The Transformation of Residential Segregation in the Pearl River Delta, China: A Planning-Driven Form

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Abstract
Constrained by the hukou system and market mechanisms, Chinese rural migrants normally live in dormitories and urban villages (villages-in-the-city or chengzhongcun) quite distinct from the dwellings of more privileged social groups yet they are often located quite close together. This pattern may be described as a hukou-based yet market-driven form of residential segregation. This paper addresses an extreme level of segregation in China’s newest urban developments. By examining six key development zones in the Pearl River Delta (PRD), this paper argues that besides hukou and the market, urban planning contextualized in state-market engagement and socialist features is a crucial factor creating extreme residential segregation in these zones. This paper also argues that two planning instruments—large-scale land use zoning and the provision of public housing to migrants—play a significant role in creating segregation. The extreme segregation created by the state’s dominant planning practices in new urban developments demonstrates a transformation of China’s prevalent market-driven segregation.

Keywords
residential segregation, migrants, urban planning, zoning, development zone

Introduction
Residential segregation in China is unlike segregation in the West. Residential segregation in Western society is usually based on ethnicity and income, although other factors including individual preferences may also play a role (Bisciglia, 2014; Lens & Monkkonen, 2016; Poulsen et al., 2002; Ruiz-Tangle, 2013). In urban China, the segregation of rural migrants and local residents is a common phenomenon (Huang, 2005; F. Wu, 2015). Such segregation is widely regarded as the result of state institutions, for example, hukou (state household registration) and danwei (state work unit), as well as market factors, for example, income (Huang, 2005; Madrazo & van Kempen, 2012; Wang et al., 2012). As Western residential segregation demonstrates the problems of racism and economic inequity, China’s residential segregation reflects the problems of the socioeconomic divide between rural migrants and local residents.

New players including planning bureaus and developers shape the pattern of segregation in China but their effects are not well understood (Madrazo & van Kempen, 2012). A few studies still indicate that planning has contributed to segregation. For instance, state planning engaged with market forces shapes neighborhoods including gated communities (Pow, 2009; Smith et al., 2019; Tomba, 2014). Urban planning implemented in urban renewal pushes migrants out of the core, contributing to segregation (Abramson, 2006; Huang, 2005). Land and housing planning guides public housing provision that excludes migrants (Zhou & Ronald, 2017). Urban master plans foster segregation across Chengdu, the capital of Sichuan Province (Miao, 2019). In the urban fringe, many recently-developed towns are a product of urban planning and include middle class enclaves (F. Wu, 2015, 2018). Most of these studies above acknowledge the effect of planning on segregation but rarely examine the ways that urban planning actively contributes to segregation in China (e.g., Abramson, 2006; Huang, 2005; Madrazo & van Kempen, 2017; Pow, 2009; F. Wu, 2015; Zhou & Ronald, 2017).

Some studies show how urban planning practices create segregation. For instance, Tomba (2014) argues that gated communities are a form of segregation and are created by the planning strategy of housing demolition and relocation of residents and through state land control and intervention in the real estate market. Huang (2006) argues that the
government uses gating and enclosure in urban planning to create danwei and residential quarters (xiaoyu), which may also be associated with segregation. Tian and Wong (2007) point out that in the redevelopment of Shanghai, neighborhood segregation resulted from planning policies (e.g., exempting developers from various fees) and weak planning mitigations of the negative outcomes of gentrification. Nevertheless, China’s urban planning system is a powerful force in shaping the various urban spaces that are not limited to gated communities and gentrification; further studies of planning effects and mechanisms on residential segregation are required.

This paper studies the urban planning of six national-level development zones since 2000 and illustrates a new form of creating residential segregation in China. It argues that urban planning is an important factor creating extreme residential segregation in development zones and that two planning instruments, large-scale land use zoning and the provision of public housing to migrants, constitute the main urban planning practices causing segregation. Such planning practices have rarely been identified as a cause of segregation during the reform period. In new development zones, most rural migrant workers are completely segregated in gated neighborhoods, marginalized and distant from the neighborhoods of privileged social groups, for example, local upper and middle class and higher-educated people, demonstrating extreme segregation. Although hukou and the market are influential factors, the extreme form of segregation is caused mainly by the state’s dominant planning practices in contrast with the low-medium levels of segregation that are hukou-based and market-driven in many Chinese cities. In this way, hukou-based, market-driven residential segregation has been transformed by planning forces in new development zones. By providing new evidence, this paper contributes to our understanding of the complex relationship between urban planning and residential segregation and of how unique planning practices have created segregation, and to more effective planning practices that mitigate segregation in urban China.

The rest of this paper is organized into five sections. It begins with an overview of the theoretical context, study sites, and methodology in the first two sections. It then examines how residential segregation has been created in selected cases. The fourth section demonstrates residential segregation patterns. This is followed by the final section of conclusions and discussion on the impacts of segregation.

**Theoretical Context: An Urban Planning Perspective**

**China’ Residential Segregation**

Residential segregation in urban China did not become prevalent until the economic reforms began in the late 1970s. The hukou system and its practices divided China into rural and urban sectors, and free migration between the two was constrained (Chan, 2009). In urban China, practices of socialism/communism promoted an egalitarian spatial distribution of urban residents (Huang, 2005; Tomba, 2014). Most urban residents lived in the danwei, and segregation among and within danwei compounds was limited. Along with marketization and the hukou reform since the late 1970s, the restraint of rural-to-urban migration has been gradually removed and segregation between migrants and local residents has increased (Chan, 2009; Huang, 2005; F. Wu, 2015).

Based on their hukou status, Chinese urban residents have been classified as local residents or migrants in the reform period (Logan et al., 2009). Local residents include urban and rural residents with local urban or rural hukou status respectively; likewise, migrants with non-local hukou status include urban and rural migrants (Logan et al., 2009; Ming et al., 2020). In the city, in addition to commodity (market) housing, danwei housing, and other types of public housing, there are two other major housing types: urban villages and dormitories (Gong, 2016; Liu et al., 2010; Logan et al., 2009). Urban villages are located on the sites of former agricultural villages that have been engulfed by urban expansion; dormitories are typically built adjacent to industrial or institutional employers (Gong, 2016; Lin & Gaubatz, 2016; Logan et al., 2009). Local residents are eligible to apply for public housing, for example, cheap rental housing and danwei housing (Liu et al., 2010; Logan et al., 2009). In contrast, rural migrants have fewer housing choices and typically live in urban villages or factory dormitories (Gong, 2016; Huang & Tao, 2015; Logan et al., 2009; Ming et al., 2020) because their rural and non-local hukou identity disqualifies them from local benefits.

