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Industrial zone development policy related to real estate and transport outcomes in Shenzhen, China

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ABSTRACT

The regeneration of industrial districts in Shenzhen is self-organized, dependent on starting conditions and engagement with the market, in contrast with other areas where city governments continue to exert effective control over urban planning and its physical outcomes. The permissive industrial regulatory regime in these districts allows rapid transformation of properties to exceptionally high density, a mix of land uses, and minimal service provisions. The city continues to support the rapid transformation of such districts through flexible lease management and the provision of transport infrastructure. The unique road and leasehold system of the industrial district supports the emergence of a non-motorized zone that in turn promotes further real estate investment. The process appears to be iterative and bottom-up, with successive effects between land holdings and real estate investment, transport infrastructure and the non-motorized environment, and the non-motorized environment and further real estate investment. The evidence comes from comparable field studies of real estate development (2000–2013) and transport outcomes (2007 and 2013). The informal practices of the district and city, not yet part of official policy, are nevertheless, having a transformative effect on several former industrial zones.

1. Introduction

The development process and outcomes in industrial districts in south China differ from those in other land use zones because of very different land and regulatory regimes. The promotion of the producer economy of the 1980s was supported with simple zoning regulations in the large number of industrial zones with few demands on developers in exchange for rapid investment. Such an approach was adopted firstly in Shenzhen Special Economic Zone (SEZ), and later in Bao'an and Longgang districts, Dongguan, Huizhou and other Guangdong export-oriented manufacturing cities. Before the 20-year leases terminated in the SEZ, most of the manufacturing concerns had already departed for inland locations, more favorable investment conditions and cheaper labor (Zacharias and Teng, 2010). Government responded to the prospect of empty industrial zones by allowing conversion to other land uses and the trading of leases (Zhu, 1999). Factories that had been under the control of a single enterprise were often subdivided and leased in small units under variable conditions. The process unleashed by these administrative procedures generated a bottom-up development process, which was aided by municipal investment in transport infrastructure. This paper first generally examines the nature of bottom-up urban development, as a process that is of increasing theoretical and practical interest. We propose that the city approach to regeneration of industrial districts in south China is a close fit with bottom-up processes observed elsewhere, but in the very particular geographical and regulatory context of China. Second, the informal and administratively controlled approach to industrial districts is contrasted with the traditional top-down planning approaches that characterize formal urban planning across China. As seen in other instances of bottom-up development, early establishment of simple and uniform physical conditions for development coupled with a simple and flexible regulatory regime leads to self-generated change and increasing differentiation. Both process and outcomes contrast sharply with formal Chinese urban planning practice, where a government-led master plan is subdivided into parts and distributed to state-owned and private development interests according to strict land use and spatial rules defined in the master plan. Third, a case study allows us to see how these development policies supported particular real estate and local transportation outcomes. The layout of the industrial district with its unique street and block system, leasehold system, and the supportive public transportation improvements are considered for their respective roles in the development outcomes.

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The development outcomes are firstly defined in terms of the successive real estate investments, taking different forms over time according to the bottom-up process. A second area of outcomes concerns the particular transportation characteristics of such development.

The paper examines industrial districts undergoing major land use transformation in Shenzhen. Through a longitudinal study, we explore how initial planning policies and infrastructure generated a non-motorized zone that was spatially related to successive waves of real estate investment. The power of such bottom-up development is illustrated by examining late changes in public transport provisions, in particular two new metro lines and a re-organized bus system. The outcomes draw attention to the significance of early city-sponsored plan and land use conditions. Increasing emphasis on regeneration efforts and infrastructure provision make such cases of self-generated development and a strong, non-motorized transport environment of considerable interest to city policy.

2. Bottom-up development in the industrial zone

There is growing interest in the evolutionary aspects of urban fabric particularly in conditions of limited extrinsic control. Such interest in part follows a loss of faith in the traditional master plan as too rigid to account for increasingly rapid change or unforeseen opportunities (Adams et al., 2005). In part, such interest stems from the observation that urban form change can be self-organizing in nature. Land use changes in a metropolitan area have been studied from the point of view of micro-scale interactions, because land uses in particular are sensitive to local relationships, changes in transport and cumulative effects. Such bottom-up processes of development describe self-organization according to limited rules at the local level, contributing collectively and by interactions to a global pattern (Batty, 2012). The social and economic dynamics of cities are also likened to self-organizing and bottom-up processes (Krugman, 1996; Benguigui et al., 2001) that also have impacts on urban form. For example, the intense patronage of street-oriented businesses may induce agglomerative effects and, further, land use change. The micro-scale decision-making of developers can be described in terms of spatial patterns and trajectories at a higher scale (Barker, 2012). The opportunities offered by collective human behavior on the street is one of the drivers of the well-recognized herd instinct of developers (Adams and Tiesdell, 2013, p.145).

