicated the intermediate capacities in experimentation and learning by doing, and led to the bottom-up channel of coordination, mainly initiated at village and village group levels, in attracting investment.

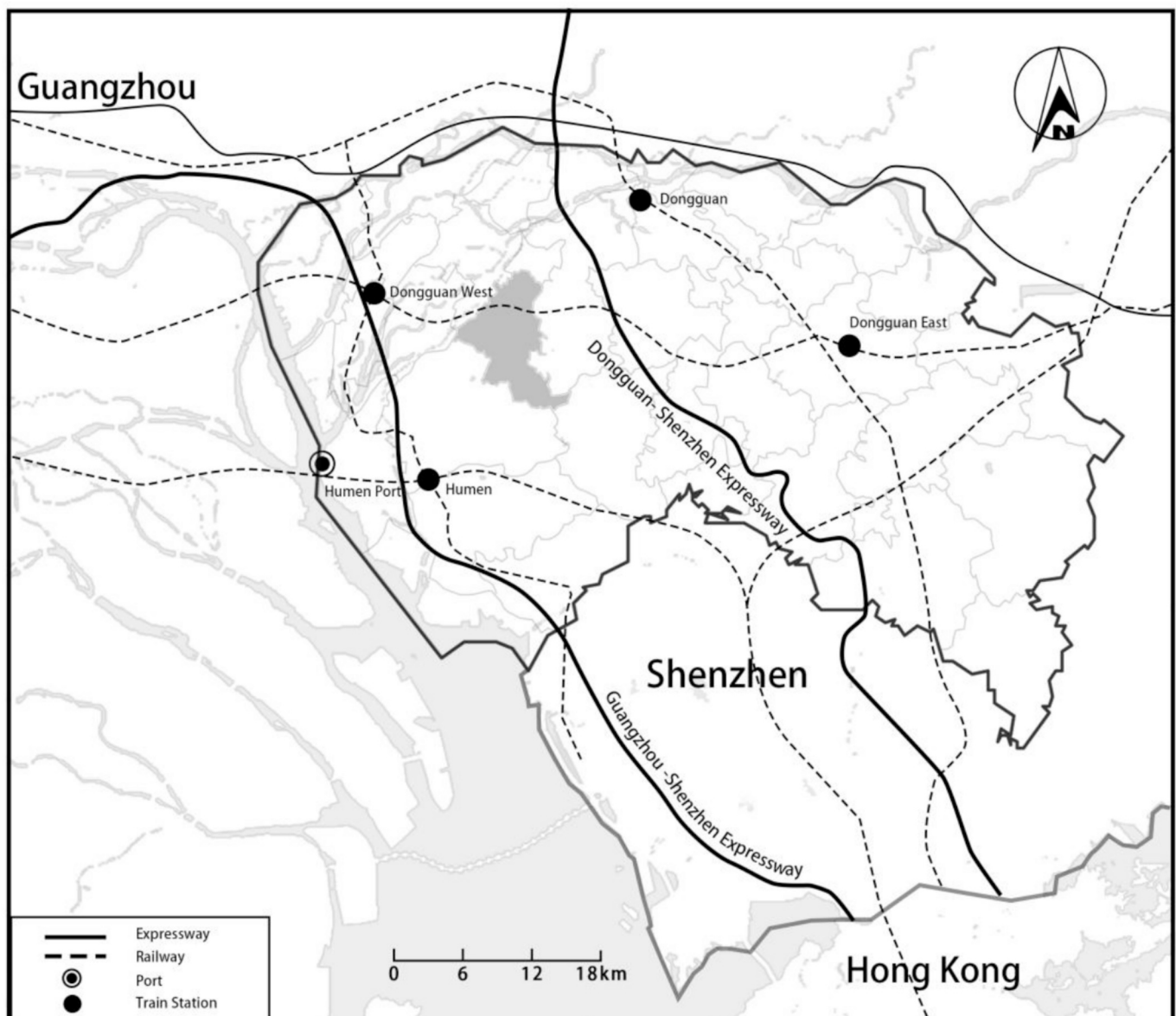


Fig. 6. Supportive infrastructure in Dongguan (Source: Author's drawing).

### 3.5. Outcomes of the strategic choice

#### 3.5.1. Industrial transformation: The world's factory

Within the context of booming economic aggregation, the internal economic structure in Dongguan experienced significant transformation. From 1978 to 2008, its GDP increased from 0.611 billion CNY to 371.568 billion CNY, and the proportions of the primary, secondary and tertiary industries shifted from 44.6:43.8:11.6 to 0.4:51.5:48.2. In 1978, light and heavy industry had 0.315 billion and 0.105 billion CNY of products, respectively; these figures rocketed to 316.21 billion and 406.028 billion, respectively, in 2008. The proportion between light and heavy industry changed from 75:25 to 44:56. In 1978, Dongguan had 64 state-owned enterprises, 1226 collectively owned enterprises, and none possessed by Hong Kong capital; in 2008, there were 10 state-owned, 224 collectively owned and 8162 Hong Kong-invested enterprises (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2009).

As a result of these transformations, Dongguan became the world's factory, providing consumable products. The best description of the global reach of Dongguan is a 'traffic jam in Dongguan is out of stock globally (dongguansai che, quanqiu que huo)'. The city is the global centre for manufacturing computer accessories, furniture, shoes, toys and clothing. Qingxi, one of 28 towns in Dongguan, can produce 2 million displays, 0.7 million keyboards and 1.3 million computer cases (20% of the total global yield) (Chen, 2005, Chen, 2007). Products in 95% of computer accessories categories can be found in Dongguan (Chen, 2005). The city can also produce more than 1 billion pairs of shoes; among them, more than 0.5 billion pairs are exported. Globally, of every 10 pairs of new shoes, 1 pair likely came from Dongguan. In terms of toys, 37% of the international market share is provided by more than 4000 toy manufacturers in the city (Jia, 2008). These products are not designed or researched in Dongguan, and sales departments are mostly located in Hong Kong; only the manufacturing parts belong to Dongguan. This is the 'front shop back factory (qiandianhouchang)' mode. In the industrial chain, Dongguan is a production workshop with low added value and intensive labour (Chen et al., 2014). In addition, the city is full of small enterprises, without industry leaders with outputs above the level of tens of billions of CNY. This phenomenon is referred to by the saying 'the sky is full of stars, and the moon is not visible (mantianxing tou, bujianming yue)'. In addition, in these factories, profit ratios are very low within these production chains. For instance, in

2007, if a mouse could be sold for 24 U.S. dollars in the U.S., the American distributor received 8 of the 24, the enterprise owning the brand received 10, and the manufacturer in Dongguan received just 0.3 (Liu & Shi, 2009).

#### 3.5.2. Spatial transformation: Fragmentation and emerged industrial agglomeration

The associated spatial changes include 3 dimensions. First, the urbanised area has grown explosively. From 1990 to 2008, the amount of developed land increased 5 times, from 8% to 41%. In particular, between 1992 and 1993, the area increased by 161% (Chen et al., 2014), and arable land declined from 1.18 million mu to 0.48 million mu (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2009). Owing to the lack of regulations and planning, new developed land is mainly informally converted from rural agricultural land. Between 1988 and 1993, 94% of newly developed land came from agricultural land; township-level administrative sectors often reported smaller amounts of newly added developed land than the actual numbers did (Ye & Li, 1999). Second, driven by industrialisation, the newly developed land was highly fragmented because of the mixing of urban and rural elements (Seto & Fragkias, 2005) (see Fig. 7). This is attributed to village-led and bottom-up industrialisation alongside deregulated urbanisation (Lin, 2006; Xue & Wu, 2015). Third, within the waived plan regulation, this bottom-up mode of producing space led to a relatively weak central city, Guancheng, which produces only 2.7% of the total GDP (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2009). In contrast to Guancheng, which is a weak centre, several characteristic towns (tesezhens) were formulated by market mechanisms to shape a polycentric structure throughout the territory. It is an emerging industrial agglomeration at the town level. Zhongtang Town is dominated by the paper industry, Houjie Town is the town of furniture, Humen Town focuses on fashion, computer hardware is manufactured in Qinxi Town, and the wool textile industry and automotive parts are primarily from Dalang Town. In 2005, all towns in Dongguan were listed among the best 1000 towns in China (there are approximately 20,100 towns in China), making it the first city to achieve this distinction. In addition, 3 of the top 5 towns and 10 of the top 1000 towns belong to Dongguan (Department of Agricultural and Rural Affairs in Guangdong Province, 2005).

