



Land-use planning and market adjustment under de-industrialization: Restructuring of industrial space in Hong Kong



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ABSTRACT

This study explores the relationship between land-use planning regulation, changing use of industrial space and market adjustment in a compact city of Hong Kong under deindustrialization over the past three decades. Planning regulation defines and attenuates the rights of property owners in the use of industrial premises. Property users need to secure additional rights, through planning applications, from the regulatory authority before converting the premises for higher-value non-industrial uses. This study reveals that, under a flexible planning regulatory regime of facilitating incremental land-use conversion by the users in industrial property, the development market actually produced more rather than less industrial accommodation. A Supply Adjustment Model is proposed to explain this unexpected market phenomenon. Empirical estimations by Johansen cointegration analysis and Vector Error Correction Model (VECM) confirm opposite movements in the supply and property prices of new industrial and office accommodation, indicating market competition and segmentation between these two sectors.

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Introduction

Many cities have experienced the process of economic restructuring leading to the obsolescence and abandonment of existing industrial space (Rogerson and Rogerson, 1999; Ball, 2002; Kiss, 2002; Hudalah and Firman, 2012). Regeneration of derelict and obsolete industrial brownfield has become a major component of contemporary planning policy (Healey, 1995; Howland, 2003; Hackworth and Stein, 2012). Despite numerous difficulties, planning remains undeniably a key force influencing urban development and spatial transformation (Adams et al., 2005). Nonetheless, its actual impact on the upgrading of property space remains not fully understood. Industrial property is part of the commercial property markets but most research tends to focus by and large on office property (e.g. Ball et al., 1998).

The purpose of this study is to examine the relationship between planning intervention, use of industrial space and market adjustment. It distinguishes itself from the current literature in the following three aspects. First, we specifically focus on planning as a government regulatory activity that attenuates, defines and assigns land-use rights of property space. Planning regulations influence private decisions in the use and supply of property, but

may also generate unintended market consequences. Second, we deliberately examine the effects arising from the possibility of industrial premises in accommodating non-traditional industrial uses, since there is now a blurring boundary between manufacturing and services sectors (Daniels and Bryson, 2002). This is possible also because planning regulations nowadays are made more flexible to facilitate such a mix of land-uses. Third, we depart from the conventional research that examines each property sector separately (e.g. DiPasquale and Wheaton, 1996; Jones and Orr, 1999). Interconnection and mutual adjustment between industrial and office markets will be explicitly explored in this study.

This paper selects Hong Kong as a case study due to the following reasons. Within a period of three decades, Hong Kong has successfully transformed itself from an export-oriented manufacturing city into an international business and financial metropolis. Services now account for almost 92% of the GDP compared to merely 1.5% from the manufacturing sector. Nonetheless, industrial land still occupies about 2.3% of the total territory of 1,108 sq. km., and this is close to six times that of the commercial land. It has been posited that many industrial premises are actually used for business support functions and by the services sector (Tang and Ho, 2014). This is considered possible because the majority of industrial accommodation comprises general-purpose industrial premises in multi-storey factory buildings produced by property developers for sale or lease to individual operators. In a compact built environment, these premises can physically house a flexible mix of

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non-polluting manufacturing uses and business services, provided that prior planning permission is granted. However, no previous studies have examined how such permission has led to the change of uses in industrial space and its repercussions on the supply of new industrial and office stock.

Further, some unique characteristics of Hong Kong make it a suitable laboratory for this study. First, Hong Kong has high property prices which push land owners, property users and developers to make the best use of property space. Its mature property market with frequent transactions also provides readily available information for the property industry to make timely decisions. Property market adjustments therefore tend to be swift. Second, most of the existing industrial buildings are located in highly assessable locations within the urban districts. They face a lot of pressures for land-use conversion and redevelopment, because rising land costs provide a strong incentive to landlords, tenants and developers to take action. Third, land-use changes in industrial premises are governed under an overlapping web of statutory and administrative controls administered by separate departments of the Hong Kong government (Poon and Chan, 1998). In addition to planning regulations, Hong Kong operates a land leasehold system under which the land leases exercise controls on alteration of land-uses in industrial premises. Building works to convert industrial accommodation to other uses are also subject to construction, building safety and fire services regulations. Under these institutions, property market reaction is likely to become a less straightforward response to planning policy.

This paper seeks to throw light on these issues, and it is organized as follows. Section 2 provides a literature review and our theoretical propositions. Section 3 presents our analytical model, describes our data and explains our methodology. Section 4 presents and discusses our findings. Section 5 gives our conclusions.

