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Industrial relocation of Hong Kong manufacturing firms: towards an expanding industrial space beyond the Pearl river delta

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Abstract This paper explores the recent industrial relocation of Hong Kong manufacturing firms in the Pearl River Delta. Based on a combination of recent surveys, four in-depth case studies and nearly 20 firm interviews through the end of 2008, the paper argues that in response to a dynamic business environment in the region, some Hong Kong manufacturing firms in the PRD are forced to design new spatial strategies. The paper also identifies the different relocation strategies adopted by Hong Kong manufacturing firms, namely, total relocation, stratified relocation and "pseudo relocation". The industrial space of Hong Kong manufacturing firms will be expanded beyond the PRD. In addition, the new round of relocation of Hong Kong manufacturers is a response to the initiative ushered in by the provincial and local governments in order to achieve the objectives of industrial upgrading, sustainable environment and regional balanced development.

Keywords Industrial Space · Industrial relocation · Hong Kong · Pearl River Delta · Manufacturing

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Introduction

Driven by the overseas Chinese investment from Hong Kong and Taiwan, the Pearl River Delta (PRD) has evolved into the world's factory embedding into the global production network (Chen 2007; Enright et al. 2005). The relocation of Hong Kong firms in the 1980s and 1990s also contributed to the formation of industrial districts in the PRD, conceptualized as the PRD model (Eng 1997; Sit and Yang 1997). The early concerns about the relocation in the late 1980s and the early 1990s can be traced back to the literature on the cross border development in the region of the PRD and Hong Kong. For instance, Chan (1998) reviewed the regional development of South China and identified the lack of theoretical discourse on the cross-border development. While the recent location of Hong Kong manufacturing firms have been discussed in the mass media and attracted considerable attention from the policy makers, few empirical studies have timely and comprehensively examine the driving forces, origins, destinations as well as the effects of this round of relocation in relation to the restructuring of the PRD model.

Recent years have witnessed dramatic changes of the local business environment in the PRD including labor shortage, stricter environmental regulation and the so-called relocation policies designed by Guangdong government. Against this backdrop, Hong Kong manufacturing firms have to adopt new spatial and transformation strategies (Yang 2006, 2007), giving rise to the

emerging industrial relocation of Hong Kong manufacturing firms and the spatial restructuring of industrial districts in the PRD. This paper thus aims to investigate what are the driving forces underlying the new round of relocation? How Hong Kong firms adopted different relocation strategies compared with the 1980s and 1990s trajectories?

Economic geographers have increasingly realized that the literature on the restructuring of industrial districts has paid little attention to the relocation of firms and delocalized groups (Wei et al. 2007: p. 422). More importantly, the existing theories regarding industrial relocation also tend to focus on the relocation of Multinational Enterprises (MNEs) at the global scale (Wei et al. 2007), especially the "flying geese model" of the 1990s (Hart-Landsberg and Burkett 1998; Tsuru 1993). Through the case study of the relocation of Hong Kong manufacturing firms at the regional scale within countries, this paper thus adds to the literature on the relocation of firms. The paper also demonstrates that the relocation of Hong Kong manufacturing firms, although geographically resembles the relocation of MNEs at the global scale (flying geese model), has different dynamics and effects. Specifically, in contrast to the literature on industrial districts deemphasizing the role of the state, the Guangdong government, has played a proactive role behind the new round of the relocation of Hong Kong manufacturing firms.

As the focus of the paper is the *industrial relocation* of Hong Kong manufacturing firms in the PRD, the paper further compares the current relocation process of Hong Kong manufacturing firms against the 1980s and 1990s trajectories. It is argued that based on the relocation of Hong Kong manufacturing firms, the industrial space or industrial districts shaped by Hong Kong investment have been *expanded* that not only make use of the local advantages of Hong Kong and the PRD as what they did in the late 20th century (Meyer 2008). In response to the new policies in Guangdong, the changing business environment in the PRD and the fragmented environmental regulations in China, Hong Kong manufacturing firms have adapted to incorporate the inter-region coordination strategies on the mainland side. They also develop different spatial patterns of relocation according to various characteristics in different sectors.

Methodologically, the empirical data in this paper is mainly collected from surveys conducted by the largest business chambers from Hong Kong including the Federation of Hong Kong Industries (FHKI), and Chinese Manufacturers' Association of Hong Kong (CMA).[1] In addition to their survey reports, some 20 firm level interviews are also conducted in Foshan, Dongguan, Shenzhen and Huizhou from September 2006 through December 2008. Senior managers from the China Chamber of General Commerce (CGCC) (largest business organization in Hong Kong),[2] are interviewed in Hong Kong to discuss the ongoing situation of Hong Kong manufacturing firms in the PRD. The Hong Kong Trade Development Council (HKTDC) was also contacted to provide information concerning the updated development of Hong Kong manufacturing firms. In addition, four in-depth case studies were employed to elaborate the different strategies adopted by Hong Kong manufacturing firms.

The rest of the paper is organized in the follow sections. In the second part, we discuss the relocation of firms in relation to the restructuring of industrial districts or industrial space, which is to identify the gaps in the exiting literature on the industrial relocation and its relevance to the relocation of Hong Kong manufacturing firms. This is followed by a discussion on the general characteristics of Hong Kong manufacturers in the PRD with a particular focus on their unsuccessful upgrading over the past decade. The paper further illustrates the new business environment being faced by Hong Kong manufacturing firms especially the most recent policies designed by the Guangdong provincial government and the rigid environmental regulation in the PRD. In section "Industrial relocation policies of Guangdong provincial government", different relocation strategies

[1] The Chinese Manufacturers' Association of Hong Kong (CMA) is a non-profit making chamber of commerce and industry. With over 3,700 member-companies from various sectors of industry and trade, it is one of the oldest and most representative industrial associations in Hong Kong, known for its public interest and community service.

[2] The Chinese General Chamber of Commerce is a non-profit-making organization of local Chinese firms and businessmen based in Hong Kong. Founded in 1900, it is one of the oldest and largest chambers of commerce in Hong Kong. At present, the Chamber has a membership of over 6,000, comprising association, company and individual members.

adopted by Hong Kong manufacturing firms are analyzed through four case studies. The concluding remarks emphasize on the long-term viability and sustainability of Hong Kong manufacturing firms in the PRD region.

Industrial relocation and restructuring of industrial district

Industrial districts characterized by flexible specialization and agglomeration have generated considerable scholarly debate since the 1980s (Piore and Sabel 1984; Scott 1988). Despite the globalization and the hollowing out of the nation state, it is argued that the global production is still localized in specific regions (Cox 1997). The emergence of the new industrial spaces or industrial districts can be viewed as the spatial manifestations of the transformation from Fordist production to flexible production (Scott 1988). Therefore, the industrial districts can further be regarded as the nodes embedded in the global production and served as motors for regional economic development. Compared with the concerns of a few areas in developed countries, scholars are also increasingly interested in the emerging industrial districts in developing countries and the varied forms of industrial space or industrial districts under globalization particularly those driven by the foreign investment (Schmitz and Nadvi 1999; Scott 2002).