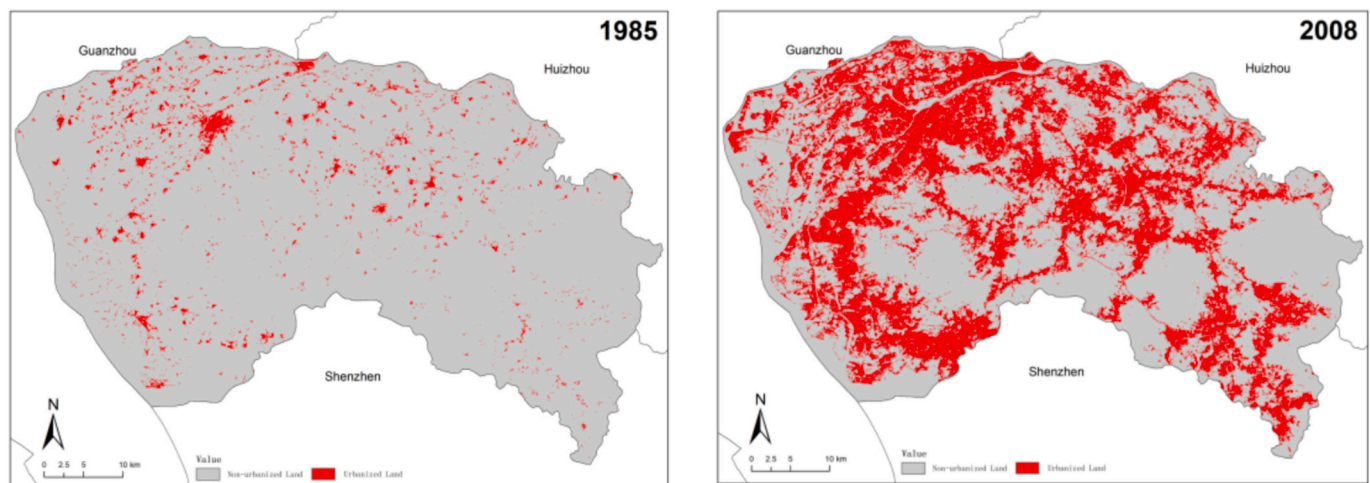


Fig. 7. The urbanised areas (red colour) of Dongguan in 1985 and 2008. Source: China Land Cover Dataset (CLCD) from Yang & Huang, 2021. (In this figure, the urbanised land as red colour is derived from the CLCD dataset by extracting the Impervious Surface or Artificial Surface types, corresponding to the 'Impervious' or 'Urban and Built-up' categories in the CLCD classification scheme. Non-urbanised land as gray area includes natural and semi-natural land-cover types in the CLCD scheme, such as Cropland, Forest, Grassland, Shrub, Wetland, Water, and Bareland). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

### 3.5.3. Social transformation: Immigrant city

After 30 years of development, Dongguan has become a destination for immigrant workers who were originally from central and western China. In 2008, the temporary population, composed of migrants, was 5.58 million, while the number of people with Dongguan hukou was 1.75 million; immigrants comprised the majority of the city. However, migrants cannot use public welfare services, such as public schools and public medical facilities. In addition, a high percentage of immigrants may negatively influence security in society through criminal behaviours because of their temporary settlement. For instance, sex services, which are illegal in China, have developed swiftly in this city (Su et al., 2019), which may lead to social hazards. From a social perspective, on the one hand, the interactive development of urban and rural areas brought about the transformation of the region from an agricultural county to the world's factory; such a transformation also changed the social status, such as income, values, behaviours and organisations, of local citizens and villagers. On the other hand, the arrival of many migrants has resulted in frequent social conflicts and the growth of unhealthy industries, such as sex services. These changes led to a negative city image of Dongguan and a range of social issues. One of the outcomes of social transformation is the increase in the popularity of Hong Kong-style social and entertainment venues, such as nightclubs, karaoke bars, and discos. These facilities have introduced a variety of cultural influences to Dongguan and have served to alleviate the homesickness of Hongkongers (Yeung, 2001).

### 3.5.4. Environmental transformation: Pollution at the expense of growth

The rapid growth of low added-value and labour-intensive manufacturing, which are often polluting enterprises, and relaxed regulations have caused serious pollution problems in Dongguan. In 2008, in terms of the amount of industrial wastewater and gas, Dongguan ranked second in Guangdong Province, even higher than Shenzhen, which also suffers from air pollution. Dongguan also has the greatest amount of industrial soot emissions in Guangdong (Guangdong Provincial Bureau of Statistics and Survey Office of the National Bureau of Statistics in Guangdong, 2009). Between 1983 and 2008, the rainfall Ph decreased from 6.63 to 4.83, indicating greatly increased acidity. The percentage of acid rain also increased from 38.4% to 63.6% between 1987 and 2008 (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2009). Environmental destruction, as one of the costs of savage growth, would soon threaten public health in a broad sense and lead to increased costs of production.

### 3.5.5. Regional resilience: Match between challenges, strategic choices and outcomes

Between 1978 and 2008, regional resilience of the Dongguan city-region was displayed in the matching between challenges, strategic choices and outcomes. Such a match displayed as adaptability by creating a new path. The main challenge in the early years was the fleeing of people from Dongguan to Hong Kong due to the significant difference in economic efficiency, income and living standards between these two cities. Efforts to develop manufacturing industry was the response, and 'three supplies and one compensation (sanlaiyibu)' were strategic choices. Outcomes were displayed as successful industrialisation, after 30 years of economic growth, Dongguan had become the world's factory in many sectors of manufacturing.

## 4. The second transformation: From 'made in China' to 'innovated in China' (2008-present)

In the 1990s, Dongguan planned to transform and upgrade its industries; for instance, in 1994, a new strategy was announced regarding the second industrial revolution. However, until 2008, the city was not determined to pursue comprehensive and deep changes that would replace former low added-value manufacturing with high-tech

industries. This would be a painful transformation. From 2008 to 2019, the average annual growth rate of GDP was 8.3%, which was much lower than the rate of 18.0% during the first transformation. The toughest period was the years after the 2008 Global Financial Crisis; in the first quarter of 2012, the growth ratio was 1.3%, which indicates the difficulties faced by the city. After years of exploration, Dongguan stabilised its growth path and resumed growth. In 2016, its GDP returned to rank among the top 20 cities in China. Its Songshan Lake High-tech Zone became a new engine for industrial transformation and upgrading. Within this area, the Guangdong Songshan Lake Materials Laboratory continues to make progress in the field of new materials; Huawei Terminal Headquarters and VIVO R&D headquarters have moved to Dongguan; and Great Bay University and City University of Hong Kong (Dongguan) have begun construction. The municipality can claim to have paid for the second transformation, which is still ongoing.

### 4.1. Challenges

The world's factory mode of Dongguan has encountered three levels of challenges. First, at the global level, the 2008 crisis has led to declining demand in the international market; as a consequence, export-oriented economies, such as that of Dongguan, have faced more difficulties. In 2009, industrial income decreased by 2.83%, which is the worst performance since 1978. Between 2008 and 2010, 3877 enterprises, 4% of the total number in Dongguan, closed or left the municipality (Du et al., 2021).

Second, at the national level, before 2008, the central state initiated radical policy to promote industrial upgrading. Deposits for 'three supplies and one compensation' enterprises, which were not charged for years, were collected by the government, which compressed the profits made in 'three supplies and one compensation' manufacturing. In addition, in 2008, the Employment Contract Law began operation, which also added to the cost of production through standardising employment activities, while employers often deprived workers of labour rights and welfare in the previously less regulated environment (Yuan et al., 2020). In addition, in 2008, the Ministry of Environmental Protection was first established as an iconic event in China. The issue of protecting the environment became an indicator for evaluating local political leaders and another added cost for manufacturing because factory owners had to invest more in pollution control.

Third, at the provincial level, in March 2008, the leader of Guangdong Province, Mr. Yang Wang, announced a new policy to encourage enterprises in the core of the Pearl River Delta, such as Shenzhen, Guangzhou and Dongguan, to relocate their productivity to the edge of Guangdong, such as Yunfu, Heyuan and Meizhou. This policy was called 'dual transferring (shuangzhuanyi)' and aimed to relocate both productive forces and labour to reduce economic disequilibrium between regions and to reinforce the competitiveness of Guangdong in the global market. Dongguan needed to respond to provincial policy by encouraging enterprises to relocate through financial approaches and other policies.