While state institutions continue to influence spatial inequality (Logan et al., 2009; Madrazo & van Kempen, 2012), market forces have increased residential segregation during the reform period. Most migrants have low incomes, and their housing options are limited by market forces, for example, market housing development and consumption in addition to market-based socioeconomic factors including income and employment (Li & Wu, 2008; W. Wu, 2008). Due to urban renewal and soaring housing prices, gentrification has had a significant influence on the relocation of migrants and residential segregation (Madrazo & van Kempen, 2012). Market mechanisms together with state institutions have determined housing accessibility for both migrants and local residents and led to residential segregation (Huang, 2005; Wang et al., 2012).

Residential segregation in China’s megacities is typically arranged concentrically: Most rural migrants sojourn outside the urban core where many local residents are affluent (Flock et al., 2013; Huang, 2005; Lin & Gaubatz, 2016; W. Wu, 2008). For instance, in Shanghai, the migrant population living outside the urban core increased along with industrial relocation from the core to the urban fringe during the late 1990s (W. Wu, 2008). In Beijing and Guangzhou, low-income
people including rural migrants shifted from the core to the urban fringe during the 2000s (Fang et al., 2015; Flock et al., 2013).

At the neighborhood scale, China’s segregation pattern is unique. Residential areas in the U.S. are often divided into categories such as “white middle-class” neighborhoods, many of which congregate in suburbia, and ethnic minority neighborhoods, found mainly in the inner city, forming extreme segregation (Charles, 2003; Poulsen et al., 2002). Although the segregation in China is clearly visible, at the neighborhood scale, the different types of residences that house different social groups are often located side by side. In Beijing, Shanghai, and Guangzhou, luxurious housing estates, public housing compounds, and urban villages often sit next to each other (Flock et al., 2013; Huang, 2005; Li & Wu, 2008). In Wenzhou’s industrial areas, urban villages are mixed with factory dormitory buildings (Lin & Gaubatz, 2016). Rural migrants in urban villages and factory dormitories often live adjacent to local residents in public or commodity housing compounds. There are a few large-scale migrant enclaves (e.g., Foxconn, an electronics manufacturer) where only migrant workers live in dormitory neighborhoods and many of these are located next to urban villages and commodity housing compounds. Nevertheless, these large-scale enclaves are greatly outnumbered by urban villages and small-scale factory dormitories. China’s prevalent neighborhood pattern with different housing types and low-medium levels of segregation (Li & Wu, 2008) thus differs from highly segregated Western counterparts with clear boundaries separating the neighborhoods of different social groups (Charles, 2003; Ruiz-Tangle, 2013). For instance, the index of dissimilarity (ID) at the subdistrict scale segregation in Shanghai was 0.256 in 2000, which indicates a moderate level of segregation in the spatial distribution of migrants and local residents (Li & Wu, 2008, p. 410). In 2000, the ID between the white and black populations in most American metropolitan areas was above 0.5; the ID in some cities (e.g., Chicago and Detroit) was above 0.8 (Charles, 2003, pp. 173, 174), which indicates extreme segregation.

Urban Planning and Residential Segregation in China

Urban planning is an institution that shapes urban space while contextualized in specific political and socioeconomic environments at particular times and spaces (Miao, 2019; F. Wu, 2015; Zhao, 2015). Western-style planning can be a bureaucratic constraint on economic growth and should become a more market-oriented approach that responds to market principles and stimulates growth (Allmendinger, 2003; Miao, 2019). In contrast, urban planning has been the Chinese state’s most important instrument to shape urban space to meet its needs for many decades (Ng & Tang, 1999; F. Wu, 2015; Zhao, 2015). Contemporary China has experienced different political and socioeconomic environments and the state’s needs have changed too (Ng & Tang, 1999; F. Wu, 2015; Zhao, 2015). Accordingly, urban planning has changed the ways that it shapes urban space including residential segregation.

During Mao’s era, the central government planned every socioeconomic and spatial aspect (Gu et al., 2015; Ng & Tang, 1999). As part of the central planning system, urban planning was a government instrument to realize economic plans in space and to practice communism (Ng & Tang, 1999; F. Wu, 2015). Urban planning practices focused on creating master plans for 20 years and reduced the relationships among urban activities to the coordination of six major land use categories, producing undifferentiated urban spaces across different cities (Ng & Tang, 1999, pp. 594–595). As the dominant urban social-spatial organization, danwei included mixed land use and standardized residential buildings, promoting an egalitarian spatial distribution of urban residents (Huang, 2005; Tomba, 2014; Zhao, 2015). During the reform period, China’s planning has gained a central position in governing social-spatial change (F. Wu, 2018). While China has experienced globalization and marketization, the central planning administration has evolved into three systems of socioeconomic development, land use, and urban planning (Gu et al., 2015; F. Wu, 2015). Through the 1990 and 2008 Urban Planning Acts, the state has greatly empowered the urban planning system and legitimized its control of urban development (F. Wu, 2015; Zhao, 2015). Local governments apply urban planning (e.g., master plans, zoning, and land use plans) to direct all kinds of social-spatial development including community (shequ), new town, and even countryside development (Smith et al., 2019; F. Wu, 2018). Nevertheless, the urban planning system retains some elements of socialist planning that include a state-led top-down approach, public ownership, and blueprint plans (Miao, 2019; Smith et al., 2019), which can, in turn, strengthen the centrality of state planning in urban governance.

More importantly, the central position of planning practices is embedded in and based on urban governance of a state-market engagement (Miao, 2019; Tomba, 2014; F. Wu, 2018). In urban governance theorized by F. Wu (2018) as state entrepreneurialism, local governments become entrepreneurial and deploy market instruments (e.g., state-owned enterprises and the state’s monopoly control of land supply and sales in the land market) to support planning practices. The state also uses urban planning as a market instrument to provide commercial services in new urban developments (F. Wu, 2015). Such a deep interaction between planning and the market may mutually reinforce each other, forming a planning-market engagement. Based on this engagement, the urban planning system has become the state’s primary instrument for promoting economic growth and sustaining its power (F. Wu, 2015, 2018; Zhao, 2015). When such a style of powerful urban planning lacks attention to social issues in its pursuit of state goals, it could easily create social problems such as residential segmentation. For instance, to balance...
the top-down political pressure with local land-based fiscal interests, the government of Beijing applied discriminatory site selection for affordable housing, resulting in its concentration in the urban fringe (Dang et al., 2014). While collaborating with developers, local governments have implemented entrepreneurial strategies to stimulate development leading to master-planned neighborhoods for the new rich in a suburban town of Shanghai (Shen & Wu, 2012). Although Dang et al. (2014) and Shen and Wu (2012) do not illustrate how urban planning creates segregation in detail, they indicate how urban planning (e.g., housing plans and master plans) work with the market to create segregation in urban China.