In China, the industrialization and economic transformation over the past three decades have also generated some distinctive industrial districts including the Sunan model (Wei 2002), Wenzhou model (Wei et al. 2007) and PRD model (Sit and Yang 1997). The PRD model is a classical case, in which exogenous forces especially the influx of Hong Kong investment, played a dominant role in the industrialization of the region (Eng 1997; Lin 1997; Sit and Yang 1997). However, recent years have witnessed the transformation of the original PRD model. Yang and Hsia (2005) found that the PRD has shifted from an enclave serving the global market to a bridgehead to exploiting the domestic market in China. The foreign invested firms in the PRD, especially Hong Kong manufacturing firms, have also transformed in terms of entry mode, market orientation and interaction with local governments, leading to the new development model in the PRD (Yang 2006). The paper aims to continue the research on the restructuring of the industrial districts or the PRD model in the region with a particular focus on the relocation of Hong Kong manufacturing firms that is still vaguely understood in the existing literature.

Scholars have endeavored in the exploration of the restructuring of the traditional industrial districts such as the industrial districts in Italy (Cainelli et al. 2006; Dunford 2006). However, the existing literature on the restructuring of industrial districts have centered on the technological innovation and industrial upgrading (Martin and Sunley 2006), little attention is paid to the *relocation*. Based on the case study of the footwear-production district in Germany, Schamp (2005) identified firms in the old industrial districts adopted two dominant types of strategic response to the industrial decline: firms either stay in the industry but left the region (relocation) or stayed in the region but left the industry (diversification).

The industrial districts in China are also facing problems of restructuring or more specifically, spatial restructuring. However, in the existing literature, little has been written to explore the spatial restructuring of industrial districts in relation to the relocation of firms. The most representative one is the relocation of the local firms in Wenzhou, in which the relocation is essential to the restructuring of the Wenzhou model (Wei et al. 2007). Based on the case of the PRD, the paper also demonstrates that due to the slow upgrading of Hong Kong manufacturing firms over the past two decades, the restructuring of industrial districts in the PRD is also mostly involving a new round of relocation, leading to the so-called expansion of the industrial space beyond the PRD.

A second stream of literature has mainly dealt with the relocation of firms. Brouwer et al. (2004) investigated the origins, destinations, driving forces and effects during the relocation of firms and distinguished the complete or total relocation and partial relocation. Interestingly, the literature on relocation firms can also mostly be searched in the research on MNEs, when they move at the global scale. Scholars conceptualize the relocation of MNEs on the global scale especially the Japan MNEs and the benefits derived from the relocation into the model of *flying geese*, strongly showing that the dominant role of MNEs during the relocation of firms and their contribution to the economic growth and technological upgrading in the host countries (Hayter

and Edgington 2004). In contrast to the existing research on the relocation led by MNEs on the global scale, the case of the PRD in this paper thus adds the literature by the case of the relocation of Hong Kong MNEs within countries, which may exhibit more diversified patterns and different dynamics.

Thirdly, the literature on district and the relocation of firms also deemphasize the role of the state. Hayter (1997) and Pellenbarg et al. (2002) highlight the relocation of firms have involved main driving forces including the expansion and the need for more suitable premise, cost saving and policy incentives. In contrast to the neoclassical theories emphasizing the cost saving and the firm behavior theories highlighting the decision making process, the institutional theories place emphasis on the policies and the institutional environment in the process of relocation (Brouwer et al. 2004; Hayter 1997). In the context of China, the role of state does have huge impact on the location of firms. Sit and Liu (2000) studied the geography of China's auto industry. Their findings mainly presented a clear industrial space in association with the state's regulation concerning the joint venture. This paper will also show that regarding the relocation of Hong Kong manufacturing firms in the PRD, the Guangdong provincial government has actively intervened the relocation by implementing the policies of "vacate the cage and change birds" (in Chinese *Teng Long Huan Nia*o).[3] This is an industrial initiative which aims to promote economic restructuring by vacating industrial land/space for the creative and hi-tech sectors. In the mean time, the environmental regulation or the fragmented environmental standards also urge the relocation rather than upgrading.

To sum up, the paper aims to examine the emerging relocation of Hong Kong manufacturing firms and further question that what are the driving forces and spatial patterns in this round of relocation if compared with the 1980 and 1990 trajectories. It is argued that the industrial space of Hong Kong manufacturing firms is expanding relying on this new wave of relocation. In contrast to the last round of relocation, the new round of relocation is more complicated, which not only includes the diverse relocation strategies adopted by Hong Kong manufacturing firms but also in association with the changing institutional environment. The traditional PRD model termed as "front shop back factory" has been expanded and renewed whilst Hong Kong manufacturers have not only made use of the cross-border comparative advantages of Hong Kong and the PRD, but also have to formulate a more diverse and spatially expanded portfolio of operations on the mainland side.

[3] In the wake of the global credit crisis of September 2008, it was reported that the Guangdong Party Secretary, Wan Yang, maintained that "the crisis offers us the opportunity to change the model of Guangdong's economic development" (*South China Morning Post*, Hong Kong, December 11, 2008, p. A5).

Unsuccessful upgrading of Hong Kong manufacturing firms in the PRD

Since China's opening up its door to foreign investors, Hong Kong was and still is playing a leading role as the largest source of FDI in China (e.g., Zhang 2005). The PRD in south China, located in conjunction with Hong Kong, has attracted huge investment from Hong Kong (see Fig. 1), which is documented as a typical case of exogenous urbanization and industrialization (Sit and Yang 1997).

From 1979 to 2005, the accumulated FDI from Hong Kong in Guangdong has risen to USD 105.4 billion, accounting for 65% of the cumulative FDI in Guangdong (FHKI 2007). It was estimated that the number of Hong Kong enterprises in the PRD was 55,200 and there have been 57,500 factories in the PRD (FHKI 2007). Within the nine cities in the PRD, Shenzhen and Dongguan were the recipient cities of largest number of Hong Kong enterprises, sharing 47% of the total enterprises with funds from Hong Kong (FHKI 2007).