To conclude, Dongguan had to respond to the adjustment of domestic policy and the international market. Moreover, its former mode of growth met difficulties such as the loss of enterprises, limited space for further growth, pollution and stricter regulations. In addition, because the whole country might approach the Lewis turning point in its population, labour for manufacturing industries has become limited (Du & Li, 2017). The Dongguan mode of development had to change.

### 4.2. Strategic choice as a response: Upgrading industries

In 2007, before the global financial crisis, the 12th Communist Party Congress of Dongguan City introduced a new developmental strategy, dual transformation in economic and social dimensions (shehui-jingjishuangzhuanxing), to transition from a resource-based economy to an innovation-based economy, and from a primarily urbanised society to

an advanced economy. After 2008, this strategy was implemented across various areas, including industrial upgrading, processing trade transformation and enterprise innovation. Among these, upgrading industries has been the key focus, gradually progressed since 2010. The nature of this choice was to persist in and enhance the existing path of industrialisation.

#### 4.3. Governance mode and its instruments supporting strategic choices

##### 4.3.1. Governance mode: Recentralisation tendency in the polycentric governance structure

Within the second transformation, Dongguan maintained its polycentric governance structure because different levels were continued to compete autonomously for investment, but some tendency towards recentralisation in upgrading industries had occurred. The relationships among ‘four wheels’, the municipal government, towns and villages have been reconstructed. The municipal level was empowered, partially because of the 4 trillion CNY in public funding initiated by the central state as a national anti-2008 crisis measure and more subsequent funding from local levels; the top-down channel of distribution was enhanced. Villages and village groups had been relatively weakened by the impacts of the 2008 global financial crisis and their own limits in running local economy (Xue & Wu, 2015). Villages and village groups seemed to become the ‘victims’ of the empowered municipal authorities. For instance, the municipal government has tried to convert autonomous villages into urban administrative units (jiedaoban) by offering financial support to resolve villages’ difficulties (Xue & Wu, 2015). To achieve the developmental goals at the municipal level, more power and resources were gained to coordinate towns to develop strategic areas and projects, such as the Songshan Lake High-tech Zone, on state-owned land. Planning regulation, as a recentralising instrument, acted more positively during this period. Top-down elements were inserted into former bottom-up patterns of governance. The former polycentric governance structure still exists but has been weakened (see Fig. 8). Spatially, recentralisation meant that the central urban areas, Guancheng, Nancheng, Dongcheng and Wanjiang, received more public resources to build a stronger ‘heart’ of Dongguan in terms of improving infrastructure, industry, public services and commercial functions. This recentralisation effort is also motivated by economic incentives in land leasing issues.

Municipal governments aim to control more urban land to generate more income from land leasing, spurred by a booming real estate market since 2008 (interview with Huang, urban planner, 19/03/2024).

##### 4.3.2. Governance instrument supporting strategic choices

###### (1) Planning as top-down and standardising instrument.

Urban planning has played key roles in depressing the autonomy of lower levels in a recentralising process of a polycentric system. After 2008, Dongguan has attempted to employ statutory detailed plans (kongzhixingxiangxiguihua) to control land leasing across its whole territory and apply urban design to develop key urban areas, such as the Dongguan Avenue areas. In 2016, Dongguan has launched its first master plan covering the entire city-region (Yuan et al., 2020). These planning approaches aim to promote an urban image, provide large-

scale public services, and increase taxes from industrial parks. To support this new construction, the municipal state has even arrested village leaders who did not appear to cooperate with municipal projects to grasp more resources from lower levels. Owing to advanced technologies, land management sectors have the ability to send satellite photos of illegal construction to town and village levels every 10 days. It is a regular warning to stop towns and villages from the autonomous expansion of developed land. With more financial resources and stricter control over land, the municipal state has strengthened its capacity to realise its strategic choices in comprehensive plans (see Fig. 9).

The Guangdong provincial government initiated the ‘hundred, thousand and ten thousand project (baiqianwangongcheng)’ to mobilise different administrative levels to invest in roads, public facilities, and public space in rural areas. The Dongguan municipal government uses this project to push villages to spend their funding to support improving urban images in key areas. However, some villages have not responded positively because they consider these expenditures a waste (yuanwangqian). Due to not supporting the ‘hundred, thousand and ten thousand’ project, many village leaders have been arrested for corruption issues (interview with Wei, urban planner, 08/07/, 2025).

In terms of top-down, the municipally led the drive towards governance recentralisation, whereas for bottom-up, village-led approaches focused on polycentric governance have continued. Traditionally, villages generated revenue by leasing land to enterprises and renting housing to the migrant workers employed by these enterprises. However, recent challenges have altered their economic landscape. Initially, villagers sought to maintain their income from enterprises by constructing additional plants for leasing at lower rates, aiming to preserve their processing fees under the threat of transferring productive forces to other regions (Yang, 2012). The situation deteriorated further following the China–U.S. trade conflicts and the COVID-19 pandemic, leading villages to recognise the necessity of economic upgrading. Planning instruments are not just applied at the municipal level; villages also employ them to promote land efficiency and spatial qualities. These efforts have contributed to the development of a platform to attract investment and reorganise production in a better way.

(In recent years), villages began to independently manage economic improvements by establishing new, market-style companies that differ from the traditional leadership to upgrade village properties. Urban planning, long viewed by villages as a tool for the municipal government to control village land and thus resistance, has been adopted at the village level to enhance spatial appeal for investment and quality of life (interview with Huang, urban planner, 19/03/2024).

Villages in the past were the actors in the market who directly played the game by contributing their land. Nowadays, they have changed to act as platform operators by providing an environment for the market (interview with Wei, urban planner, 08/07/2025).

###### (2) Positive policy for industrial upgrading.

Dongguan has more frequently inputted positive interventions into its remained laissez-faire style governance, to support industrial upgrading in the economic field. On the one hand, backed by 1.5 billion CNY of provincial funds, the city responded to the ‘dual transferring’ strategy to build 9 industrial transfer parks in other cities and relocate more than 1500 enterprises from Dongguan to these parks. Such

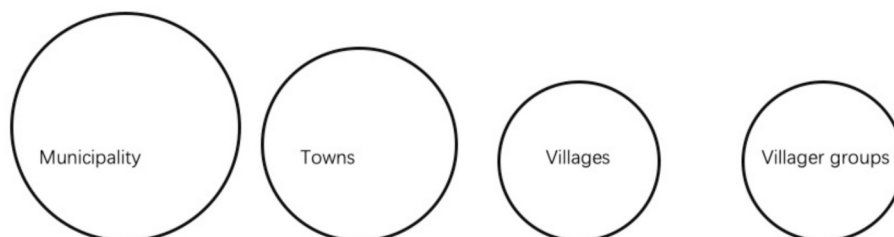


Fig. 8. A polycentric governance structure with recentralisation in Dongguan. Source: Author's drawing, 2026.