Cellular automata models have been used to understand urban evolution according to local rules (Liu et al., 2008; Wang and Li, 2011). The city is treated as a cellular system where relationships between adjacent cells determine outcomes. Collective behavior on the part of many individuals produces another scale of effect in large areas containing many such cells undergoing urbanization (Feng et al., 2011). For example, the land use changes induced by pedestrian flows have feedback on those flows in a cyclical process. Cellular automata serve to account for these interaction effects that result in successive altered states of a large, complex, urban fabric.

Bottom-up development processes operate in an environment of limited global information and simple, local rules (de Grauwe, 2010). The operation of such local rules across the urban fabric then leads to higher order forms that were not always foreseen at an earlier stage of development. These higher order forms occur because of agglomerative effects interacting with the particularities of local geography, property and accessibility. For example, it has been observed that a single set of simple rules for development can result in remarkable differences in timing, project size and configuration over the period of development in a local area (Zacharias, 1997). Early development informs later development. Over time, increasingly strong local differentiation in urban form emerges from its own transformation, as long as the process is allowed to continue.

These processes describe what occurs in the transformation of the south China industrial district. In a similar fashion, the redevelopment in the industrial district is not described by a random selection of a great many candidate sites, but is rather concentrated in local areas, as will be seen later. Such an outcome could be expected in particular for Chinese industrial districts, which were laid out in uniform blocks with high accessibility and limited spatial hierarchy. Relatively high density of urban blocks and streets were built up with uniform factory structures, subsequently subdivided into relatively small leaseholds. Instead of a coordinated scheme carried out according to a comprehensive concept plan, the redevelopment builds on the physical legacy of the industrial zone. Such market-led developments are now both criticized – for the apparently chaotic ground environment and the absence of a coordinated urban design vision – and admired – as vibrant, human environments that are also attractive to inward investment. In the industrial zones in Shenzhen (Wang, 2013), Guangzhou, Dongguan, Foshan and other cities, land use change is ongoing and relatively rapid. Land use mix is allowed in such districts, unlike most planned areas. The self-organizing character of industrial zone regeneration is a challenge to both the process and the visionary outcomes of government-led planning, but is also being supported by certain senior planners at the district and city government levels, as we will see later. While the debate over the appropriate governmental response to urban self-regeneration continues in Shenzhen and elsewhere, the case itself teaches us how the first plan for the industrial district (1982) and regulations conditions the land use outcomes.

The development process in industrial districts differs somewhat from that in the usual top-down planning approach outlined in Fig. 1. In particular, an iterative, market-driven process operating within the land leasing system replaces the initial leadership of government (Fig. 1).

3. Top-down urban development in China

In China, the instruments for government-led development include the statutory plan and key infrastructure investment, such as major roads and urban rail. The statutory plan sets out the spatial structure and general land uses for a period of five years, but is not explicit about local forms, layout and densities. In large cities, somewhat greater detail in land uses and transportation infrastructure is indicated in district plans. All the details of the project are left to site development control: plot ratio, maximum building height, maximum coverage, minimum open space ratio, the location of entrances, car parking standards and public facilities. The increasing need to control the outcomes of development locally, particularly in a competitive, market-driven development process, has led to a proliferation of concept plans that describe how these various development parameters are to be handled (Wu, 2007). Such concept plans are routinely proposed for lands already in government control, large work-unit sites acquired by eminent domain, urban villages and all other areas where there is effective control of the land. In theory, the concept plan offers carefully coordinated buildings and open spaces with higher-level representational and functional advantages. The concept plan also offers the possibility to integrate public facilities that would otherwise be difficult to achieve. Finally, the plan internalizes potential externalities, such as car parking. Concept plans and their related detailed images describe an end-state for a local area or place, but are not explicit on how they are to be achieved. As discussed below, concept plans are also prepared for areas already developed, but are