Although Hong Kong investment is still playing a leading role among various source regions of FDI in Guangdong province, the share of Hong Kong in the total FDI in Guangdong has been declining in recent years (see Fig. 2). Investment from other source regions particularly Taiwan, Japan, US and Singapore has been more important to the industrialization in Guangdong especially after China's entry into the WTO in the early 2000s (see also Yang 2006). For example, the auto clusters fostered by Japan investment in Guangzhou and the IT cluster driven by Taiwanese electronics investment in Dongguan have attracted more attention from both academic scholars

Fig. 1 The location of the PRD in Guangdong

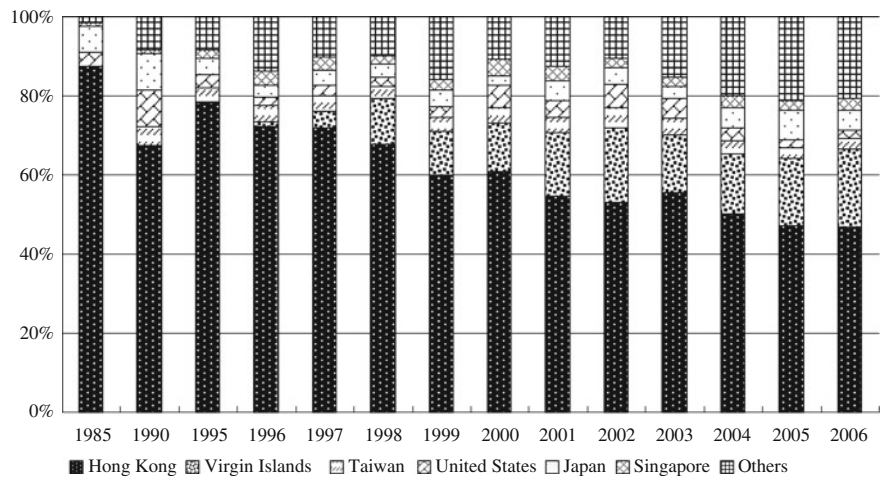

Fig. 2 Changes in the sources of actualized foreign investment in Guangdong, 1985–2006. *Source* Statistical yearbook of Guangdong, various years

and local policy markers (Enright et al. 2005; Wang and Tong 2005).

Compared with a relatively decline of Hong Kong investment, the sectoral composition of Hong Kong manufacturing firms remained stable. A recent survey conducted by the HKTDC illustrated that most Hong Kong manufacturing firms still specialize in the manufacture of textile and garment, sharing 23.4% of surveyed firms (HKTDC 2007). According to another comprehensive survey by FHKI in 2005 and 2006, among nearly 2,529 surveyed enterprises, the top three industries in the sample were: (1) Electronic and Telecommunication Equipment (17.4%); (2) Textile Garments, Footwear and Headgear products (13.6%) and (3) Metal Products (10.5%) (see Table 1). More interestingly, although the Electronic and Telecommunication Equipment ranked the first in the sample enterprises, most Hong Kong electronics firms still concentrated on the production of electronic appliances rather than the manufacture of IT products (Chiu and Wong 2004; Yang 2006). Therefore, it is general accepted that Hong Kong manufacturing firms in the PRD, although has relocated for more than 20 years, have not successfully *upgraded* and still maintained the production of low end products in various labor intensive industries.

Table 1 Sectoral composition of HK manufacturing firms in Guangdong, 2007

Sector	Percentage (%)
Electronic and telecommunication equipment	17.40
Textile garments, footwear and headgear products	13.60
Metal products	10.50
Plastic products	9.00
Leather, furs, down and related products	7.70
Textile industry	6.40
Electric equipment and machinery	5.40
Printing and record medium reproduction	3.60
Raw chemical materials and chemical products	3.40
Papermaking and paper products	3.30

Source: Complied from FHKI (2007)

In addition to the general status and sectoral composition of Hong Kong manufacturing firms in the PRD, the unsuccessful upgrading of Hong Kong manufacturing firms can be further illustrated by their OEM model of production. In a survey conducted by HKTDC, nearly 74% of 2,200 surveyed Hong Kong manufacturing firms reported that the majority of their main business revenue was obtained from the OEM production. Meanwhile, only 6% of Hong Kong manufacturing firms have tapped into the OBM or ODM production (HKTDC 2007). Our interviews with the Hong Kong manufacturers also indicated that the upgrading seems to be difficult for Hong Kong firms since Hong Kong has evolved into the service provider rather than the source of innovation. Hong Kong manufacturers are also in favor of the strategies of investing the profits in real estate or stock market in Hong Kong, leading to the less R&D funding in their manufacturing in the PRD (Authors interviewed conducted in December 2008; Meyer 2008)

In short, the successful relocation to the PRD in 1990s cannot further help Hong Kong manufacturing firms to upgrade reflected by the sectoral composition and the business models in terms of OEM, ODM and OBM. In this respect, the relocation of Hong Kong manufacturing firms beyond the PRD is the most feasible way to deal with the changing business environment in the PRD. This point will be further elaborated in the following sections.

Transforming business environment in the PRD

In this section, the changes of business environment being faced by Hong Kong manufacturing firms in the PRD since the early 2000s will be examined. This analysis mainly aims to provide a specific spatial and temporal context in which Hong Kong manufacturing firms are being forced to move their manufacturing facilities outside the PRD.

In general, a recent survey done by CMA (2008) is employed to overview the most influential changes of the business environment in the PRD. Table 2 highlights that the changes concerning macro economic conditions at the national level including the appreciation of RMB (3.52) and new contract law that has affected the operation of Hong Kong firms significantly. In addition, Hong Kong manufacturing firms are also facing a lot of challenges resulting from the increase of labor cost (3.52) and lack of labor (3.05). Meanwhile, the environmental regulation (2.68), implemented by the local governments in the PRD, has increased its importance in the transformation of policies in the PRD.

Table 2 Influential changes of the business environment in the PRD, 2008

Increasing production cost	
Lack of labor	3.05
Rise of labor cost	3.52
Lack of water and electricity	3.27
Appreciation of RMB	3.49
Inflation and upsurge of raw materials	3.52
Lack of suppliers	2.41
Policy transformation	
Changes of processing policies	3.04
New contract law	3.46
Phase out of tax exemption for foreign enterprises	2.7
Environment regulation	2.68
International restriction for exports	2.31

Source: Compiled from CMA (2008)

The questionnaire survey conducted by CMA in 2008 has collected 230 questionnaires. The influential challenges mentioned above are measured by the rank score ranging from 1 to 4. In details, 4 refers to the most serious challenge, 3 indicates this factor is very influential, 2 demonstrates that the surveyed firm consider the factor has some influences, lastly, 1 means no influence are reported by the surveyed firm

Table 3 Difficulties in recruiting factory workers in Guangdong

	Number of enterprises	Very difficult	More difficult than before	Share of the sample (%)
Local private enterprises	90	16	47	70
Enterprises with funds from Hong Kong, Macao and Taiwan	126	12	88	79.4
Foreign funded enterprises	113	14	64	69
Total	329	41	199	72.9