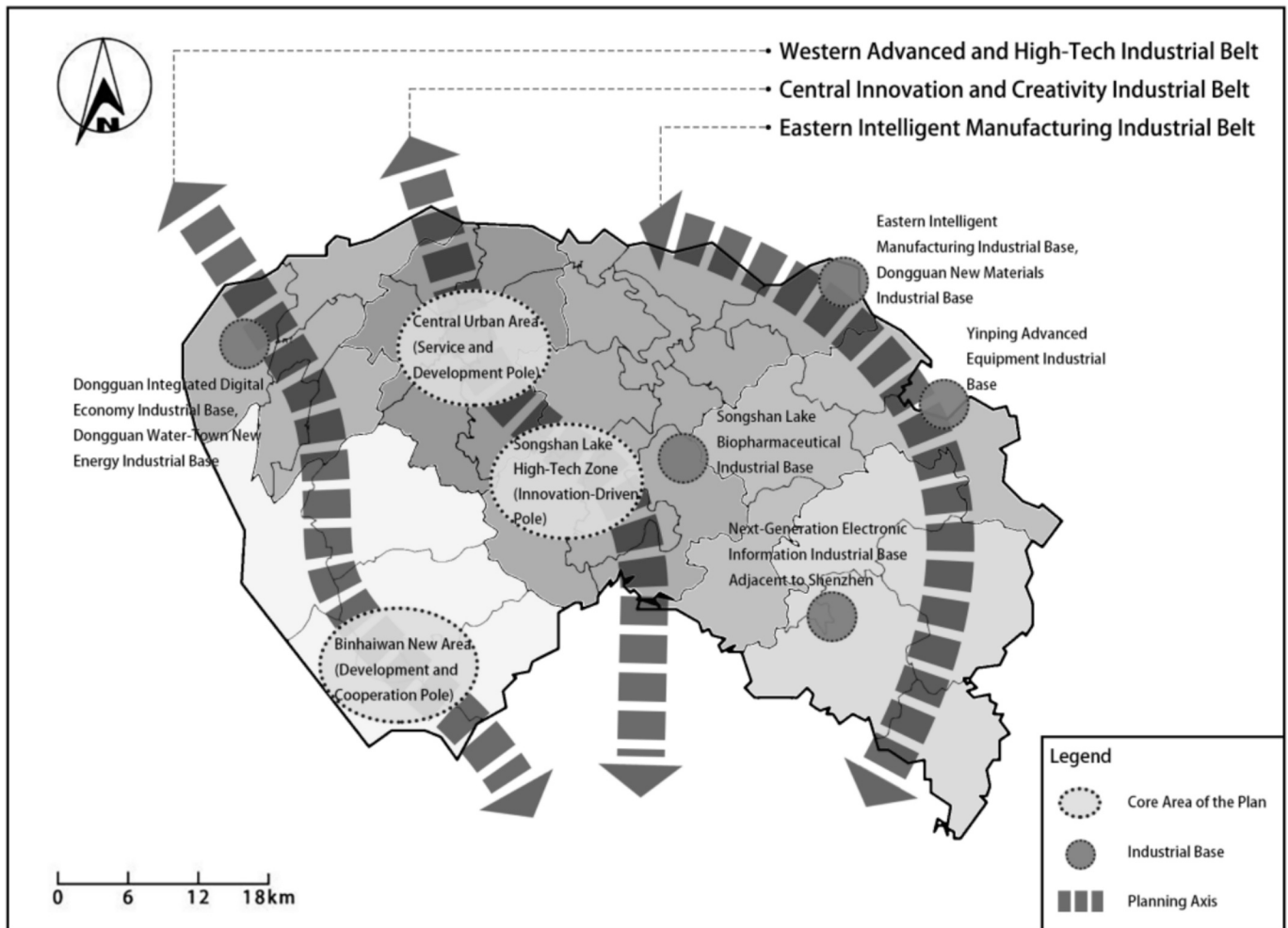


Fig. 9. Spatial development strategies in Dongguan. Source: Author's drawing based on the Fourteenth Five-Year Plan of Dongguan, 2025.

activities removed low-efficiency production to leave more space for new industries. On the other hand, public funding at the city level was employed to support industrial upgrading and introduce high-tech enterprises into Dongguan. For instance, the city's 12th Five-Year Plan (2011–2015) claimed that the city government would spend 2 billion CNY to develop new manufacturing, such as new materials, new energy vehicles and biotechnology, and productive services, such as finance, modern logistics and headquarters economy. In particular, backed by the government, 'machine substitution (*jiqihuanren*)' has become a crucial approach to address the lack of labour and to improve efficiency. For instance, since 2014, the government of Changan Town has sponsored no less than 30 million CNY of funding annually to support enterprises in applying 'machine substitution' (Du & Li, 2017).

(3) Enhanced regulation in land leasing, labour rights and environmental protection.

After 2008, the municipal authorities applied statutory detailed plans to control land leasing procedures in terms of defining area, function and density; such an application decreased informality at grassroots levels in renting land to investors. For industrial-function land leasing, thresholds for investment, such as the minimal amount of investment and industry type, had been regulated. Besides, leased land for manufacturing was encouraged to be located in industrial parks rather than freely located (Xue & Wu, 2015). From 1 January 2008, the Labor Contract Law of the People's Republic of China was implemented. To respond to it, Dongguan had to enforce stricter protection of labour rights; which increased the cost of manufacturing industry (Zhao, 2008).

Industries upgrading and its potentially increased profits were a possible solution for the rising costs.

Dongguan intentionally combined pollution control with industrial policy as part of manufacturing upgrades. Enterprises in highly polluting industries, such as papermaking and tannery, were closed because of municipal policy. For instance, Machong Town shut down 54 highly polluting enterprises in 2013 (China Times, 2018). Major industrial zones, such as the Songshan Lake High-tech Zone, have formulated plans for protecting the environment, particularly protecting wetlands by designating them as natural parks. In addition, enterprises with high consumption of land, energy, water and intensive labour were prohibited in the zone (Deng et al., 2008). Flynn and Yu (2020) concluded that Dongguan employed 3 approaches, namely, regulatory, recovery and enhancement, to reduce the number of pollution sources, recover the quality of the environment and enhance its capacity to control pollution. More importantly, the government transformed its core logic for governance from pursuing economic growth and ignoring the problems of pollution to significantly increasing the priority of environmental protection during the second period of transformation.

(4) Focusing on developing key areas.

After recognising the limits of the bottom-up mode, the municipal government intentionally organised and concentrated financial and policy resources into key areas as a top-down channel of development. The key areas included the Songshan Lake Area and Marina Bay Area (see Fig. 11). Among these areas, key projects—such as the Guangdong Songshan Lake Materials Laboratory, Huawei Terminal Headquarters,

VIVO R&D headquarters, Great Bay University and City University of Hong Kong (Dongguan)—were introduced. Since 2012, in terms of land provision and plan approval, priorities have been distributed to ‘major projects, major industrial agglomeration areas, and major science and technology projects (zhongdaxiangmu, zhongdachanyejijuqu, zhongdakejizhuanxiang)’. For instance, 70% of the citywide new developed land quota (quanshiyongdizhibiao), which is a scarce resource for construction within the land management system, was consumed by major projects and areas. Between 2009 and 2018, 34% of the citywide new developed land quota, 48.9 km<sup>2</sup>, was distributed to the Songshan Lake High-tech Zone, and 23%, representing 33.5 km<sup>2</sup>, was allocated to the Marina Bay Area (Huang et al., 2021).

#### (5) Selective citizenisation.

As an immigrant city, Dongguan has excluded the majority of its population, migrants, from obtaining citizenship in the city. As a result, immigrants cannot access public services, such as public education and health services. This discrimination may lead to persistent brain drain among knowledgeable and skilled migrants. In response to industrial upgrading, Dongguan has continued to selectively include migrants in its citizenship to expand the talent pool supporting technology-intensive industries. In September 2010, the municipality initiated the ‘points to the household (jifenruhu)’ policy, which grants certain young, knowledgeable and skilled migrants citizenship according to a series of indicators, such as age, academic qualifications, professional titles and number of years of social insurance contributions. This policy was abandoned in 2018 and replaced by a ‘2 five-year’ system that offers citizenship to people who have contributed to social insurance for 5 years and held a residence permit (juzhuzheng) for 5 years. Under the new system, skilled workers find it even easier to obtain new identities. This selective citizenisation is a population control approach initiated by the municipal authorities indicating the recentralising tendency.

#### 4.4. Institutional mechanisms and intermediate capacities

After 2008, the relationship between the municipality, towns, villages and villagers' groups was still polycentric, but was weakened by recentralising. Some institutional mechanisms under monocentric governance have emerged to corrode the continued polycentric governance system. The first master plan in 2016 and statutory detailed plans after 2008 in the whole territory, and stricter regulation of land leasing, labour rights and environmental protection, were all initiated by the municipal authorities as instruments to realise its purpose. The municipal level aimed to strengthen its control over the other three levels. In particular, the requirements for village leaders to cooperate in the “hundred, thousand and ten thousand project” indicated increased controlling incentives and abilities from the supposed centre, the municipality. These central incentives were expressed as command information from top-down channels. These plans, policies and regulations were all standardised to fit controlling construction, land leasing, investment and industrial operations by uniform requirements. Selective citizenisation in the social dimension revealed the nature of preference towards migrants with high-level skills and knowledge. Besides, key projects, such as national laboratories, research headquarters and universities, also displayed the preference of municipal authorities to apply and reproduce expert knowledge. As a result, resources, such as public funding, supportive policy and priorities of land provision and plan approval, had been concentrated in strategic locations, such as the Songshan Lake Area, and in key industrial sectors, such as the robotics industry. Such concentrations had mobilised enterprises, capital, talents and projects to follow governmental strategic choices, upgrading industries. Apart from these resource mobilisation capacities, enforcement capacities were also displayed in the operation of municipal authorities through techniques, such as remote sensing satellite and sensors, in

supervising land planning, pollution and energy consumption. The municipal level was empowered by increased resources and governance instruments, top-down coordination had been inputted into a bottom-up cooperation order in polycentric system.