**Western Knowledge on Urban Planning and Residential Segregation**

The impact of urban planning on segregation in China may be informed by Western research progress notwithstanding their profound contextual contrasts. Extant research finds that tied to factors such as ethnicity and income, land use zoning, urban form, and metropolitan fragmentation all influence residential segregation (American Planning Association [APA], 2006; Lens & Monkkonen, 2016; Schuetz et al., 2009; Yang & Jargowsky, 2010). First, land use zoning has been widely practiced for many decades to include or exclude certain social groups from neighborhoods. In planning history, exclusionary zoning practices, which include a combination of land use and housing standards, segregated ethnic minorities in the U.S. and natives in European colonies (Hirt, 2015; Njoh, 2009). In more recent decades, inclusionary zoning has been widely applied to promote high-density development and offer incentives to developers for including low-income housing in market residential developments (Schuetz et al., 2009). As crucial inclusionary zoning approaches, a mix of housing types (e.g., single- and multi-family housing) and the reduction of low-density zoning are practiced to reduce segregation (Kato, 2006; Lens & Monkkonen, 2016; Schuetz et al., 2009). In addition, land use zoning is often tied to housing policies. Types, placement, and allocation of housing have always affected residential segregation; governments often adjust housing placement (e.g., the inclusion of low-income housing in wealthier neighborhoods) to reduce segregation (Lens & Monkkonen, 2016; Ruiz-Tangle, 2013).

Second, segregation levels and patterns may vary, in relation to urban form, for example, development density, design standards, and residential lot size (APA, 2006; Lens & Monkkonen, 2016). For instance, developments with low housing and population density can contribute to segregation, and higher population density may strengthen social integration (APA, 2006; Lens & Monkkonen, 2016). Decentralized development patterns and urban sprawl may also encourage segregation (Yang & Jargowsky, 2010).

Third, metropolitan fragmentation may contribute to segregation. In the U.S., many fragmented local jurisdictions tend to rigidly control their land uses and attract households with similar socioeconomic traits and preferences, creating relatively homogeneous communities (Lens & Monkkonen, 2016). A metropolitan area with more jurisdictions per 100,000 households tends to have a higher level of segregation (Yang & Jargowsky, 2010). The planning practices, namely land use zoning, design of urban form, and metropolitan fragmentation, reflect Western political and socioeconomic conditions rarely found in China. However, the first two types of these planning practices (e.g., zoning and design of urban form) have been implemented by the Chinese urban planning system because it has been shaped by globalization and marketization (Gu et al., 2015; F. Wu, 2015). Thus, the practice of these Western planning practices can still reflect how Chinese urban planning has shaped urban space including segregation.

This paper adopts an urban planning perspective to study residential segregation in China. In general, urban planning as an institution that shapes the built environment (e.g., land use, housing placement, and gated communities) and the spatial dynamics of demographic distribution (e.g., gentrification), which affects housing accessibility for different social groups and therefore affects residential segregation. In China, urban planning has been embedded in socialist traditions and marketization during the reform period. It has been a tool of the Chinese state, empowered by socialist tradition and state-market engagement, to meet the state’s priorities, mainly economic growth and maintenance of state power. When this type of urban planning ignores social conscience, it may lead to residential segregation.

**Study Sites and Methodology**

Development zones have always been an important development vehicle during China’s reform period. By 2015, the State of China (2017) had established 146 national high-tech development zones—regarded as a propulsive force in Chinese development and increasing international competitiveness—and planned to create more. These development zones are macro-development projects that interact with domestic and international forces and reflect the latest trends in China’s industrialization and urban transformation. In Guangdong Province, there are 11 national high-tech development zones, 9 of which are in the Pearl River Delta. Since the advent of the reform period, Guangdong has become a major economic powerhouse, and the PRD has always been Guangdong’s development center. The PRD consists of nine cities, and there is a national high-tech development zone in each one. Located outside urban cores, they are the most important development zones in each city and key to further local development.

We selected six national high-tech development zones from the nine in the PRD. The selection criterion is whether the development zone is a relatively new development that has been planned and developed since the early 2000s. The
selected six national high-tech development zones are Tangjiawan in Zhuhai city, Jiangmen in Jiangmen city, Guangzhou Science Park (GSP) in Guangzhou city, Zhongkai in Huizhou city, Songshanhu in Dongguan city, and Dawang in Zhaoqing city (Figure 1). In recent years, the six cities have been enthusiastically developing their new development zones. Three of the six cities, Guangzhou, Zhuhai, and Zhaoqing, have divided their national high-tech development zones into multiple spatially separated sub-parks; we selected only the main sub-parks: the GSP, Tangjiawan, and Dawang. In contrast to the six selected cities, each of the other three cities in the PRD, Shenzhen, Zhongshan, and Foshan, developed their national high-tech development zones in the 1990s; because they have not planned any new ones since that time, they were not included in the study.

This paper applies a multiple-case-study method. Major data sources include planning documents, for example, urban comprehensive and zoning plans (detailed development control plans) of the six development zones, and maps, for example, aero maps and geographic information system (GIS) maps. The urban planning system established since 1990 consists of upper-tier comprehensive plans and lower-tier plans, for example, zoning plans, which are crucial as the legal basis for further development (Ng & Tang, 1999; F. Wu, 2015). China’s development control plans are similar to Western zoning measures with some distinct differences. Zoning plans in Canada and the United States are generally enforced by municipal by-laws or ordinances consistent with provincial and state municipal statutes so they tend to be more powerful than the development controls specified in Chinese planning regulations. However, China’s urban planning system regulates urban land use in general and the land uses of development zones are regulated in practice through detailed development controls and land use plans endorsed by powerful local governments (F. Wu, 2015). While F. Wu (2015) uses the term “zoning” to represent China’s development plans, this paper uses it as a term to identify the powerful planning controls that shape the structure and form of development zones. These comprehensive plans, zoning regulations, and associated documents are tools to implement planning policy and reveal much about China’s urban planning practices.