Source: Survey conducted by Statistical Bureau of Guangdong in the end of 2004 and early 2005

To further examine the specific challenges being faced by Hong Kong manufacturing firms and the changing business environment in the PRD, the lack of immigrant labor and the rise of the minimum wage, the tightened environment regulation and the transformation of policies towards foreign enterprises are illustrated in details.[4]

In the first place, the success of Hong Kong manufacturing firms in the global market is highly related to the low labor cost in the PRD. According to a recent survey conducted by FHKI (in 2003), the most important reason for the Hong Kong firms moving manufacturing operation and production to the PRD was to reduce the labor cost. The labor cost factor was ranked as the most important factor by 63.5% of the companies surveyed (FHKI 2003: 32). More specifically, the majority of the low cost labor is from the inland areas such as Hunan, Sichuan, Guizhou and Henan. However, mainly caused by the development of inland areas and the subsidies for peasants from central government, the situation has changed significantly since the early 2000s. Many manufacturing firms in the PRD surprisingly found that it is not easy to recruit a large amount of low cost workers especially the immigrant workers from the inland areas. According to a comprehensive survey conducted by the Guangdong Statistical Bureau in 2004 and 2005, over 70% of the reported factories in the PRD faced difficulties in recruiting new workers. More importantly, the situation in the enterprises with fund from Hong Kong and Taiwan is more serious (see Table 3).

In addition to the lack of labor, the rise of the minimum wage in the PRD also has huge impact on the production cost of Hong Kong manufacturing firms. For instance, the minimum wage in Shenzhen has doubled in past 5 years and some Hong Kong manufacturers also reported, the enhancement of the minimum wage, plus the implementation of the new labor law have increased their production cost by 20%.[5] Obviously, the era of unlimited supply of low cost labor in the PRD has elapsed. The manufacturing firms in the region have to adopt other strategies to cope with the lack of workers and the rise of the wage. In this regard, as Hong Kong manufacturers concentrate on the labor intensive manufacturing, they are more likely to be forced to relocate to inland areas, echoing the main driving force of cost saving in the relocation of firms (Brouwer et al. 2004).

Secondly, the institutional environment in the PRD has undergone a dramatic transformation since the early 2000s. The policies centered on growth of GDP have been replaced by the increasing concerns of environment and poverty. Based on the last 20 years' industrialization, many cities in the PRD have experienced the deterioration of environment (Chan 2002). For instance, in Dongguan, the industrialization has caused the loss of rural land and severe air pollution and server water and air pollution have become the major problems for local governments (Hills and Roberts 2001; Yeh and Li 1999). The governors in the PRD realize that urging the labor intensive industries to move to less developed regions and formulating new policies of environmental regulation play a key role in the future sustainable development. Therefore, the changing regulation of environment protection has been one of the priorities

[4] Due to the major concerns of industrial relocation on the regional scale, the other changes concerning the macro economy in China, including the appreciation of RMB, stringent policies of processing, and new labor law will not be analyzed in details.

[5] *Taikunpao*, November 29, 2008, p. A18. Central Government Facilitates the Hong Kong firms in the Mainland.

in selecting the foreign investors in the PRD, which have exerted profound influence on the relocation of Hong Kong manufacturing firms.

The second important institutional change in the PRD is the transformation of the preferential policies toward foreign owned enterprises. More policies are designed to facilitate the development of domestic enterprises rather than to attract foreign investors as before. Dongguan, which has been well documented as the heaven of foreign investors, is a good example. Since the early 2000s, Dongguan has changed its policies towards domestic and foreign enterprises. To provide assistance for domestic enterprises has become one of the three priorities for the local development in Dongguan. For instance, since 2003, the criterion for the license of imports and exports has been revised in Dongguan, the original institutions strictly monitoring the exports of domestic enterprises has shifted towards encouraging the exports of domestic enterprises (Dongguan Municipal Government 2006).[6] More recently, Dongguan municipal government also issued a document to support the actions of domestic enterprises to go public on the domestic stock exchanges in China (Dongguan Municipal Government 2006). So the local institutional environment of Hong Kong firms have transformed significantly over the past decade, forcing Hong Kong manufacturers to relocate to elsewhere.

Industrial relocation policies of Guangdong provincial government

In comparison with the relocation of Hong Kong manufacturing firms in the 1980s and 1990s, the new round of industrial relocation of Hong Kong manufacturing firms beyond the PRD has been done in a totally different institutional context. In the meantime, the destinations of relocation are not fully controlled by Hong Kong manufacturers, because the Guangdong government has actively involved in this round of relocation.

Firstly, based on the 11th Five-Year Plan, Guangdong has designed a new blueprint of its industrial development. It explicitly formulated the industrial policies of developing petroleum, chemistry and automotive industries in the PRD (http://www.gddpc.gov.cn/zwgk/fzgh/ztgh/syw/gdssyw/200806/t20080601_4751.htm). More importantly, Guangdong government has also realized the limited space in the PRD especially the intensive use of industrial land over the past three decades. They initiate the policies of "*teng long huan niao*". Accordingly, most of Hong Kong firms specializing into the so-called low-tech industries are entitled as the "birds" that should relocate outside the PRD.

Secondly, from the perspective of Guangdong provincial government, the relocation of Hong Kong manufacturing firms from the PRD to other inland areas has not only benefited the local economic development in the underdeveloped areas within the Guangdong province but also achieved the so-called regional coordinated development. In fact, even though Guangdong has been open and achieved prosperity, if compared with other coastal provinces in China, the western and eastern Guangdong still lag behind. For example, in 2004, the average GDP per capital in the PRD is five times than the number in the west and east part of Guangdong and the GDP per capita in the north Guangdong is even lower. Therefore, Guangdong also aims to accelerate the development in these areas beyond the PRD.

In order to achieve the policy objectives of *teng long huan niao*, Guangdong government has established some industrial parks in the western, eastern and northern Guangdong to accommodate the manufacturing firms in the PRD. Table 4 shows that 16 industrial parks have been constructed to satisfy the aims of Guangdong government.

It is also observed that cities and townships in the mountainous areas of Guangdong such as Heyuan, Yunfu have teamed up with their counterparts in the PRD, for example, Dongguan, to establish the so-called "industry relocation parks" to urge the relocation of Hong Kong manufacturing firms. According to statistics released by Guangdong provincial government, the 16 industry relocation parks, involving RMB 1.367 billion in development funds. A total of 257 projects have signed letters of intent to enter the parks, with a total investment of RMB 16.3 billion. Among these, construction has started on 71 projects, involving about RMB 3 billion in paid-up capital; and 42 projects with a utilized investment of RMB 2 billion have been completed. The 16 industry

[6] The entry criterion has been greatly reduced from 5 to 0.5 million registration capital in 2006 (Bureau of Economic Operation and Foreign Trade of Dongguan).