Literature review and theories

Industrial land and property do not receive much research interest of late, probably due to a number of reasons. First, industrial space, particularly of derelict and obsolete factory buildings, often commands the lowest values among all categories of real property. Second, industrial end-users and operators generally dominate the scene, resulting in the presence of a vast amount of non-standardized industrial premises in a highly segmented yet locally differentiated market (Fothergill et al., 1987; Henneberry, 1988). Third, notwithstanding some recent changes, industrial property has not constituted a major component in institutional asset portfolios, because institutional investors do not normally treat industrial real estate as 'prime property' (Nabarro, 1990; Dunse et al., 1998; Benjamin et al., 2003). Notwithstanding these circumstances, revitalization of under-valued industrial land is still crucial in sustaining urban economy, protecting local employment and achieving smart growth (Wolf-Powers, 2005; Howland, 2011; Leigh and Hoelzel, 2012). A better understanding of the market dynamics of industrial space and its land-use transformation is still wanting.

In the literature, industrial land is regarded as a kind of production space and its supply is expected to be driven primarily by manufacturing demand and performance of the industrial sector. Local economic conditions such as GDP, industrial output, industrial rent and availability of industrial accommodation are found to determine new investment in private industrial space (Tompkins and Webb, 1988; Giussani and Tsolacos, 1994). Different economic and institutional settings may modify its development cycles and patterns (Tsolacos, 1995). Industrial space production may be enhanced or constrained by local factors, such as land ownership (Adams et al., 1995), physical and infrastructural barriers (Tsolacos,

1997), site contamination (Howland, 2003), transport accessibility (Pugh and Fairburn, 2008) and other development constraints (Adams et al., 1993).

Previous modelling of new industrial supply tends to adopt these considerations. Utilizing a simultaneous three-equation system, for instance, Thompson and Tsolacos (2000) estimate the interaction between industrial property supply, industrial rents, construction costs, floors space availability and macroeconomic conditions in the UK. Using a different methodology, Chow et al. (2002)'s cointegration analysis suggests that, in the long run, new industrial property supply in Singapore responds inversely to vacancy rate and financing costs, but positively to industrial price. In the short run, past building starts, industrial prices and interest rates are found to drive short term fluctuations in new industrial property supply, under the estimation of vector error correction model (VECM). When new industrial supply exceeds its long-run relationship with respect to the endogenous variables, it will adjust downward to restore to the long-run equilibrium state. What seems lacking in the literature, however, is to look into the changing nature of demand for industrial space, as a result of industrial restructuring towards a more services-oriented economy, and its resulting implications on this sector.

Planning policy is notably a key variable influencing industrial sector. State intervention in industrial land provision is found to be highly instrumental to expedite early industrialization of developing countries (Adams, 1987; Bishai, 1991), and support industrial upgrading and high-tech industrialization in advanced economies (Henneberry, 1984; Yuen, 1992; Zhu, 2000). A steady public supply of industrial land can sustain low rents and enhance regional development particularly in recessionary areas (Jones, 2005; Needham and Louw, 2006; Ploegmakers et al., 2013). But, government intervention may lead to deterioration of industrial accommodation, excessive supply of new industrial land, monopolistic domination and lack of tenure choices (van der Karbben and Buitelaar, 2011). Rigid industrial land use controls for the purpose of reducing industrial concentration tends to reduce job opportunities, hamper urban productivity and increase transport costs (Jun, 2012). The costs and benefits of exclusionary industrial zoning against incursion of higher value uses will vary from place to place (Heikkila and Hutton, 1986). Therefore, the impact of planning regulations on industrial space is unsettled and is worth further research.

In Hong Kong, industrialization had its golden era from the period after the end of World War II to the late 1970s (Szczepanik, 1958; Geiger and Geiger, 1973; Hopkins, 1971; Riedel, 1974; Sit and Wong, 1989; Sit, 1995). Local manufacturing sector made a significant contribution to GDP and employed nearly half of the total labour force in the city. The industrial structure was characterized by a predominance of small scale and export-oriented factories producing light consumer products to the western economies. Manufacturing also stimulated growth of other economic sectors such as trading, finance, business services, property and construction. However, this stage of industrial development was largely a collective outcome of the entrepreneurial decisions of local industrialists. The government of Hong Kong had no 'strategic planning' for the scale and direction of industrialization (Yeh and Ng, 1994).

Before 1997, industrial land use planning strategy of the Hong Kong government followed its non-interventionist philosophy in managing the economy. The industrial land policy was 'to remove, where possible, infrastructural and technological constraints on the development of Hong Kong's manufacturing industries, and to maintain the freest possible market in industrial resources' (Hong Kong Government, 1991). Industrial land provided by the government was aimed at maximizing floor area ratios so as to increase land sale revenue. Developers were pushed to develop multi-storey, high-rise factory buildings for the generic market users rather than satisfying specific needs of particular industrial sectors. But,

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