In addition, we collected government data on population and development, observed the study sites, and analyzed the spatial form of development zones. The population data in China’s development zones are very limited because they are rarely available in either censuses or statistical yearbooks; we obtained limited population information in these
development zones. For data augmentation, we conducted 21 interviews. In Tangjiawan, Songshanhu, and Jiangmen, we interviewed 15 migrant workers, 3 local residents, and 3 government officials; each interview took around half an hour. Following Clarence Perry, an 800-m radius was used to represent the neighborhood scale for measuring segregation (Perry, 1929).

Pattern matching and cross-case synthesis methods (Yin, 2014) were applied in a two-step analysis. In the first step, we compared the six development zones to identify the similarities and major differences among their geographical spaces and among their planning documents. Through induction, we identified the inter-zonal similarities, combined these into a pattern of residential segregation, searched for common causes by comparing the data, and examined the differences to form other explanations with respect to planning and developing development zones. In the second step, we compared the segregation in new development zones to prevalent segregation in China to determine the principal differences in patterns and causes.

Because state-market interaction results in China’s residential segregation, this paper uses governance of multiple authorities’ power interaction as the analytical framework. In the analytics of governmentality, Rose (1999) points out that “To analyse political power. . .is to start by asking what authorities of various sorts wanted to happen, in relation to problems defined how, in pursuit of what objectives, through what strategies and techniques.” Thus the analysis in this paper examines authorities involved in planning and development, the problems in and the objectives of planning, and the planning methods to achieve the objectives. Because this paper intends to explain the causes of residential segregation in relation to urban planning, the analysis focuses on authorities’ interaction, state planning practices (i.e., strategies and techniques), and the spatial layout of the development zones as one of multiple planning objectives and outcomes.

### New Residential Segregation Created Through Urban Planning

In planning national high-tech development zones, local governments aim at developing them into a new type of city. As Table 1 demonstrates, these development zones cover areas ranging from around 20 to over 100 km² in their comprehensive or zoning plans. Populations are planned to range between 60,000 and 900,000 when the development of a certain period, for example, 20 years, is complete. Planned functions in these zones include a diverse range of high-tech industries, research institutions, residential compounds, and high-quality ecological preserves (Table 1). The planning of these development zones promotes mixing industrial sectors and urbanism (chan cheng ronghe), which encourages the development of both industries and urban functions, for example, residences, commerce, and recreation. In the plans, these development zones are not small industrial enclaves but new high-tech and ecological cities with industrial, urban, and ecological functions.

The government expects that these new development zones can transform local spatial structures. These development zones are the drivers of industrialization to establish new

| Development zones | Area (km²) | Planned population | Development period | Planning goals |
|-------------------|------------|--------------------|--------------------|---------------|
| Tangjiawan        | 139.39     | 350,000            | 2008–2020          | Zhuhai’s important new seashore city will include multi-functions: high-tech industries, residences, leisure, and excellent ecological environment |
| Jiangmen          | 18.58      | 60,000             | 2002–2007          | New manufacturing-industry base in the middle of the PRD; new development zone with multi-functions: high-tech industries, commercial, residences, sufficient facilities, and beautiful environment |
| GSP               | 37.47      | 250,000            | 2000–2025          | New urban district with multi-functions: high-tech manufacturing industries, research, and high-quality ecological environment |
| Zhongkai          | 59, 100.6  | 900,000            | 2010–2030          | Modern innovative, habitable, and ecological city |
| Songshanhu        | 73.7       | 300,000            | 2002–2020          | Modern high-tech industrial, multi-functional, and ecological city |
| Dawang            | 96.7       | 300,000            | 2003–2020          | Economic core of Zhaoqing; habitable and modern industrial city |

Sources: Revision of GSP Compressive Plan, Revision of Tangjiawan Zoning Plan 2008 to 2020, Zhongkai Spatial Development Plan 2010 to 2030, Jiangmen National High-Tech Development Zone Zoning Plan 2002 to 2007, Songshanhu Comprehensive Plan 2002, and Zhaoqing National High-Tech Development Zone (Dawang) Comprehensive Plan 2010 to 2020.

Note. In Zhongkai, the 59 and 100.6 km² refer to its core areas by 2015 and 2030, respectively.
high-tech industries in the cities of the PRD and to transform local industrial structures. While located outside urban cores, they are planned to attract and retain residents from these cores with a high density of populations, transforming local demographic structures. They are (re)developments in peri-urban areas to transform a mix of rural and urban land into high-tech, residential, and ecological land uses. These new development zones are similar in scale and population to new towns and new districts in China’s large and megacities.

**Land Use Zoning and Residential Segregation**

Basic spatial layouts of these development zones are established by zoning demonstrated in comprehensive and zoning plans. As Table 2 demonstrates, a development zone is usually partitioned into three types of functional subzones: (1) a core for administration, commerce, and tourism, (2) a subzone for research, education, and residences, and (3) one or multiple industrial subzones for high-tech industries, for example, information and communication technology, consumer electronics, biotechnology, and medicine. Only Jiangmen combines the first with the second type of subzones. The cores include or are close to ecological spaces, for example, rivers, lakes, hills, and meadows; industrial subzones are positioned on the periphery and separate from ecological spaces. As a transitional area, the subzones for research, education, and residences are often located in-between the other two subzones.

On the basis of the subzone layout, residential land uses are regulated differently for each subzone type, establishing the foundation for residential segregation. China’s urban land use standards (State of China, 2011) stipulate four general categories of residential land use: R1, R2, R3, and R4. The smaller the category number, the higher are its residence standards, for example, building stories, densities, qualities, and provision of facilities (State of China, 2011). Land use plans of these development zones commonly assign a certain percentage of R1 to the core, R2 to the transitional subzone, and R3 to the industrial subzone. Therefore, as shown in Table 2, housing types are differentiated in the three types of subzones. The cores consist of low-density and high-end villa-type residences, which belong to the R1 category. The transitional subzones commonly consist of mid-rise or high-rise apartment buildings that belong to the R2 category. Industrial subzones often contain factory dormitories and high-rise, high-density apartment buildings. In particular, R3 land use, which has high density and relatively low-quality housing standards, is assigned to the industrial subzones of the GSP and Zhongkai. In general, residential land uses, housing types, and densities vary among subzones; land use standards and housing quality decline from the core to industrial subzones.

Detailed zoning regulations are intended to associate different subzones with certain social groups as residents. The cores are planned for affluent and elite residents. For instance, Songshanhu’s plan proposes the residences in and around the core to house the well-educated, literarily labeled as “high-IQ people” in the plan; Tangjiawan plans to attract people in “high-end consumption or tourism” to live in the core by the sea. The GSP plans to locate the residential area for senior managers and middle-class consumers near a park. All of these plans highlight the establishment of universities or polytechnics to train high-technology and skilled labor and reinforce industrialization. Therefore, the transitional subzones where universities or technical schools are located largely house the highly educated, for example, faculty members, college students, and engineers. On the periphery of the development zones are mainly industrial subzones where migrant workers live.