Table 4 Designated industrial parks of relocation in Guangdong

City	Distance to Guangzhou (km)	Price of land (yuan per square meter)	Local Minimum Wage (yuan per month)	Social insurance contribution for enterprises	Number of industrial parks
Zhaoqing	90	60	500	25%	2
Meizhou	450	30	500	29.5% of payable wage	2
Heyuan	220	Below 50	500	55 yuan per person per month	1
Yunfu	143	15–45	500	195 yuan per person per month	2
Shaoguan	198	30–50	300	50 yuan per person per month	3
Yangjiang	200	30–60	500	Phase-in for new enterprises	3
Zhanjiang	500	45	500	31.2% of payable wage	1
Qingyuan	100	45	500	Unclear	1 (under construction)
Chaozhou	392	NA	500	Unclear	1 (under construction)

Source: FHKI, March 2008 report

relocation parks are projected to generate RMB178 billion in output value and RMB12.8 billion in profits and taxes a year when they become operational (HKTDC 2007).

In summary, in contrast to the relocation during 1980s and 1990s, the institutional environment of Hong Kong firms are significantly different. In addition to the new local institutions towards Hong Kong firms, in particular, at the regional scale, Guangdong provincial government has also aimed to play an active role in this round of relocation exemplified by the policies of *teng long huan niao*, which is to coordinate the relocation of firms in both destinations (mountain areas in Guangdong) and origins (the PRD). The following empirical sections aim to further examine the general trends and the specific patterns of the relocation of Hong Kong firms and its relevance to the restructuring of industrial districts in the PRD.

Industrial relocation of Hong Kong manufacturing firms

Concurrent with the transformation of the business environment in the PRD, the original industrial space driven by Hong Kong manufacturing firms have been undergoing a fast restructuring. One of the explicit responses to the aforementioned changing institutional environment is to relocate outside the PRD, leading to the so-called spatial restructuring of the industrial districts in the region. As Wei et al. (2007) proposed, the enterprises in Wenzhou are being transformed into Multi-regional Enterprises (MRE), Hong Kong manufacturing firms are also forced to adopted new location strategies according to the dynamic changes of policies and institutions.

General speaking, relocation is only one of these important strategic responses to cope with the new business environment in the PRD. In the mean time, the aforementioned slow upgrading of Hong Kong manufacturers elaborates the nature of the relocation is to escape the increasing cost in the PRD on the one hand and the changing institutional environment in Guangdong on the other. In this paper, the relocation of Hong Kong manufacturing is conceptualized into an analytical framework (see Fig. 3). It demonstrates that in order to keep abreast with the new development, Hong Kong manufacturing firms have to transform their regional strategies to sustain and these strategies including total relocation, stratified relocation and pseudo relocation are mostly related to the characteristics of Hong Kong firms in different sectors.

A new wave of relocation and destinations of relocation

For Hong Kong manufacturing firms in the PRD, the industrial relocation has started in the early 2000s. A survey conducted by HKTDC demonstrated that nearly 37.1% of the surveyed Hong Kong manufacturing firms planned to relocate their current factories outside the PRD. Revealed by the CMA survey of 2008, nearly 60% of Hong Kong manufacturing firms reported that they can not see a positive future of the

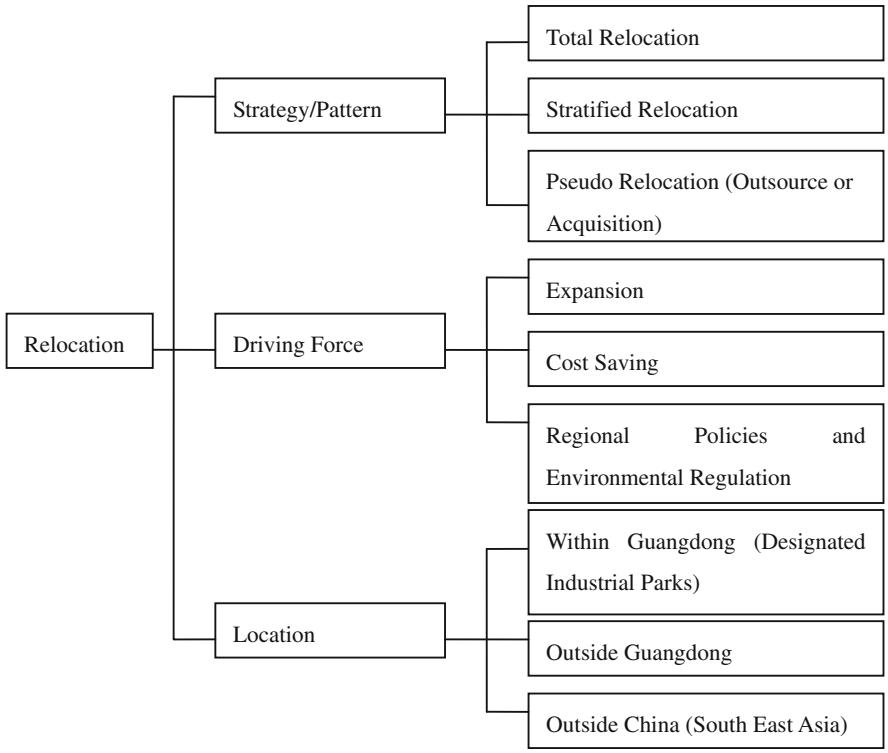

Fig. 3 A conceptual diagram on the relocation of Hong Kong manufacturing firms. *Source* Authors

manufacturing in the PRD and 36.3% of reported Hong Kong manufacturing firms have planned to relocate somewhere else beyond the PRD.

Location choice is another central problem for Hong Kong manufacturing firms aiming to relocate outside the PRD. Such relocation destinations can be further divided into three categories (see Fig. 3): relocation within the Guangdong province, and relocation outside the Guangdong province or even relocating to the other low cost countries like Vietnam. Figure 3 depicts the major destinations of relocation for Hong Kong manufacturing firms.