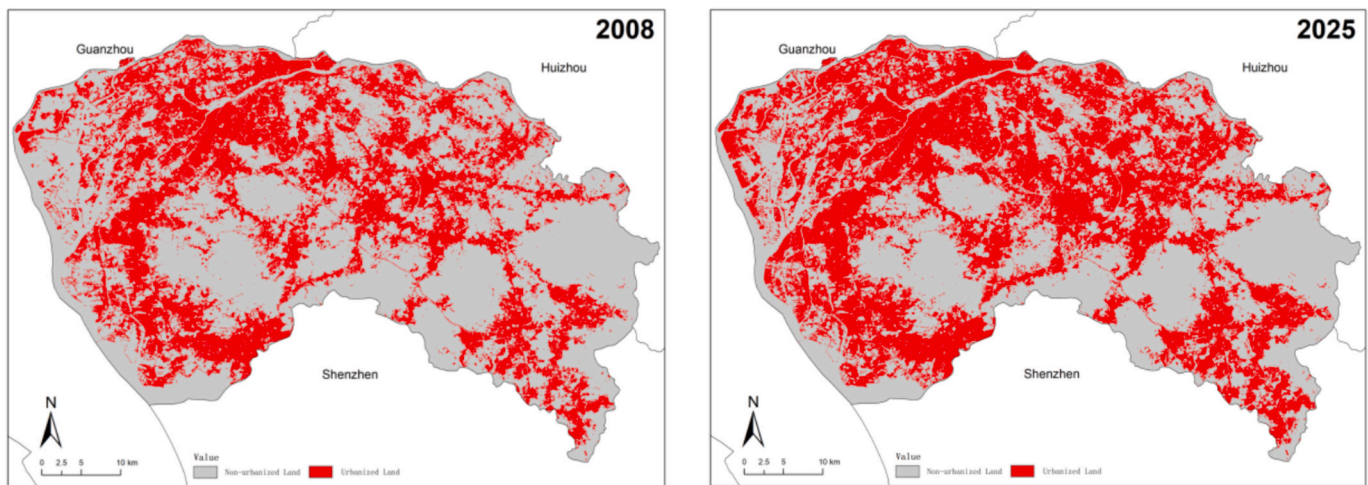
#### 4.5. Outcomes of the strategic choice

##### 4.5.1. Industrial transformation: From ‘made in China’ to ‘innovated in China’

During the second transformation period, Dongguan also achieved significant growth. Its GDP increased from 371.568 billion CNY in 2008 to 1228.215 billion CNY in 2024 (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2009; Dongguan Municipal Bureau of Statistics, & Survey Office of the National Bureau of Statistics in Dongguan, 2025). More importantly, industrial upgrading happened and the percentage of ‘three supplies and one compensation’ enterprises declined, whereas innovation-driven high-tech industries grew in what was called ‘vacating the cage for new birds (tenglonghuanniao)’ in the city. In 2010, there were 2335 advanced manufacturing enterprises above the designated size, which produced 69.2 billion CNY of industrial added value and 204.9 billion CNY of income in the main business. In 2022, these figures increased to 8130, 255.9 billion and 1380.3 billion, respectively (Dongguan Municipal Bureau of Statistics & Survey Office of the National Bureau of Statistics in Dongguan, 2011; DMBS, 2023). The number of national high-tech enterprises increased from 246 in 2009 to 10,200 in 2024. In the same period, the number of patents (invention) granted rocketed from 254 to 15,269 (Dongguan Municipal Bureau of Statistics, & Survey Office of the National Bureau of Statistics in Dongguan, 2025). The importance of high-end electronic information, electric vehicles, LEDs, information appliances, e-commerce, a new generation of communications, new energy and new materials in industry has gradually increased. Recently, ‘creating a new highland of intelligent manufacturing’ has become a new target that encourages new communication manufacturing, drones and robots industries. Popular applications of artificial intelligence have increased productivity and reduced labour consumption. Between 2014 and 2016, ‘machine substitution’ projects increased productive efficiency by 2.5 times, lowered costs by 9.43% and replaced 200,000 employees (Li et al., 2020). Industrial robots have become more economical for enterprises (Xu et al., 2023). In 2016, approximately 200 companies produced industrial robots (Yang, 2020). In the second transformation period, ‘three supplies and one compensation’ enterprises, as labour intensive and low added-value sectors, lost their weight in the local economy. Processing (jinliaojiagong), as one category of these enterprises, its proportion in export income has decreased from 54.7% in 2008 to 26.4% in 2024 (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2009; Dongguan Municipal Bureau of Statistics, & Survey Office of the National Bureau of Statistics in Dongguan, 2024).

##### 4.5.2. Spatial transformation: Emerging designed industrial agglomeration

The building environment gradually expanded during the second transformation period, from 908.1 km<sup>2</sup> in 2008 to 1122.9 km<sup>2</sup> in 2020 (see Fig. 10). The growth rate significantly decreased compared with that in the first period of transformation. The tendency towards extensively increased land loss was restrained by stricter planning control. The majority of limited increased developed land was distributed to major industrial zones, whose shares in the local economy rose markedly. In 2020, with 3.6% of the land and 1.4% of the population in Dongguan, the Songshan Lake High-tech Zone produced 66.18 billion CNY, representing 6.9% of the city's GDP and 32.5% of the R&D fees for enterprises above the designated size in Dongguan. Two research



**Fig. 10.** The urbanised areas (red colour) of Dongguan in 2008 and 2025. Source: China Land Cover Dataset (CLCD) from Yang & Huang, 2021. (categories are the same as in the Fig. 7). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)



**Fig. 11.** Songshan Lake High-tech Zone (author's photography, 2021).

projects with national significance, the Spallation Neutron Source and the Attosecond Laser Facilities, are located in this zone (Working Committee of Songshan Lake High-tech Zone of the Communist Party of China, 2021). Industrial agglomerations have been designed and realised on these state-owned lands. For instance, by December 2017, the number of smart robotic manufacturing enterprises had reached 300 in the Songshan Lake area (Liu & Liu, 2022). To support high-tech industrial parks as designed growth poles. Great Bay University and City University of Hong Kong (Dongguan) initiated construction in November 2021 and at the beginning of 2022. Compared with that of self-organised towns, the centrality of the central city slowly increased because of focused financial support from the city government. Central urban districts, including Guancheng, Nancheng, Dongcheng and Wanjiang, accounted for 16.7% of the GDP in 2024, while this figure was 14.3% in 2008.

#### 4.5.3. Social transformation: The immigrant city remains

In 2008, Dongguan had a floating population (liudongrenkou) of 5.53 million, among whom 1.75 million had local hukou; in 2024, the figures rose to 9.96 million and 3.27 million, respectively (Dongguan Municipal Bureau of Statistics, & Survey Office of the National Bureau of Statistics in Dongguan, 2025). The whole floating population and

citizens both increased by more than 80% in 16 years, but interestingly, the ratios between floating people and citizens with Dongguan hukou almost did not change. The ratio is 1.86 in 2008 and is 1.80 in 2024, which indicates that Dongguan has not changed its demographics as an immigrant city. Citizenisation has transformed migrants into citizens on a limited scale and in a highly selective manner. Therefore, it has not challenged the existing social structure. This may be due to the high cost of transforming a migrant into a citizen, approximately 21,451–43,594 CNY per person per year (Wang & Huang, 2025). It seems to be a heavy burden for the government. The 'points-to-household' policy has reduced migrants' incentives to obtain citizenship because the standards are high and more than 23% of applications have failed (Fu & Liu, 2018). However, with respect to migration, high-skilled talent has replaced the former low-skilled labourers because of industrial upgrading. The number of employees in R&D sectors have increased six times from 2005 to 2020 (Xu et al., 2023), and with the same proportion of migrants, public security has worsened. The number of reported public security cases increased from 44,979 in 2010 to 92,728 in 2024, increasing faster than the population (Dongguan Municipal Bureau of Statistics and Survey Office of the National Bureau of Statistics in Dongguan, 2021). However, the situation regarding sex services has been better controlled because of governmental efforts since 2014.