The implementation of these comprehensive and zoning plans is ensured by administrative committees of development zones that greatly empower urban planning and its practices. In Chinese cities, urban planning bureaus often interact with developers and with socioeconomic and land use planning practices controlled by other bureaus; thus their capacity to direct urban development is limited to some degree (F. Wu, 2015; Zhao, 2015). In comparison with urban planning bureaus, the administrative committees of development zones are more powerful government agencies with direct control over their own socioeconomic and urban planning and development. As the top government agency in a development zone, the committee must produce its socioeconomic plans to direct socioeconomic development. The regulations of the Ministry of Housing and Urban and Rural Development (MHURD, 1995, 2003) empower development zones to produce their own spatial plans, including comprehensive, zoning, and detailed land use plans, and to directly implement these plans within their jurisdiction. While these plans are subject to superior urban planning processes (MHURD, 2003), the committee can use land quotas allocated by the upper-level government, coordinate its socioeconomic and spatial plans, and direct its agencies (e.g., urban planning, housing, and public finance offices) to realize the desired spatial outcome.

Prefectural city governments at the upper level of administrative committees tend to empower urban planning in the development zones. As key local projects, the six development zones and their spatial plans were all endorsed by city governments and local leaders, for example, mayors and party secretaries. For instance, according to Zhongkai’s plan, the comprehensive planning and development process must include the coordination of government agencies at all local levels. At the start of the planning and development process for its GSP, the city Government of Guangzhou (1999) permitted the GSP Administrative Committee to control all aspects of the planning, expropriation, development, and management of the land, as well as housing development in the GSP. The communist party committee of Zhuhai clearly required the creation of high-quality urban comprehensive plans and their control over the urban development of
| Development zones | Zoning and land use planning (in plan and practice) | Housing provision | Average sizes of street blocks or residential compounds (km²)* | Distance between different types of residential compounds (m²) (in practice)* |
|------------------|--------------------------------------------------|------------------|------------------------------------------------|--|
| Tangjiawan       | Three subzones: (1) a comprehensive service subzone including an urban core for administration and public facilities assigned R1 and R2 land use, (2) an island for tourism and environmental protection assigned R1 and R2, and (3) a high-tech subzone assigned R2 | (1) Low- and middle-density high-end housing along the seashore in the comprehensive service subzone and the island, (2) Middle- and high-density residences with average quality in the high-tech subzone | (1) Market housing compounds including villas built along the seashore, (2) middle-density apartment buildings around the core, (3) factory dormitories built in the high-tech subzone, and (4) several large urban villages still maintained | In plan: 0.066, In practice: 0.096, Distance: 6,700 (<1,000) |
| Jiangmen         | Two types of subzones: (1) residential and administration subzones assigned R1 and R2, (2) multiple industrial zones assigned R2 | (1) Low-rise residences and villas by the West River and (2) middle- and high-rise residences in other areas | (1) Market housing compound including villas built by the West River, (2) dormitory buildings developed in the industrial zones, and (3) two urban villages still maintained | In plan: 0.036, In practice: 0.064, Distance: 2,900 (1,100) |
| GSP              | Three types of subzones: (1) a central subzone for administration and research assigned R1, (2) a residential subzone assigned R2, and (3) four industrial subzones assigned R3 | (1) Low-density villas by the hills on the north-east of GSP, (2) middle-density apartment buildings by the administration and research core, and (3) factory dormitories in industrial subzones | (1) large-scale residential compounds and villas built by hills, (2) apartment buildings developed by the core, (3) dormitory compounds built in several industrial subzones, and (4) several urban villages still maintained | In plan: 0.201, In practice: 0.108, Distance: 4,700 (<1,000) |
| Zhongkai         | Three types of subzones: (1) a business and comprehensive service core assigned R2, (2) three subzones of a low-carbon new city, a tourism and high-end living zone, and a logistics zone, assigned R2, and (3) multiple industrial subzones assigned R3 | (1) In R2 land use: low- and middle-density housing by the East River, middle-density housing by hills and water bodies, and high-density housing by the core and (2) in R3 land use: middle-density housing in industrial zones | (1) Many market housing compounds built in R2 land use, (2) dormitory buildings developed in large-scale plants, and (3) quite a few urban villages still maintained | In plan: 0.084, In practice: 0.137, Distance: 8,900 (<1,000) |
| Songshanhu       | Three subzones: (1) an ecological core for environmental protection, tourism, administration, and real estate development assigned R1, (2) an inner ring for research and education assigned R2, and (3) a high-tech outer ring with housing for singles | (1) High-end housing such as villas on the northeast and south of the core and (2) apartment buildings in the inner and outer rings | (1) High-end housing compounds built on the northeast of the core, (2) apartments built in the inner ring, (3) dormitories and apartments built in the northern industrial subzones, and (4) urban villages completely removed | In plan: 0.123, In practice: 0.116, Distance: 4,700 (1,200) |
| Dawang           | Two types of subzones: (1) a central service subzone for administration, business, and entertainment assigned R2, (2) six subzones including a production-education-research subzone and five industrial subzones assigned R1 and R2 | Mixed-housing-compounds strategy: High-end and moderate-price market-rate housing compounds coexist with factory dormitories or public housing for locals in each subzone | (1) mixed housing compounds in the central service subzone, (2) high-end residences developed by the river, (3) dormitory buildings developed in the northern industrial subzones, (4) large areas of farmland and several urban villages maintained | In plan: 0.143, In practice: 0.121, Distance: 4,800 (<1,000) |

Sources. Comprehensive and zoning plans of national high-tech development zones, Google and Baidu Maps, and direct observation of development zones.

*The average sizes in plans and in practice, respectively, refers to those of street blocks and residential compounds that include urban villages within the development zones.

Because the comprehensive and zoning plans do not include plans of residential compounds, planned distances between different residential compounds are not available. In the two numbers of each line in this column, the first refers to an average distance and the latter (the one in parenthesis) refers to the minimum distance.
Tangjiawan (Hu, 2007). With the endorsements of local senior leaders, key government agencies at multiple levels (e.g., development zone administrative committees and city-level bureaus of land resources management and housing development) could coordinate with each other to enforce the plans of these zones. Subject to the legitimate top-down control of administrative committees over urban planning, which upper-level governments and leaders often endorse, the urban (re)development process has largely followed the various blueprint urban plans.