The survey of CMA mainly highlighted that most of Hong Kong manufacturing firms are planning to move to other cities within the Guangdong province (see Fig. 4). According to another survey of FHKI, central and western provinces in the mainland are also not the ideal destinations for Hong Kong manufacturing firms. During our interviews, the communication and business connection with the factories or assembly facilities in the PRD appear to be another important concern of Hong Kong firms. Especially for some suppliers, because of the rising logistics cost, the other cities outside the PRD like, Heyuan are more favorable. One of the interviewed Hong Kong suppliers of electronic component relocating to Huizhou mentioned, caused by the business relationship with the factories in the PRD, the most

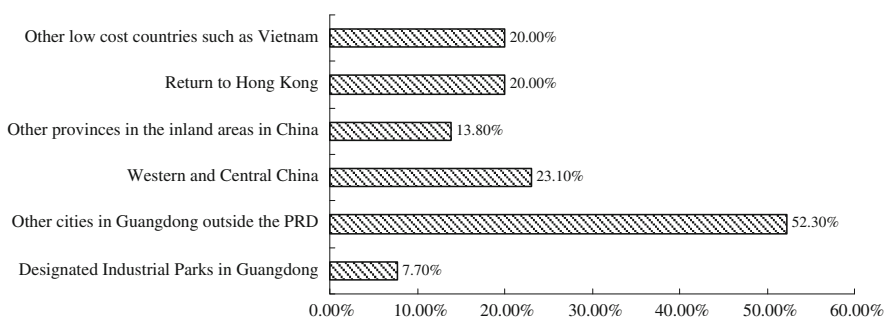

Fig. 4 Destinations of relocation for Hong Kong manufacturing firms in the PRD. *Source* CMA 2008

feasible sites of relocation may be limited to the cities in Guangdong especially Heyuan and Meizhou (Interview in Foshan, February 2008). So at this stage, other cities in the Guangdong become the most popular destination of relocation, which also leads to a further examination on the detailed relocation strategies adopted by Hong Kong manufacturers in the next section.

Total relocation: a case study of fountain set (holdings) ltd

As mentioned before, most Hong Kong manufacturing firms specializing in labor intensive and polluting-prompt industries were forced to relocate outside the PRD. Most Hong Kong manufacturing firms in these specific industries such as textile and garment, toys and electroplating have to move to other industrial parks outside the PRD.

In this respect, Hong Kong Fountain Textile is a typical example to illustrate how the changing policies of environmental regulation in the PRD have a huge impact on the Hong Kong Textile manufacturers in the region. Fountain Set (Holdings) Ltd is the world's largest circular knitted fabric manufacturer and has integrated operations in spinning, knitting, dyeing, printing and finishing. Headquartered in Hong Kong and listed on the Hong Kong Stock Exchange, the company has played an important role of key supplier for many garment manufacturers from all over the world.

The relocation strategies were put forward by the senior executives of Fountain Set (Holdings) as a long term strategy. In the interview, Dr Gordon Yen, executive director of Fountain Set, highlighted that, the steep pollution fine imposed on Fountain Set's factory in Dongguan in 2006 has urged the company to completely relocate outside the PRD. The company also claimed that the long run industrial relocation is a right decision. However, they also reported that the textile industry can no longer suit the industrial policies in the PRD even though they have put efforts to improve their technologies.

As the CEO of Fountain Set mentioned, the textile industry as a whole was categorized into the prohibited industries in Dongguan. The relocation strategies reflected the earlier consideration of the tightening local policies in the PRD. Rather than completely leave for other inland areas outside the PRD, translocation of the factory in Dongguan to Jiangsu at that time is to minimize the risks by scattering the facilities i.e., expansion. However, according to the new environmental regulation in the Chang'an Town in Dongguan, the CEO of Fountain Set mentioned that the company has to accelerate the relocation of the manufacturing facilities to the Xinjiang Autonomous Region. He also pointed out that moving to the Xinjiang can significantly save the production cost due to the proximity to the raw materials.

The experience of Fountain Set shows that the relocation of Hong Kong manufacturing specializing in textile industry and highly polluting industries is inevitable in the PRD. The total relocation has been regarded as the destiny of Hong Kong firms in textile and other polluting-prompt sectors. The relocation of leading firms such as Fountain Set will urge the industrial location of their suppliers. In this case, Chang'an, which was once a significant town with a geographical concentration of textile industry, has to face a sharp decline in terms of exports and GDP. The case of Fountain Set also casts doubt on why Fountain does not improve the technologies and stay in Chang'an.

In fact, the interview further reflected that the fragmented implementation of environmental standards keep Fountain from investing in environmental facilities. As the CEO of Fountain mentioned:

> "The regulations have been there all the time, the difference comes from implementation. In cities where the rules are applied loosely, factories can get away without any pollution control and manage to maintain a competitive price for their products at lower cost, whereas factories in places with tougher standards, have to bear higher cost incurred from pollution control measure and relegate to a less competitive position." (FHKI 2008)

The case of Fountain Set illustrates that the total relocation of the manufacturing facilities from Dongguan is pushed by the local rigid environmental regulation and also pulled by the loose pollution control elsewhere. Finally, the original textile man-

ufacturing industrial district will completely be relocated outside the PRD.

Stratified relocation: the Rambo chemicals company

In contrast to the aforementioned total relocation strategies, Rambo Chemicals, a medium-size technology and product supplier of surface combination of refinery chemicals and process innovation, has adopted the so-called "stratified relocation strategies". This reflects that Hong Kong firms are selective and flexible to the changing institutional environment and the connection with the industrial chains in the PRD is also crucial during the relocation. The case of Rambo Chemicals also demonstrates many Hong Kong manufacturing firms have started to take a gradual strategy to the increasing stringent environmental regulations in the PRD on the one hand and make use of the low-cost labor and land in the inland areas on the other.

Since its establishment in 1985, Rambo Chemicals has been investing continuously into the technological innovation and developed patent processes in metal strippers, electronic and base metal plating. In the 1990s, Rambo set up its factory in Shenzhen focusing on lower end products. Meanwhile, the factory in Hong Kong produced high-end products (FHKI 2008). However, the recent environment regulation in the PRD towards chemical production especially electroplating in Shenzhen was transformed from restrictive to prohibitive. In the latest round of industrial relocation, electroplating is again a target industry and labeled as "resource-intensive, high energy consumption and high pollution". In an interview in 2008, the managing director of Rambo Chemicals pointed out that

> "A well adapted company should try to develop those products that are encouraged by the industrial policy and avoid those restricted by the policy." (Interview by FHKI, February 2008)

When it comes to relocation, Rambo Chemicals has already pioneered in this effort by relocating its factories to Hunan Province and Huizhou city in Guangdong. The objectives that prompt the relocation of Rambo Chemicals are driven by both the corporate strategies to minimize the impact of local policies and to lower the cost of production. In the meantime, the Rambo Chemicals also realizes the importance of develop so-called green manufacturing over the long run. However, because of the fierce competition between Rambo and other small and medium suppliers, Rambo also has to relocate. Mr. Kwok, the managing director of Rambo Chemicals, mentioned in the interview,

> "We have neither the capacity, nor the space or even confidence to comply with the environmental directives." (Interview by FHKI, February 2008)

In comparison with most Hong Kong manufacturing firms specializing into low end production activities with high pollution, Rambo Chemicals applied the "stratification strategies", i.e., classifying its products into different value groups and relocating the production lines of low-end products to low cost areas. In the early 2000s, a new factory in Huizhou was set up to augment the production capacity in Shenzhen. In 2004, another production base was established in Qingzhou, Hunan Province to cut production cost. Mr. Kwok further pointed out that one of the important reasons of relocation to Qingzhou in Hunan refers to the lower standard of environment regulation in the inland areas and the cheaper labor cost. At present, in addition to the Hong Kong headquarter, Rambo will completely relocate its operation in Shenzhen to Huizhou. In the mean time, the factories in Hunan will be expanded with emphasis on electronic plating and low end production.