4.5.4. Environmental transformation: Improved quality

A series of environmental protection operations in Dongguan have achieved certain results. From 2008 to 2020, the rainfall Ph increased from 4.83 to 5.62, and its acidity decreased by an order of magnitude; the percentage of acid rain decreased from 63.6% to 23.8% between 2008 and 2024. The discharge of industrial wastewater decreased from 333.59 million tons in 2008 to 156.3 million tons in 2024 (Dongguan Municipal Bureau of Statistics, & Survey Office of the National Bureau of Statistics in Dongguan, 2025), but industrial waste gas increased sharply from 21.5 million tons to 80.42 million tons (DMBS, 2023); therefore, the performance of environmental protection in different dimensions varied. Moreover, there are potential health risks from heavy metal pollution in soil and from PM2.5 in the air (Liu et al., 2016; Zhao et al., 2017). In 2020, after policy intervention, Dongguan's PM2.5 concentration was 24 micrograms/m3, meeting the WHO Phase II standard for the first time (Zhou & Zheng, 2021).

4.5.5. Regional resilience: Match between challenges, strategic choices and outcomes

After 2008, regional resilience of the Dongguan city-region was displayed by matching challenges in the international market and state policy, upgrading industries as a responsive strategic choice, and industrial, spatial, social and environmental performance as outcomes. Such a match displayed as adaptation by improving a existed path. The second transformation in Dongguan as a representative of the shift from 'made in China' to 'innovated in China' is realised by industrial upgrading. To date, from the industrial perspective, such upgrading might be considered as successful in terms of its sectors, products, innovations and research institutes, which were indicated in 4.5.1 and 4.5.2. Social and environmental outcomes were related to industrial upgrading as supportive labour and developmental thresholds. However, industrial upgrading is an ongoing and endless process, and new challenges would continue to emerge.

5. Conclusion and discussion: Significance of Dongguan's two transformations from the global perspective

5.1. Pattern: Two transformations as regional resilience

As a former agricultural county, Dongguan experienced two waves of rapid and profound transformation during China's post-1978 reform (see Table 1). In the first transformation period (1978–2008), facing the challenge of local people fleeing to Hong Kong caused by an inefficient economy and low standards of living, within a decentralised polycentric governance structure, 'three supplies and one compensation' enterprises triggered the boom in export-oriented and labour-intensive manufacturing. As a result, a large amount of agricultural and collectively owned land was transformed into industrial functions, and Dongguan grew rapidly into the world's factory, contributing to the global market in terms of consumer goods. This growth attracted millions of migrant workers and brought about severe pollution. The 2008 global financial crisis hit Dongguan, which was highly dependent on external investment and markets. In response to this challenge, within the continued polycentric governance system, the city partially recentralised its governance structure to initiate the second transformation, upgrading industry. With the support of stricter planning control, industrial policies, the construction of key projects, such as the Songshan Lake High-tech Zone and universities, the selective inclusion of citizenship and stricter environmental regulations, Dongguan made remarkable progress in the second transformation. The weight of upgraded high-tech industries continued to increase, accompanied by enhanced innovative capacities in research; however, society still maintained its dual structure of citizens and immigrants, and environmental quality needed to be further improved. The matching between challenges, strategic choices and outcomes indicated regional resilience in these two periods of transformation. Resilience in the first

Table 1 Summary of the two transformations in Dongguan. Source: The Authors.

	1st transformation	2nd transformation
Challenges	People fled from Dongguan to Hong Kong due to low incomes and living standards	Internationally declined demands, national and provincial policy for upgrading
Response as strategic choice	Three supplies and one compensation	Upgrading industries
The nature of response	Created a new path: from agriculture to industrialisation	Persisted in and improved the existed path: industrialisation
Governance mode	Polycentric governance mode: The municipality, towns, villages and village groups were independent centres.	Monocentric features emerged in polycentric governance mode: The enhanced municipality, active towns, villages and village groups were relatively independent centres.
	Tendency: Decentralisation of governance structure.	Tendency: Partial recentralisation of governance structure within a continued polycentric system
	Path: Granting autonomy to lower levels.	Path: Empowering the municipal authorities
Governance instruments	Planning: Limited in the centre urban areas, giving space to land-leasing for investment in other areas	Planning: First master plan and statutory detailed plans in the whole territory, supervision by satellite remote sensing technology, grassroots plans initiated by villages and village groups.
	Policy: Highly motivated villages and village groups, supportive municipality and towns	Policy: Building industrial transfer parks outside Dongguan to remove low-tech enterprises, public funding support advance industries.
	Regulation: Informal land leasing, less concern with labour and environment	Regulation: Decrease informal land leasing, stricter protection in labour and environment.
	Others: Supportive transportation and communication facilities	Others: Focus on developing key areas.
Institutional mechanisms	Autonomy: Decision-making in grassroots level	Selective citizenisation. Control: Empowered municipal authorities.
	Grassroots incentives: Interest sharing between four levels and incentives to attract investment.	Centralised incentives: Municipal initiation in plans, policies and regulation to realise its purpose.
	Timely information: Close proximity between decision-making centres and their governed objects.	Command information: Central incentives were expressed as command information through top-down channels
	Institutional fit: Short feedback loops of applying institutions and strategies.	Standardised fit: Uniform requirements in plans, policies and regulations
	Local knowledge: Frequent interaction between grassroots units and enterprises produced local knowledge.	Expert knowledge: The preference for expert knowledge in selective citizenisation and in building key research facilities.

(continued on next page)

Table 1 (continued)

	1st transformation	2nd transformation
Intermediate capacities	<p>Site-specific experiments: Multiple decision-making centres had incentives, information, knowledge to experiment strategies in attracting investment.</p> <p>Learning by doing: Trail-and-error learning processes in experiments to increase individual capacities.</p> <p>Bottom-up coordination: Villages and village groups initiated cooperation from the bottom to attract investment.</p>	<p>Resource mobilisation: Governmental resources were mobilised to concentrate in key areas and projects, market resources followed such mobilisations.</p> <p>Enforcement: Operation of municipal authorities to supervise through new techniques.</p> <p>Top-down coordination: Empowered municipal authorities had more capacities to push top-down cooperation.</p>
Outcomes	<p>Industrial transformation: Transformation from agriculture to industry, became the world's factory, high percentage in global market to provide international consuming products.</p> <p>Spatial transformation: The urbanised area had grown explosively to form a fragmented patterns with informal channels. Emerged industrial agglomeration.</p> <p>Social transformation: Immigrant city emerged, changed life styles, conflicts involving migrants.</p> <p>Environment: Pollution as the expense of growth caused by enterprises in a less regulated context</p>	<p>Industrial transformation: Transformation from 'made in China' to 'innovated in China', the 'three supplies and one compensation' enterprises declined, high-tech industries grew.</p> <p>Spatial transformation: Designed industrial agglomeration emerged in key areas, such as the Songshan Lake area. Advanced research institute were constructed.</p> <p>Social transformation: The immigrant city remained. High-skilled talent had replaced the former low-skilled labourers.</p> <p>Environment: Environmental quality had been improved, performance of environmental protection may vary among different dimensions.</p>
Match between challenges, strategic choices and outcomes as regional resilience	<p>Matched. Displayed as adaptability by creating a new path.</p>	<p>Considerably matched, still challenging. Partially displayed as adaptation by improving an existing path.</p>

transformation was close to the definition of adaptability while the change was a creation of a new path from agriculture to industry. The second transformation revealed its emerging features similar to adaptation, which displayed the improvement of the existing path of industry (see Table 1). As a spatial result of these two transformations, Dongguan is not a 'core-edge' urban structure or an independent 'urban agglomeration' but an open urban continuum consisting of the municipality, towns, streets, and high-tech zones embedded in the Guangzhou–Shenzhen–Hong Kong metropolitan corridor in the Great Bay Area (see Fig. 12).

## 5.2. Model: Dongguan as a representative Chinese city

### 5.2.1. Dongguan as a representative of the development of Chinese cities

After 1978, Chinese cities achieved miraculous growth and development compared to the history of other cities in the world. The first phase of Dongguan's transformation reflects the extensive growth achieved by Chinese cities in the early years of reform through the low cost of production factors, such as land, labour, and natural resources. The second stage of transformation reflects the response to the problems of

the first stage and the changed global, national and local context. Chinese cities seek to achieve higher-quality development through upgrading industries by improving technological innovation and increasing the added value of manufacturing. Dongguan's two transformations are representative of the two stages in China's urban development process since 1978.