The interaction between urban planning and the market has further reinforced the central position of urban planning in development, which contributes to segregation. As indicated in their comprehensive and zoning plans, the administrative committees of the six development zones hired local planning institutes, which are either state-owned enterprises or private firms, to produce these plans. In these planning documents, the responsibility to lead the urban development process is assigned to the urban planning authorities of these development zones. As operated in ordinary Chinese cities, land expropriation, sales, and rentals are deployed by these development zones as market instruments to generate revenues. In the plans of these zones, there are few urban villages, implying the government’s plan to demolish urban villages, resettle the local rural residents, and expropriate their land. In the case of Songshanhu, at the beginning of development, the government expropriated all the land belonging to local villages to completely control the urban (re)development according to the spatial plans (Zhu et al., 2004). Therefore, the local rural people are largely excluded from these new development zones, which are intended mainly for migrant workers and the local middle class through further industrial and urban developments.

As mentioned, the cores include ecological spaces. The land surrounding these spaces has high economic value for real estate development. The government typically invests in the construction of infrastructure and facilities on the land and then rents it to developers for commercial development, allowing the government to reap windfall gains as revenue. In Tangjiawan, the government reclaimed approximately 10 km² of land from the sea and built not only basic infrastructure (e.g., roads, water pipes, and sewages) but also cultural and recreational facilities (Tencent News, 2020). In 2016, some of the land was auctioned for residential use, with the highest price in Zhuhai’s history (Tencent News, 2020), meaning that only those people in “high-end consumption or tourism” could afford to live in the cores. In Songshanhu, the land around the core was not only leased to several developers but also to Huawei, a Chinese digital high-tech giant, to build its research and development headquarters in a small town designed in a European historical style. This headquarters in the core includes top-level engineers as the well-educated (so-called “high-IQ people” in the plan), whom the government desires to attract through land use zoning. In the planning-market engagement, the government uses market forces to facilitate urban planning and development, and it also deploys land use zoning to guide development and boost the economy. Through the engagement, while some social groups (e.g., rural local people and migrant workers) are spatially excluded, other groups (e.g., the wealthy and the well-educated) are included in the core, reinforcing the segregation.

Thus, land use zoning is implemented to wipe out existing social settings, for example, urban villages and ingenious villagers, treating the sites of these development zones as a tabula rasa. The zoning practice is to rezone tens of kilometers of rural land and open the way for further development, for example, creating different sub-zones and distributing different social groups in these sub-zones. Such large-scale zoning has not been widely practiced across ordinary Chinese cities where the existing urban land use may be much more complex and difficult to change than in development zones. In addition, as F. Wu (2015) has argued, power dynamics among multiple state agencies can modify urban planning forces in Chinese cities, which weakens planning power including large-scale rezoning. In contrast, land use zoning implemented in new development zones is a planning force creating segregation, which is rarely identified in the extant literature (e.g., Abramson, 2006; Huang, 2006; Pow, 2009; Tomba, 2014).

**Housing Provision, Neighborhood Design, and Residential Segregation**

Based on land use zoning regulations and the planning-market engagement, the government plans housing provision, anchoring residential segregation in new development zones. As mentioned, housing types and qualities accord with the categories of residential land use in different subzones. In general, high-end commodity housing is planned in the core, a mix of commodity and public housing is planned in the transitional subzone, and public housing including affordable housing and dormitories is planned in the industrial subzone. The GSP’s plan is a clear example to elucidate how different types of housing are spatially separated for different social groups, accordingly:

Low-density villas [by the hill] are provided to senior managers of enterprises in or surrounding the park. Low-to-middle density apartment buildings [near the commercial and administrative centre] are high-end private residences provided to engineers and technicians. Dormitories [in several plants of industrial subzones] are designed to meet low-income migrant workers’ needs. (Guangzhou Urban Planning and Design Survey Institute, 1999, p. 10)

As the government leases the most valuable land in or around the core for commodity housing development, developers grasp the opportunity to develop high-end housing projects for profit. In Tangjiawan, the plan for residential
development by the sea attracted 12 developers including China’s leading real estate companies (Tencent News, 2020), which also took place in other development zones. According to field observations, these companies developed two main types of commodity housing: high-rise apartment buildings for the middle class and villas for the upper class. Such housing units, which usually cost millions of yuan, are so expensive that poor migrant workers cannot possibly afford them. Thus, the plan together with the housing market excludes these migrants from the core.

The comprehensive and zoning plans indicate that it is up to local governments to build and rent public housing in transitional subzones and industrial subzones. For decades, China’s public housing stock has been reserved for local people (Gong & MacLachlan, 2021; Huang & Tao, 2015). In sharp contrast, the public housing in development zones is provided to employees in these zones, most of whom are actually migrant workers. According to field observations, the four zones of Tangjiawan, Songshanhu, Dawang, and Zhongkai have all developed public housing compounds, some of which are labeled as “talent worker apartment” buildings for migrant workers in industrial subzones. For instance, according to a government official, Songshanhu developed 12 housing compounds in the industrial subzone; 6 were planned for employees of a certain large company and the remainder were assigned to the employees of other companies. Management committees in Tangjiawan, Songshanhu, and Dawang have established property management companies in public housing compounds with digital security systems to restrict entry to those with employee cards. The other two development zones, Jiangmen and the GSP, have planned and developed in-plant dormitories located in industrial subzones. To attract industrial investment, these dormitories are only rented to employees in the industrial subzone while outsiders are excluded. According to several migrant workers, public housing rents can be as low as half of the market price, but these subsidized rents are only available to company employees. As a result, three social groups—the affluent, the higher-educated, and migrant workers who work as employees in the industrial subzone—are largely separated in different neighborhoods in the three types of subzones.

Moreover, neighborhood design tends to strengthen the segregation layouts established by land use zoning and housing provision. Superblocks are the dominant street layout in Chinese cities (Abramson, 2008; Monson, 2010), and these development zones are no exception. As Table 2 indicates, the average area of street blocks in plans and of built housing compounds ranges from 0.036 to 0.201 km²(approximately 200 m × 200 m–450 m × 450 m). Most of these compounds occupy a superblock bounded by arterial roads, creating obstacles for pedestrians who must detour around these compounds to reach their destinations. Because each social group’s neighborhoods are positioned in different subzones, the distances between these separate neighborhoods are usually several kilometers (Figure 2 and Table 2). The minimum distances in Jiangmen and Songshanhu are more than 1 km (Table 2). The long travel distances obviously exceed the threshold for neighborhoods to be walkable. In addition, consistent with the enclosure of neighborhoods in urban China (Pow, 2009; Smith et al., 2019; F. Wu, 2015), most residences in the development zones are designed as gated communities. In Songshanhu and Tangjiawan, for instance, not only are the high-end residential compounds gated but these compounds in industrial subzones are also secured: Security guards at the gates may exclude anyone who cannot display a factory employment card.

