Coastal China's urban-rural spatial restructuring under globalization

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18 chapter

In China's impressive dash to achieve economic development and modernization, its cities, especially those located in the coastal regions, have acted as catalysts, launching the nation on a trajectory of meteoric social transformation and economic uplift.

Because of existing strengths such as economic agglomeration and large concentrations of population, much of the early impulse toward economic development in post-reform China was concentrated in the coastal regions of the country, especially in the Pearl River delta, the Yangtze River delta, and the Bohai Bay area in northern China. Urban and regional development in these three regions has centered on a few large cities such as Beijing, Guangzhou, Shanghai, Shenzhen, and Tianjin, because of their favorable initial conditions, coastal location, their attraction for foreign investors, and the presence of strong state-owned enterprises and active municipal governments.

Development in these regions and cities has been stimulated both by the forces of globalization, notably through foreign investment and international trade, and by internal forces, such as local development initiatives, decentralization, and marketization. The strong force of urban agglomeration in coastal China has produced a model of development that is led by large cities. At the macro level, the most important and obvious change is the exceptionally rapid growth of China's cities during the reform period. The number of cities in the country grew from 223 in 1980 to 649 in 2004. The number of mega cities with more than 2 million inhabitants also grew, from 7 to 21, and cities with 1 to 2 million inhabitants mushroomed from 8 to 30 during the same period.

Rapid urban restructuring both within cities and across regions has been the result of bold changes in policy. The first such policy change was the decision of the central government to permit the decentralization of authority to provinces, cities, counties, and even enterprise units. With the launching of an open-door policy, the authority to develop a piece of land was decentralized to such an extent that every unit of authority now vies for the opportunity to control development and generate revenue. Naturally, this has created excessive competition among different levels of government. The result has been wasteful redundancy and inefficient land use practices. A footnote to the decentralization of power to cities, which allowed them to make plans for their development, is the fact that certain cities, like Shantou, Shenzhen, Xiamen, and Zhuhai, were designated special economic zones (SEZs) in 1980 or thereabouts and given the specific power to experiment with new policies. For example, in 1987 Shenzhen held the first land auction in post-1949 China. It was modeled after the Hong Kong system of government ownership of land, with leaseholds granted by the state for a specified period of time in exchange for a fee. The land lease model, having been implemented successfully in Shenzhen, has since been widely replicated across cities in China, even in faraway inland cities. The spread of this model

has been critical to the ability of Chinese cities to pursue rapid physical growth and modernization.

Apart from the fact that the leasing of land provided a major source of revenue for city administration, another factor that changed the fiscal position of cities is the change, implemented during the reform period, in the central government's fiscal relations with provincial governments as well as with subordinate units such as cities. Since 1978, the central government has progressively relaxed the highly centralized fiscal system, giving provinces and cities a much greater degree of freedom to pursue development. Various practices that have been implemented at different times and in different provinces include the contracting out of fiscal duties, the remittance of a fixed proportion of a locality's fiscal surplus to the central government, the sharing of revenues between the central government and the provinces, the launching of tax-for-profit reforms, and the assignment of taxes. In the spirit of openness and decentralization, the central government has taken a more liberal attitude toward fiscal administration and has fine-tuned or adjusted policies when it has perceived the need to do so.

During the reform period, the coastal provinces of Fujian and Guangdong enjoyed preferential policies, while the three provincial-level municipalities of Beijing, Shanghai, and Tianjin were kept under tighter control. Since 1994, Shanghai has also enjoyed a "tax-sharing system" of the sort previously implemented only in Fujian and Guangdong (Yeung and Sung 1996: 9). Shanghai's rapid development since the early 1990s can be traced in part to this fiscal reform. The changes in China's fiscal system since 1978 have led to a situation in which the tax revenues of a locality are strongly and positively associated with its level of development and rate of urbanization. Moreover, the fiscal reforms have created uneven fiscal relations between the center and different provinces, contributing to regional inequalities (Shen 2005; Wei 1996).