### 5.2.2. 'Compression' and 'acceleration' reflected in Dongguan

Dongguan has reflected 'compression' and 'acceleration' in China's development path compared to cities in other countries. From the end of the 20th century to the beginning of the 21st century, Dongguan took only approximately 30 years to complete the first transformation as an industrialisation process, which took more than 100 years for cities in developed Western countries and more than 40 years for the Asian 'Four Tigers' as newly industrialised countries (Chen, 2009). Since then, it has transformed again to address the problems brought about by rapid industrialisation, which shows two characteristics of China's rapid urban development, namely, 'compression' and 'acceleration'.

These two features are reflected in Dongguan in three aspects, industrialisation, urbanisation and governance models. First, its industrialisation process compresses the transformation process from agriculture to industry, and from primarily low-cost and low-end manufacturing to advanced innovation-driven industries. Second, its urbanisation process compresses the transformation process from relatively extensive bottom-up urbanisation to urbanisation with more high-quality and top-down elements. Finally, in a broad sense, the evolution of its governance process compressed the historical process from the laissez-faire model of the night-watchman government before the 1929 Great Depression to the Keynesian model of governance after World War II, and to the neoliberal governance model after the 1980s, emphasising the state's selective support of market actors (Micklethwait & Wooldridge, 2014). The savage growth in Dongguan's first transformation period may be considered the result of a laissez-faire style governance with limited regulations. In its second transformation, the government has continuously strengthened its intervention in economic and social activities; such intervention intentionally supports capital to pursue better returns, as the neoliberal governance model might do. This 'acceleration' to realise industrialisation and urbanisation, and the 'compression' of different phases of development and their governance modes are rare in the history of global cities. Such 'compression' and 'acceleration' have made many people wealthy and brought about serious contradictions and problems in terms of pollution, social exclusion, and security.

### 5.2.3. High adaptability of China's urban governance demonstrated by Dongguan

In addition to 'compression' and 'acceleration', the flexible and adaptive mechanisms of China's urban governance are key to its operation. Dongguan is an excellent representative of these mechanisms. Economic development through political mobilisation, the continuous adjustment of government–market relations due to changing demands for growth, and the flexible application of strict or relaxed regulations are fundamental characteristics that enable Dongguan's governance to be adaptive. This adaptability reflects the pragmatic nature of the Chinese Communist Party, which has sinicised Leninist statist party originating from Soviet Russia. It also shows the party-state system's control over the market and society: after a long period of laissez-faire, it could still increase elements of the government-led driving model within a short period. This high degree of flexibility and adaptability reflects the power and advantages of China's governance structure and its costs for non-state actors.

## 5.3. Theory: Regional resilience and governance mode

Theoretically, there is possible statement that a centralised mono-centric system is often associated with adaptation as it insists on an

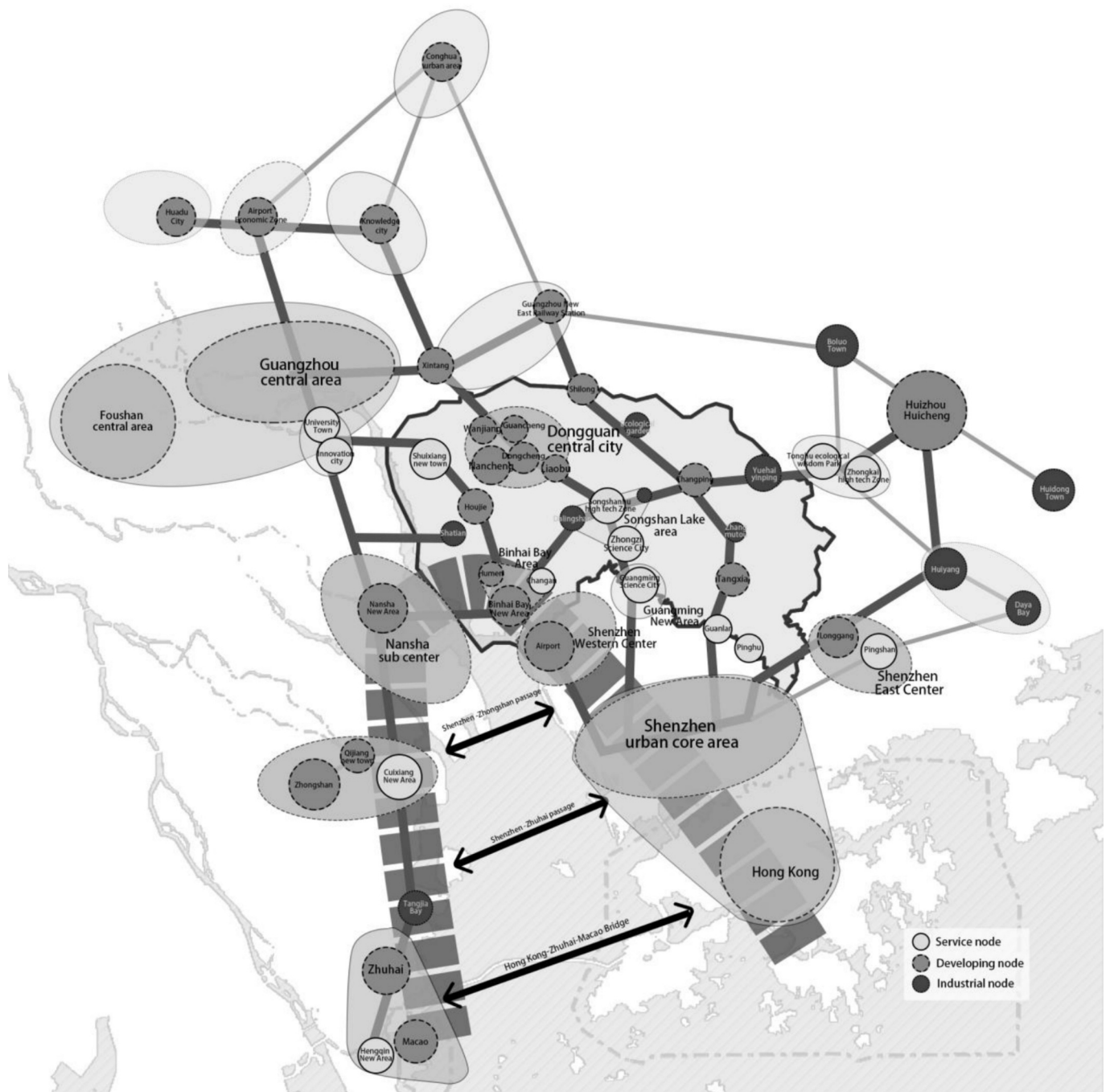


Fig. 12. Location of Dongguan in the Great Bay Area (Source: Author's drawing based on Yuan et al., 2020).

existing developmental path, whereas a decentralised polycentric system is linked to adaptability as it transforms towards new paths (Aligica & Tarko, 2014; Boschma, 2015). Trade-offs between polycentric and monocentric governance modes might happen according to regional conditions to achieve different types of regional resilience. The case of Dongguan supports this statement about the connection between governance modes and regional resilience. However, the Dongguan example may suggest a more nuanced understanding of such a relationship contingent upon the development stage and the scale of analysis. In particular, a two-layer decision-making system will be introduced as a possible contribution to the literature.

First, the polycentric governance mode helps lower units, such as villages, and village groups, adapt to the challenges by creating a new path from agriculture to industrialisation and by insisting on and

improving the existing path as industrialisation in two transformations. In the first phase (1978–2008), facing challenges and opportunities, villages and village groups were on the front line of development in terms of transforming land into productive forces, attracting capital through in-person channels, and housing labour in dormitories and factories. While doing these jobs, the polycentric governance mode provided autonomy, incentives, timely information, fit-for-purpose institutions, and local knowledge to support bottom-up cooperation among investors, villages, and the government. In the second phase (2008–present), villages and village groups recognised the changed circumstances and undertook innovative actions, such as initiating their own planning projects and transforming villages from market actors into market platform operators. Despite a potentially weakened polycentric governance mode, the system continues to offer similar advantages.