The case of Rambo shows how Hong Kong manufacturing firms involving in a variety of products have changed their location strategies to facilitate their operation in the mainland. Through such "stratified relocation", Hong Kong manufacturing firms need to coordinate their operations in the PRD and the new factories in the inland areas. These strategies may provide assistance for Hong Kong manufacturing firms to keep its operation and save cost during the relocation. While the Rambo is a medium size enterprise with long-term objective of the so-called green manufacturing, as a supplier involving electroplating, the fierce competition with other suppliers without rigid environmental regulation, keeps Rambo from investing heavily in the environmental facilities. The case of Rambo also

reflected that, the suppliers involving the high pollution production have to keep their connection with the industrial districts in the PRD. The interviews demonstrated that these suppliers, such as the electroplating factories are very important to the electronics industrial district in Dongguan. So while relocation, these suppliers also need to serve the buyers or assemblers in the PRD, which in turn, limit their location choices during the relocation.

"Pseudo relocation": cases of Carment fashion and Maochang Yulon textile

In addition to the stratified and total relocation strategies, some Hong Kong manufacturing firms adopt the so-called "pseudo-relocation" strategies to maintain or lower their cost of production. These strategies include acquisition or outsourcing to the domestic enterprises in the inland areas. These strategies are basically in association with the nature of Hong Kong manufacturing firms with reference to their flexibilities and the boom of domestic manufacturers on the mainland side. The case of Carment Fashion and the Maochang Yulon Textile are two typical examples.

Carment fashion is a small size OEM producer serving the buyers from the Europe and the US. In response to the rise of labor cost and higher environment standards in the PRD, Carment Fashion has to close down some of their production lines and to source the materials from some domestic suppliers in Jiangxi. The managing director addressed that in the past, the quality of domestic suppliers can not satisfy Hong Kong manufacturing firms. The situation began to change since the early 2000s. Domestic suppliers have played important roles in supplying. In order to save cost and cope with the new business environment in the PRD, Carment Fashion has also outsourced and shut down some product lines. The aforementioned managing director of Carment Fashion mentioned that in order to maintain the competitiveness, outsourcing to the domestic suppliers in some other cities in the PRD like Jiangmen, Nanhai, Panyu and even some large state-owned factories in the inland areas is quite common now (Interview in Foshan, February 2008). In comparison with relocating the production lines to the inland areas, outsourcing is *de facto* a better choice for small and medium scale Hong Kong manufacturing firms to deal with the restricted environment regulation and industrial policies in the PRD. Even some interviewed Hong Kong manufacturing firms highlighted that they need to transform from the pure manufacturers to businessmen and traders.

Another case to illustrate the so-called "pseudo relocation" of Hong Kong manufacturing firms refers to the acquisition of the domestic manufacturing firms in the inland areas to achieve the objective of lower production cost. In this respect, Yulong Maochang Textile, a Hong Kong based company specializing into the textile and garment industry, is a good case to illustrate this point. Yulong has established some garment production lines in the PRD in the 1990s. In order to seek a lower cost to continue the garment and textile production and achieved the group's integrated clothing development. In 2003, Yulong acquired one of largest state-owned enterprises in Lechang city in the northern Guangdong, bordering Hunan province. Through acquisition with the original Lechang Maochang Textiles, Yulong International can take advantage of the equipment, licenses, and technical workforce in Maochang Textiles Co. Ltd. Furthermore, Maochang also saved a lot of cost to set up a new factory in Lechang or relocated some of their facilities in the PRD to the northern Guangdong (HKTDC 2007).

The cases of Carment Fashion and Yulong Maochange Textiles demonstrate how Hong Kong manufacturing firms take advantage of the resource and growing competitiveness of domestic manufacturers in the inland areas. Because the domestic manufacturers in the mainland have been supported and developed their high-quality products in recent years, the so-called "pseudo strategies" i.e., outsourcing and acquisition of domestic enterprises in some low-cost areas in the mainland have become more popular among Hong Kong firms in the PRD. These strategies can not only lower the cost of relocation, but also can be regarded as the strategic cooperation between Hong Kong and domestic manufacturers in the mainland. In this regard, the difference between Hong Kong and domestic manufacturers in the mainland China are blurred, which is to facilitate the relocation and transformation of Hong Kong manufacturing firms in the PRD (see also Yang 2007).

To sum up the above four case studies, in contrast to the last round of relocation from Hong Kong to the

PRD, Hong Kong manufacturing firms have transformed their spatial strategies. In order to cope with the new institutional environment in the PRD especially the rigid environmental regulation, Hong Kong manufacturing firms specializing in production with high pollution have to move completely to the inland areas. Moreover, the stratified relocation strategies have applied to the manufacturers involving some segments of production with high pollution or characterized by labor intensive. More interestingly, in order to utilize the well-qualified domestic suppliers in the mainland, some Hong Kong manufacturing firms also employed the so-called "pseudo relocation" strategies to outsource or acquire the domestic manufacturing firms. As a result, the industrial districts or industrial space in the PRD driven by Hong Kong manufacturing firms are likely to the spatially expanded with respect to the location of manufacturing facilities. In the next section, the role of Hong Kong in this round of relocation will be examined to generate the whole picture of the industrial space of Hong Kong manufacturing firms beyond the PRD.

New function of Hong Kong to Hong Kong manufacturing firms?

Besides the relocation of manufacturing facilities, Hong Kong firms surveyed by FHKI also demonstrated that Hong Kong still acts as an important business hub providing producers service for Hong Kong manufacturing firms. The survey reported that Hong Kong offices acted mainly as regional headquarters and Guangdong factories were responsible for production and logistics. However, it should be noted that more financial management and IT functions have gradually moved to the PRD (FHKI 2007) (see Table 5).