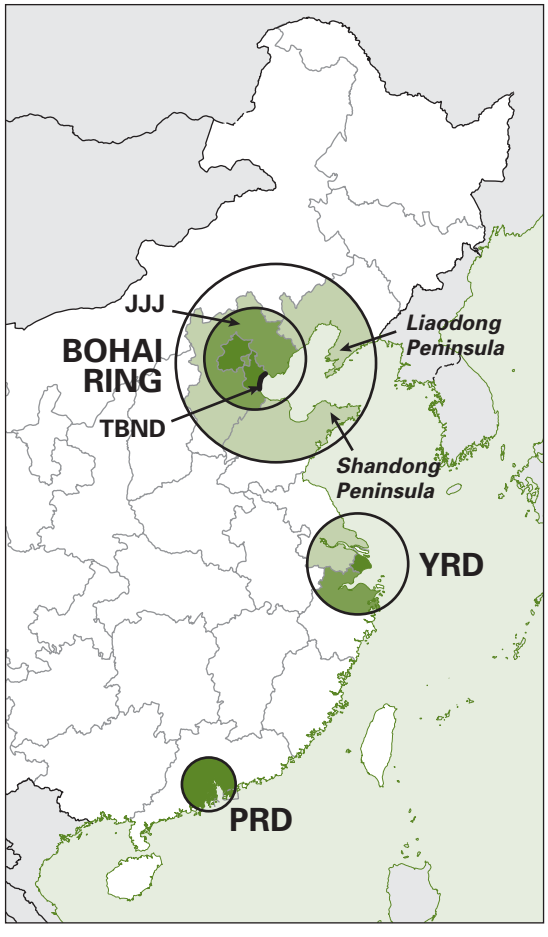
The third factor in the restructuring of Chinese cities in the reform period is the fact that urban development became premised more on market principles than on central planning. The result has been a profound change in the development landscape, with the relative decline of the industrial north and northeast areas that had been favored since the mid-1950s in previous national development plans. Instead, the decentralization of decision making has led to the emergence of the coastal regions and the south as new centers of growth, with their cities powering ahead of the rest of the country in development. An analysis of the gross domestic product (GDP) of the various provinces from 1978 to 1995 has borne out this dramatic shift in the focus of development to the south (Lin 1999). This shift has also led to a change in the relationship between cities in China and in the proportion of cities of different sizes. Whereas in the pre-reform period the urban hierarchy was organized by vertical linkages and political functionality, cities are now shaped primarily by horizontal connections and economic exchanges. The number of cities has vastly increased. As noted, small and medium-size cities in particular have proliferated. The pace of the increase is astonishing. Consequently, since 1978, China's spatial transformation can be characterized as a reorganization of spatial relationships between northern and southern China, between large cities and small towns, and between cities and the countryside (Lin 1999).

The fourth factor follows from the rise of small towns and cities: the mushrooming of township-and-village enterprises (TVEs) across coastal China during the reform period. In the reform period, rural urbanization was led by the TVEs, with the active participation and support of local governments. Their growth and expansion have been major components of locally driven urbanization, or urbanization from below. This has given rise to the phenomenon of dual-track urbanization, a process in which the nonagricultural population of cities has grown rapidly, complemented by rural urbanization generated from below (Shen 2006). The rapid growth of small towns and cities has, to a degree, been fueled by the long-standing urban planning guideline of strictly controlling the growth of large cities and promoting the growth of

small and medium-size cities. This planning guideline has not been adhered to strictly, as can be seen by the rapid growth of very large cities, a result that is compatible with economic logic and trends in urban development at the global level.

The fifth and final factor accounting for the rapid change in the urban landscape in contemporary China is the *hukou* (household registration) system, established in 1958 to control population movements and essentially immobilize the urban and rural populations. In 1984 the government began to relax what had previously been a rigid system. Since then, rural migrants have descended en masse on coastal cities. Referred to as a temporary or floating population, rural migrants provide the crucial labor force for urban construction and a wide variety of services, especially in "3-D" occupations—that is, those that are dirty, dangerous, and difficult. Recent estimates have placed the temporary population of China at around 120 million. These migrants are not counted in official statistics on the *hukou* population, which means that many urban population figures, especially those for large coastal cities, clearly underestimate the real situation, because a quarter to a third of the population of such cities can be traced to this source. Cities like Shanghai and Shenzhen have introduced "blue stamp" *hukou* to cope with some "floaters," but many cities have found these new migrants to be both a boon and a bane (Yeung 2002).

Figure 18.1 Three coastal regions in China



Note: JJJ refers to the Beijing-Tianjin-Hebei (Jing-Jin-Ji) region; TBND refers to Tianjin Binhai New District. YRD refers to Yangtze River delta. PRD refers to Pearl River delta.