Second, polycentric governance alone is not sufficient to build adaptation as regional resilience, especially in the more advanced stage of industrial development; some elements of monocentric governance might be integrated to support the improvement of the existing developmental path through upgrading industries. Trade-offs between polycentric and monocentric governance modes are necessary. In the second phase, industrial structure upgrading requires crucial support, such as large-scale funding for subsidies, policy guidance to reduce uncertainty about the future, and scientific knowledge and smart technology to promote efficiency. This support is not achievable for base units in a polycentric manner due to their limited scale. Some elements from a recentralised monocentric governance mode are needed to concentrate resources, to supervise lower levels, and to overcome nearsightedness of the market players and grassroots units. Urban planning, industrial policies and regulations are crucial instruments in this recentralising tendency.

Third, from a multiscale perspective, a resilient regional governance system might have two layers of decision-making: the first (higher) layer to determine the governance mode and the second (lower) layer to make decisions regarding the operating governance modes, that might provide a better understanding about how to make changes between governance modes. In the Dongguan case, the first level of decision-making is centralised and monocentric in both transformations because the municipal authorities alone could make the first level decisions (see Fig. 13). In the first phase (1978–2008), the lower-level governance is highly polycentric to encourage widespread participation in economic growth; however, such a polycentric operational governance mode is the result of centralised monocentric decision-making at the higher level. In terms of context for the first level of decision-making, in the 1980s, the Shenzhen Special Economic Zone, as a neighbour of Dongguan, had greater autonomy to decide taxes as a formal institution and had clear preferential investment from the high-tech industry defined by the central state. Dongguan, however, had neither of these advantages. Instead, the Dongguan municipal government was permitted to attract small companies in labour-intensive sectors through local initiatives (Leung, 1993). From the perspective of the central state, Dongguan was not considered as important as Shenzhen; there was insufficient empowerment for it, but granting freedom was not a problem. Such granted autonomy from the higher level determined the polycentric governance mode at the operational level. In the second phase (2008–present), the municipal government decided to partially recentralise its governance mode; such a first level decision was also made in a

centralised manner.

Regarding the two-layer decision-making system, Level 1 includes two steps: making the strategic choice and choosing the governance mode. The nature of this strategic choice, in terms of resources needed and risks involved, has a significant impact on selecting the appropriate governance mode. The nature of the strategic choice in the first transformation, developing “three supplies and one compensation”, could be understood as involving a low level of resources and risks; therefore, a polycentric governance mode was appropriate. In contrast, the nature of the strategic choice in the second transformation involves a higher level of resources and risks, which requires some tendency towards recentralisation. Decision-making Level 2 implements trade-offs between polycentric and monocentric modes in practice. Urban planning, industrial policies and regulations in land leasing, labour rights, and environmental protection are crucial instruments for operating the chosen governance mode. These governance instruments are also influenced by the nature of the strategic choice. This two-layer decision-making system can be considered a contribution to the literature on the relationship between governance modes and regional resilience. This system, as an analytical framework, may provide more insights into how governance mechanisms work to respond to challenges and build resilience as adaptability and adaptation.

#### 5.4. Policy implications and future research

The case of Dongguan may have implications for other developing countries in terms of adapting to internal and external challenges. The local state can not only have the capacity to control and mobilise non-state actors, such as social and market players, to follow the state’s guidance through policy but also obtain the information and knowledge to recognise challenges and formulate response strategies. In practice, urban planning, industrial policies, and regulations are crucial instruments to adjust governance modes in economic development. The two-layer decision-making system helps to explain how governance modes changed and operated in two transformations within an authoritarian regime. For cities in developing countries to catch up, concentrating all possible resources on the appropriate targets within certain circumstances is the key to realising resilience as adaptability and adaptation; understanding how to support such resilience in their own contexts still requires more research from international scholarship.

The intricate interplay between decentralised polycentric and recentralised monocentric governance and its influence on urban

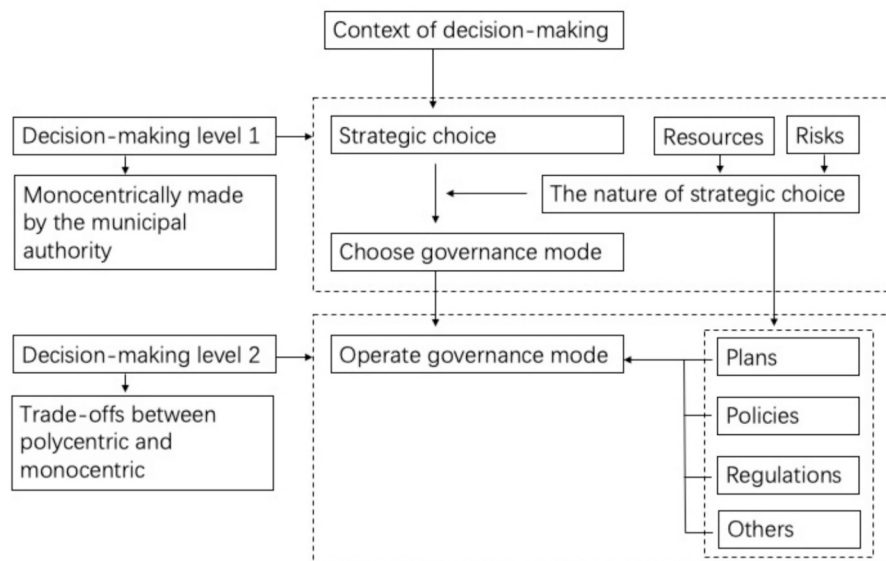


Fig. 13. Two layers of decision-making (Source: Author's drawing, 2026).

resilience and transformation underscores a key factor behind Dongguan's successful performance. While geographical proximity to Shenzhen and Hong Kong, along with local culture characterised by pre-commercial and maritime orientations, has played a supportive role, these factors may be unique and nontransferable. However, the governance insights from Dongguan, emphasising the need for a flexible balance between polycentric and monocentric structures tailored to the development stage and governance scale, could inform regional adaptability and adaptation in other cities and regions. For Dongguan, the ongoing challenges resulting from China–U.S. trade conflicts and post-pandemic realities continue to shape its evolution, notably through the relocation of electronics production networks to the Vietnam Red River Delta (Yang & Chan, 2023). There has been a noticeable shift within Dongguan from export-oriented to domestic market-oriented production; the export-to-GDP ratio fell sharply from 153.2% in 2005 to 88.5% in 2020 (Xu et al., 2023). For instance, in April 2025, JD.com, a giant online retail platform, placed orders for 200 billion CNY products for the domestic market rather than for export. Wanletonghua, a toy producer in Dongguan, won a 50 million CNY quota in such an order and displayed its toys on JD.com's online platform within three days. In addition, industrial upgrading continued during this conflict period; in 2025, the second stage of the China Spallation Neutron Source began construction in Dalang Town, Dongguan. An advanced A-sec laser facility was also established during that year. These developments signal potential significant transformations that may again test Dongguan's resilience in the future.

## Notes

### 1. Enterprises above the designated size (guimoyishangqiye)

'Enterprises above the designated size' is a statistical term that has been in use in the People's Republic of China since 1996. Before 2011, the term has been used to denote all industrial enterprises with annual main business revenue of RMB 5 million or more. Since January 2011, the number has changed to RMB 20 million.

### 2. Class I highways (yijigonglu)

In the People's Republic of China, roads are classified into five technical grades: expressways, Class I, Class II, Class III, and Class IV highways. Class I highways are multilane roads for automobiles, featuring directional separation and lane separation, with access control implemented as needed. The recommended annual average daily design traffic for Class I highways is more than 15,000 passenger cars.

### 3. The "hundred, thousand and ten thousand project (baiqianwangongcheng)"

This project is initiated by Guangdong Province leadership to improve the building environment in 100 counties, 1000 towns and 10,000 villages through funding from different administrative levels.

### 4. Floating population (liudongrenkou)

This category of population includes people who have hukou in urban or rural areas other than Dongguan, and lived in Dongguan during the period of census.

### 5. Higher-quality development (gaozhiliangfazhan)

Higher-quality development is an economic concept advanced by Xi Jinping, the general secretary of the Communist Party of China (CPC) Central Committee. Building a modernised industrial system is a crucial part of higher-quality development.

## CRedit authorship contribution statement

**Bin Li:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Huiming Liu:** Writing – review & editing, Writing – original draft, Methodology, Data curation. **Kaihan Yang:** Writing – original draft, Methodology, Investigation, Conceptualization. **Long Zhou:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Huajie Yang:** Writing – review & editing, Writing – original draft, Software, Funding acquisition. **Hong Zhu:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Funding acquisition, Data curation, Conceptualization.

## Declaration of competing interest

The authors declare no conflict of interest.

## Data availability

Data will be made available on request.

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