While Hong Kong manufacturing firms take Hong Kong to manage their marketing and sales, some, 5.9% of the firms surveyed have indicated their intension to relocate their R&D departments to the PRD. In one of our interviews, one Hong Kong manufacturer mentioned that the situation in the PRD has changed significantly. They have strengthened their R&D function in Shenzhen to make use of the high calibrate talent while they also expect Hong

Table 5 Division of labor between Guangdong and Hong Kong

	Regional headquarters (%)	Sales/ marketing (%)	Research and development (%)	IT management (%)	Procurement of materials (%)	Financial management (%)	Logistics (%)	Production (%)
Existing division								
Mainly in Hong Kong	66.00	50.80	41.50	39.20	37.30	27.80	21.10	6.50
Mainly in Guangdong	21.00	30.50	25.70	26.80	36.90	31.40	45.00	77.60
Forecast division								
All operation in HK	5.10	5.40	1.90	1.10	0.80	1.50	1.00	0.50
Increase the share of operation in HK	18.10	24.10	18.20	18.40	18.80	11.10	9.80	7.00
Increase the share of operation in GD	5.60	10.10	16.10	20.30	27.10	16.30	30.00	40.90
All operation in GD	0.50	0.30	5.90	4.70	7.10	2.40	7.20	15.80

Source: FHKI (2007)

HK Hong Kong; *GD* Guangdong

Kong continue to play a dominant role in sales and marketing (Interview in Shenzhen, Sep 2008). In brief, Hong Kong still maintains its function as a regional headquarter and to coordinate the firms' operations in the mainland.

In contrast to sole export oriented production, the transforming division of the PRD and Hong Kong is also in association with the changes of the market strategies of Hong Kong manufacturing firms. The survey of FHKI detailed that nearly 40% of surveyed Hong Kong manufacturing firms have tapped into the domestic market (FHKI 2007). Our study also complies with Yang (2007)'s study, highlighting that the traditional "front shop, back factory" model in which the PRD functions as the pure production base and Hong Kong acts as an entrepot is oversimplified according to the transformation of Hong Kong manufacturing firms.

It is anticipated that the further relocation of the producers' services such as financial management, logistics and R&D will affect the Hong Kong's role to support Hong Kong manufacturing firms. In order to exploit the export and domestic markets and correspond to the new institutional environment in the PRD, Hong Kong manufacturing firms are trying to synergize different endowments in the PRD, inland areas and Hong Kong. So the traditional model of "front shop, back factory" has been expanded and transformed in the new context in terms of the market orientation and the location of manufacturing facilities.

Concluding remarks

The industrial relocation of Hong Kong manufacturing firms recently has suggested some important questions, compared with the relocation of Hong Kong manufacturing firms in the PRD in the 1980s and 1990s (see Table 6). Emphasizing the most recent industrial relocation of Hong Kong manufacturing firms, this paper continues the recent concerns of the transformation of Hong Kong manufacturing firms (Yang 2006, 2007) and the restructuring of the PRD model (Lu and Wei 2007) by analyzing the updated relocation of Hong Kong manufacturing firms in the PRD. The paper also summarizes the relocation process, destination choices, driving forces and relocation strategies adopted by Hong Kong firms in details (see Table 6).

The relocation of Hong Kong manufacturing firms firstly complements the research on the relocation of MNEs through a case study of the relocation of MNEs at the regional scale within countries (Brouwer et al. 2004; Wei et al. 2007). In addition, although the relocation of Hong Kong manufacturing firms spatially resembles the flying geese model, the underlying dynamics are different particularly referring to the regional policies and local institutions. In contrast to the relocation of Hong Kong manufacturing firms from Hong Kong to the PRD, the ongoing relocation of Hong Kong manufacturing firms is more or less under the pressure of environmental regulation from

Table 6 Two phases of industrial relocation and their respective strategies

	Relocation until mid 1990s	Relocation since the early 2000s
Origins	Hong Kong	The PRD and Hong Kong
Driving forces	Low labor and land cost in the PRD	Low labor and land cost in association with the intervention of local governments with emphasis on upgrading and sustainable environment
Destination	The PRD	Mostly relocate to the cities outside the PRD within Guangdong; some moved to western and central regions in China; few planned to move to other countries outside China
Division of labor	"Front shop, back factory"	Hong Kong still acts as the regional headquarter with emphasis on sales and marketing. Financial management and R&D have expanded to the PRD
Effects	Industrial districts in the PRD driven by the external forces	Restructuring of industrial districts in various sectors according to different relocation strategies adopted by Hong Kong manufacturing firms
Strategies	Total relocation of manufacturing facilities to the PRD	(1) Total relocation (2) Stratified relocation (3) Pseudo relocation (cooperation with the domestic manufacturers in the mainland)

the local governments in the PRD. In addition, Guangdong provincial government has also tried to play a proactive role of directing and formulating the attractive policies in the relocation cities. The policies of "designated industrial parks" and *teng long huan niao* that encourage relocation can be a typical example to illustrate the nature of this round of relocation. It also shows that the relocation process in China has to consider the role of the state, which is often deemphasized in the literature on districts (Walcott 2002; Wei et al. 2007).

Spatially, the relocation will bring about the expansion of the industrial space driven by Hong Kong manufacturing firms in the future and play an important role in the restructuring of industrial districts in the PRD. It is expected that the industrial districts specializing into the production of different products will experienced a different spatial restructuring process based on the total, stratified and pseudo relocation strategies adopted by Hong Kong manufacturing firms. In particular, in the third type of relocation strategies, i.e., acquisition and outsourcing, basically demonstrated the components of the PRD model which is based on the external force are being transformed by embedding both Hong Kong and domestic firms. So the notion of PRD model or "back factory, front shop" model can no longer fully conceptualize the details of the spatial distribution of the facilities coordinated by Hong Kong manufacturers, which is moving toward a mixed model with specific considerations in various industrial districts originally located together in the PRD.

In conclusion, the paper has illuminated the trajectories of the expansion of the industrial space in the PRD region in the wake of the relocation strategies initiated by the Hong Kong manufacturing firms. The region is experiencing another wave of transformation through decentralization, marketnization and globalization. Although the relocation of Hong Kong manufacturing firms has just started, the industrial space shaped by Hong Kong investment is facing a spatial restructuring accompanied by the underlying transformation of Hong Kong firms. Based on the specific relocation strategies adopted by Hong Kong manufacturing firms, an expanded industrial space of Hong Kong manufacturing has emerged. Hong Kong manufacturing firms may not only agglomerate in the PRD region but are experiencing spatially restructuring. However, relocation is just one of the responses to the restructuring of industrial districts, partly reflecting a slow upgrading of Hong Kong manufacturing firms. On the other hand, in consideration of the long-term sustainability and competitiveness, Hong Kong manufacturers can not rely on relocation to solve the cost problem, but to improve its overall competitiveness by moving up the value chain and upgrading (FHKI 2008).

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