The following sections examine the process of urban development and spatial restructuring in the economically most advanced regions of the country: the Pearl River delta, the Yangtze River delta, and the Bohai Bay area (see figure 18.1). More than any other part of the country, these three coastal regions have been influenced by the forces of globalization, which have been accelerating since the early 1980s. The timing has been fortuitous for China, as this development has coincided with the early phase of the country's opening to the outside world. The conjuncture of these two processes has been highly beneficial for China's rapid development. Tables 18.1 and 18.2 present a summary of the main demographic and economic indicators for Beijing, Guangzhou, Shanghai, and Shenzhen, four major cities in the three regions. In 2005 each city had a population of more than 8 million. They are the most advanced cities in China, with per capita GDP well over the national average. The rest of the chapter refers to these tables from time to time.

Guangdong and the Pearl River delta

In the early 1980s, the provinces of Fujian and Guangdong were chosen to carry out experiments under China's open-door policy, largely because of their history of early contact with Western countries; thus they were considered to be more in tune with worldly developments than other areas of the country. These two provinces were allowed more flexibility in trying out new

Table 18.1 Demographic and GDP indicators of Guangzhou, Shenzhen, Shanghai, Beijing, and China, 1980–2005

Year	Guangzhou	Shenzhen	Shanghai	Beijing	China
Area (thousand square kilometers)					
2005	7.4	2.0	6.3	16.4	9,600.0
Population (millions)					
1980	5.02	0.33	11.57	9.04	987.05
1990	6.30	1.68	13.32	10.86	1,143.33
2000	9.95	7.01	16.21	13.64	1,267.43
2005	9.50	8.28	17.99	15.38	1,307.56
Population density (persons per square kilometer)					
1980	427	170	1,870	551	103
1990	847	859	2,101	662	119
2000	1,338	3,591	2,556	831	132
2005	1,277	4,239	2,837	937	136
GDP (current price, yuan billion)					
1980	5.8	0.3	31.2	13.9	454.6
1990	32.0	17.2	78.2	50.1	1,871.8
2000	249.3	218.7	477.1	316.1	9,800.1
2005	515.4	495.1	916.4	688.6	18,395.6
GDP per capita (current price, yuan per person)					
1980	1,160	835	2,719	1,544	463
1990	5,418	8,724	5,891	4,635	1,644
2000	25,626	32,800	29,786	24,122	7,858
2005	53,809	60,801	51,461	45,444	14,040
Average annual growth rate of GDP (based on fixed price, percent)					
1981–90	11.8	35.7	7.4	8.8	9.3
1991–2000	16.6	23.2	12.3	11.0	10.3
2001–05	13.8	16.3	11.9	12.0	9.9
1981–2005	14.1	26.6	10.2	10.3	9.8

Sources: Compiled or calculated using data from BMBS (2006); DCA and MPH (2000); GDPBS (1992, 2006); GMSB (2006); NBS (2006); SMSB (2001, 2006); SSB (2006); Guangzhou Economic Yearbook Editorial Committee (1983).
Note: All population data refer to usual residents, except the 1980 figure for Guangzhou, which is based on *hukou* population. The 1990 figure for Guangzhou is from the 1990 census (GDPBS 1992: 132).

policies, particularly with respect to luring foreign investment and promoting trade and development. The SEZs and development zones were allowed even greater freedom to pursue new development policies. Similarly, from 1984 onward, China's coastal cities, including Guangzhou and Zhanjiang in Guangdong, were allowed more leeway to pursue development and experimentation (Yeung and Hu 1992).[1]

Fiscal reform constitutes a critical dimension of economic reform in China and has had a powerful impact on regional development. As early as 1979, Fujian and Guangdong were candidates for fiscal experimentation. For the first time, Guangdong enjoyed great fiscal autonomy by being allowed to remit a lump sum to the central government for five years, much to the envy of other provinces. In 1988 Guangdong was allowed a fixed quota, with adjustments for growth, in which the central government's share was small. Shenzhen was exempt from remitting anything at all to the central government for 10 years, until 2003 (Shi 2003).

Within Guangdong, the most developed area of the province consists of nine prefecture-level cities—Dongguan, Foshan, Guangzhou, Jiangmen, Shenzhen, Zhongshan, Zhuhai, and part of Huizhou and Zhaoqing—that form the Pearl River delta region (see figure 18.2). They make up

Table 18.2 Share of secondary and tertiary industries in GDP, exports, and realized foreign capital in Guangzhou, Shenzhen, Shanghai, Beijing, and China, 1980–2005