The urban form of gated communities, superblocks, and lengthy travel distances inhibit opportunities for daily interaction between people in different social groups. The 15 migrant workers whom we interviewed all lived and worked in industrial subzones and usually bought their groceries in neighborhood convenience stores. They preferred nearby urban villages for routine shopping or entertainment to traveling to luxurious commercial centers in the distant core. Likewise, the affluent and well-educated are not likely to visit distant neighborhoods in industrial subzones. As several local residents in the core claimed, there was no motivation for them to travel such a long distance, pass by security guards, or enter factory dormitories to talk with strangers who have little to offer in any case. Physical and social distance act as mutually reinforcing aspects of residential segregation; neighborhoods designed for particular socioeconomic groups help to strengthen residential segregation.

After one to two decades of development, extreme segregation of migrant workers and other social groups has become evident in demographic and interview data. For instance, Zhongkai’s demographic data indicate that in 2017, 68% of the total population was composed of migrants, most of whom lived either in urban villages or industrial subzones far from commodity housing. In the newly-built industrial subzone on the north side of Tangjiawan (Figure 2a), over 90% of residents were migrants in 2017. According to the 2012 data provided by the Songshanhu Public Security Office, 96% of the population in the industrial subzone neighborhoods (the north side in Figure 2e) were migrants; local residents comprised 59% of the population in other subzones. In 2012, the total population in Songshanhu was 99,000, and the subzone scale ID was 0.491, much larger than Shanghai with an ID of 0.256 in 2000 (Li & Wu, 2008). When ID is calculated for smaller geographical units, the result is usually larger. Thus, the ID for neighborhoods smaller than subzones could be as high as the ID of greater than 0.5 found in many American cities (Charles, 2003), indicating quite a high level of segregation in these new development zones.

As indicated by the statistics above, there are still many migrant residents in the transitional zone or the core, and it is noteworthy that some are rural migrants assimilated into urban society due to higher education or income. For instance, a number of students and faculty who are rural migrants live with local residents in the same neighborhoods in transitional subzones. Migrant students may purchase or rent housing in the core after graduation; however, many others with technical
Figure 2. Current residential land use and neighborhoods of national high-tech development zones. Sources: Google and Baidu Maps, direct observation of development zones, and land use plans of development zones. Note: Land represented by the white areas within the boundaries of these development zones is not vacant but mostly used for industry, education, or administration. On the maps, 800-m radius circles represent a neighborhood scale.
or even undergraduate degrees cannot afford housing in the core, instead they have to work and live in the industrial subzone. Furthermore, many migrants in the core are not migrant workers in factories but in fact, people from the same city or region as local residents. As two residents in Jiangmen put it:

Many of our neighbours are from Guzhen [a town adjacent to Jiangmen but in the city of Zhongsan]. They bought apartments [in the core] to escape their previous crowded living conditions in Guzhen. It is still convenient for them to live here and cross the city border to work in Zhongsan on weekdays.

According to a government official in Songshanhu, many migrant residents in the core were affluent people who came from other towns in the same city; they purchased housing for investment and their children’s education.

Extreme segregation is also visually manifest based on field observation of these development zones. The layouts of subzones, residential land use, and housing provision have largely accorded with the comprehensive and zoning plans (Figure 2). By the end of their planning periods (e.g., from the early 2010s to 2020), Songshanhu and the GSP have developed or redeveloped most of the construction land in accordance with their plans. In Songshanhu, urban villages have been completely wiped out, and indigenous villagers have resettled out of the zones; high-end residential compounds have mushroomed in or near the core (Figure 2e). As Figure 2 indicates, the spatial segregation of housing types and neighborhoods has become clear in Tangjiawan, Jiangmen, and the GSP. A few urban villages still exist in all of the development zones except Songshanhu (Table 2 and Figure 2), but most are subject to future redevelopment according to the planning documents.

Urban planning is clearly a salient factor creating extreme segregation in these new development zones. As in ordinary Chinese cities, the hukou system and the market contribute to segregation in these zones. However, governments are motivated to encourage economic growth rather than social equity and they use mainly urban planning as their instrument to shape the spatial transformation of development zones. The spatial transformation includes divided, hierarchical residential land uses and separated residences for migrants and local residents, superblock and gated communities, and extremely uneven distribution of migrants and local residents. In governing this spatial transformation, the central position of urban planning is reinforced by socialist planning features and state-market engagement. Socialist features include a state-led top-down approach, blueprint plans, the public ownership and expropriation of land, and endorsement by local state leaders. State and market actors, for example, developers, collaborate in leasing land, developing housing, and providing migrants and local residents with different types of housing in different subzones. The key role of urban planning in creating segregation in these zones contrasts with the conventional understanding of hukou-based market-driven segregation, indicating a transformation in the factors responsible for segregation.

Three urban planning instruments—land use zoning, housing provision, and neighborhood design—are applied in creating segregation. The literature is clear, neighborhood design (e.g., gated communities and superblocks) contributes to segregation (Abramson, 2008; Huang, 2006; Monson, 2010; Pow, 2009; Tomba, 2014). The other two planning instruments, large-scale zoning and state provision of public housing to migrant workers, are not widely identified in the literature. Land use zoning treats the sites of development zones as a tabula rasa and separates different types of residences into different subzones, each type houses a distinct social group, and the segregation of different social groups is locked in by market housing and public housing. These two planning instruments ensure that state urban planning is the dominant power in shaping segregation in these development zones.

Spatial Patterns of New Residential Segregation and Alternatives

At the development zone scale (equivalent to a Chinese small city in size), the form of residential segregation is the spatial marginalization of rural migrants along socioeconomic lines. The segregation pattern across a development zone is identified as having (1) a core with administrative, commercial, residential, or touristic functions and with affluent residents, for example, local middle and upper class, (2) transitional subzones with the functions, for example, research, education, and residences, and with many higher-educated people, and (3) technology-intensive industrial subzones with relatively low-income migrant workers on the periphery. Migrants who are not employed in the development zones can only live in dilapidated urban villages and small factories outside the zones. This pattern demonstrates a marginalization from well-developed urban centers (i.e., the amenity-rich cores of both the cities and development zones where living costs are high) to less-developed areas, for example, industrial subzones and urban villages with fewer and lower quality amenities and facilities.

More importantly, at a neighborhood scale, the new residential segregation displays a spatial pattern contrasting with the prevalent neighborhood pattern in urban China. In most development zones, the neighborhoods of different social groups are distant from each other. The government planned and developed neighborhoods in industrial subzones to house migrant workers, most of whom are rural migrants and cannot afford commodity housing in the core. The upper and middle class including affluent local residents live in the core because they are typically not factory employees thus they are ineligible to live in the factory dormitories of industrial subzones. More significantly the affluent are very likely to reject the relatively low-quality housing in industrial subzones. Low-skilled migrants whom factories in these development zones
do not demand have to live outside the zones; through the redevelopment of urban villages, many local rural residents have been resettled outside the zones. Therefore, the neighborhood segregation pattern is extreme: Migrant workers’ neighborhoods are rarely located adjacent to and typically remote from those of other social groups, preventing social interaction between migrant workers and other social groups.

The patterns of the new residential segregation suggest that residential segregation is transitional in many large-scale urban developments, with the potential to increase in Chinese cities. This kind of planning-driven segregation pattern may be repeated in many other new development zones across China because these development zones in this case study represent a nationwide development trend. Marginalized by the way that development zone projects are planned, rural migrants are likely to be displaced from urban cores and resettle in the urban fringe. If rural migrants are increasingly segregated in their neighborhoods outside the urban core, the level of social segregation will inevitably increase in many Chinese cities.

One may argue that segregation is inevitable due to economic growth as the goal of China’s planning and development and that it is necessary to separate industrial subzones from ecological sites for environmental protection. Yet, environmental protection does not determine the creation of segregation, and urban planning practices can reduce segregation. Thus, there are several planning alternatives, especially when the state can pay more attention to social equity. First, Dawangprovides an inclusionary zoning strategy of mixing different types of housing compounds to avoid residential segregation (Table 2). As Figure 2f illustrates, a number of different social groups’ housing compounds, which include local rural residents, sit side by side, forming a common neighborhood pattern with different housing types in urban China. Even though different social groups live in separate housing compounds, they may interact socioeconomically with each other, reducing the segregation effect. Second, the Government of Shenzhen (2013) plans small-scale development zones instead of large-scale developments. Some of these developments are only one or two street blocks in size and can be integrated into the existing urban fabric, avoiding large-scale residential segregation. Third, China’s ongoing public housing development has started to include migrants as tenants (Gong & MacLachlan, 2021; Huang & Tao, 2015) and could include even more rural migrants mixed with local residents in a neighborhood, consistent with the inclusionary zoning strategy. These alternatives all tend to encourage the social integration of rural migrants with other social groups, supporting migrant integration to the city and facilitating China’s urbanization.

Discussion and Conclusions

Residential segregation of migrants and local residents has become common in urban China during the reform period. On a neighborhood scale, the level of segregation is moderate; different types of housing are located side by side, and migrants and local residents have the opportunity to interact with each other in their daily lives. The segregation pattern at a megacity scale tends to be concentric and is driven by a centrifugal migrant outflow from the urban core. State institutions (e.g., the hukou system) and market forces are the most influential factors, creating China’s distinctive hukou-based market-driven segregation. Urban planning as a state institution is another factor shaping segregation during the reform period; yet our understanding of its impacts on segregation is limited.

This paper identifies an extreme level of segregation directly created by the state’s urban planning practices and demonstrates quite precisely how these practices lead to segregation. It argues that urban planning—especially involving large-scale land use zoning and the provision of public housing to migrants—is an important factor in the extreme residential segregation that characterizes new development zones. In their planning practices, local governments have used urban planning as the primary tool of developing development zones to boost the economy, directly resulting in segregation. Second, urban planning is engaged with and strengthened by market forces (e.g., market housing development and land rentals) and some socialist planning features (e.g., a top-down approach, blueprint plans, and the public ownership and expropriation of land) which reinforce segregation. Third, three planning instruments, large-scale land use zoning, the provision of public housing to migrants, and neighborhood design, contribute to segregation. While playing a significant role in transforming development zones, the first two instruments have rarely been identified as planning practices affecting segregation in urban China. As a result, and in contrast to the moderate level of market-driven segregation that currently prevails in China, the segregation in new development zones is extreme and concentrates migrant workers in neighborhoods far distant from other social groups. This segregation pattern has become well established in the last two decades and may persist, as these planning practices continue to control urban (re)development.

This paper contributes to our understanding of China’s residential segregation, urban planning, and their relationship in two ways. First, in contrast with many extant studies that focus on the role of hukou, danwei, and market forces, it identifies the major impact of significant urban planning practices on segregation and the planning mechanisms and instruments in real-world practice. Urban planning, as it has been exercised in the development zones, is a powerful state institution that differs from the market and other institutional factors, for example, hukou and danwei. In contrast with urban planning in ordinary cities, large-scale zoning that treats these development zones as tabula rasa and the provision of public housing to migrants are identified as new planning instruments creating segregation in China.

Second, this paper identifies the phenomenal transformation of segregation in China’s large-scale urban developments.
These nationally ranked development zones may set a precedent for other development zones to emulate in their approach to planning, increasing segregation and affecting the lives of migrants and local residents alike. Similar planning practices have been applied in new towns, new districts, and eco-cities, with the same essential outcome: they create middle class enclaves (Shen & Wu, 2012; F. Wu, 2015). The transformation of planning practice in new developments may not be appropriate in ordinary Chinese cities. Yet, this paper suggests that by transferring planning knowledge among regions, such development zone practices may still be applied across Chinese cities to some extent (e.g., in many new towns and new districts) and thereafter impact segregation.

While China’s rural-urban migration remains phenomenal, the urban planning practices of the state do not mitigate the negative effects of institutions or the market on segregation but reinforce them. Planning alternatives to reduce segregation are available and include (1) mixed land uses and housing types at a neighborhood scale, (2) small-scale developments, and (3) inclusion of more migrants, particularly rural migrants, in public housing. Chinese governments and society have recognized the importance of fostering social relations between migrants and local residents in recent years. Through the medium of the hukou reform, the government has attempted to provide migrants with improved welfare and greater integration into urban society. However, as this paper shows, the importance of spatial relations between migrants and local residents has been largely ignored in current urban planning and urban (re)development. Without substantial changes to encourage greater social diversity in urban communities, planning practices are likely to exacerbate segregation in Chinese cities, reducing the potential for social-spatial interaction and integration between local residents and rural migrants.

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