Year	Guangzhou	Shenzhen	Shanghai	Beijing	China
Share of secondary industry (percent)					
1980	54.5	26.0	75.7	68.9	48.2
1990	42.6	44.8	64.7	52.4	41.3
2000	41.0	49.7	46.3	32.7	45.9
2005	39.7	53.2	48.6	29.4	47.5
Share of tertiary industry (percent)					
1980	34.6	45.1	21.1	26.7	21.9
1990	49.3	51.1	30.9	38.8	31.8
2000	55.2	49.6	52.1	64.9	39.3
2005	57.8	46.6	50.5	69.2	39.9
Exports (US$ billion)					
1980	0.19	0.01	4.27	0.59	18.12
1990	2.36	8.15	5.32	1.12	62.09
2000	11.79	34.56	25.35	4.63	249.20
2005	26.67	101.52	90.74	17.10	761.95
Realized foreign capital (US$ billion)					
1980	0.03	0.03	0.02	—	1.98
1990	0.27	0.52	0.18	0.39	10.29
2000	3.12	2.97	3.16	1.68	59.36
2005	2.84	4.02	6.85	3.53	63.81

Source: Compiled or calculated using data from BMBS (2006); GMSB (2006); Guangzhou Economic Yearbook Editorial Committee (1983); NBS (1982, 1991, 2001, 2006) SMSB (2001, 2006); SSB (2006).
Note: 1980 figure for Guangzhou exports is from Guangzhou Economic Yearbook Editorial Committee (1983: 557) and converted to U.S. dollars using the 1981 US$ to yuan exchange rate from NBS (1982). Realized foreign capital refers to 1981 for Shanghai in 1980 and to 1983 for China in 1980. Realized foreign capital for Shenzhen in 2005 excludes foreign loans.
— Not available.

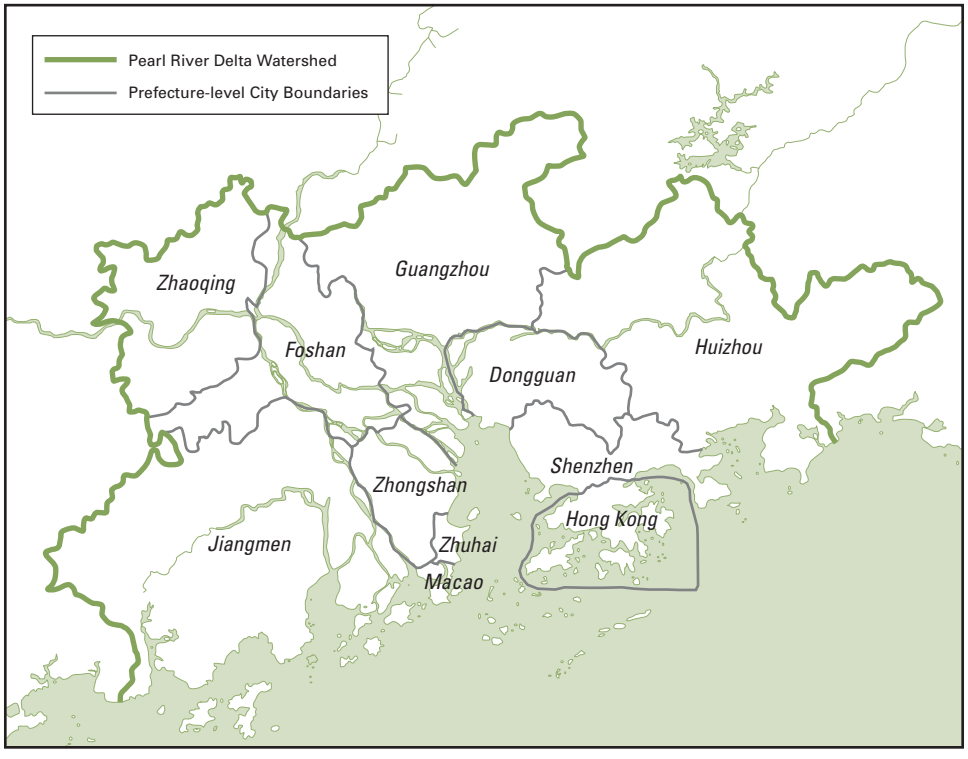
23 percent of Guangdong's land area but contribute 80 percent of its GDP, or one-tenth that of the nation. The Pearl River delta has achieved a level of urbanization of 72.7 percent (*Ta Kung Pao*, January 18, 2005). These figures speak volumes about the achievements that the Pearl River delta has made after almost three decades of openness. By now, the delta has developed into the country's largest production center for the electronics and information technology industries, accounting for as much as 40 percent of the world's production of some computer components (Chen and others 2003: 38). A large proportion of the nation's production of home appliances is manufactured in this province, such as electric fans (88.2 percent), air conditioners (38.2 percent), bicycles (35.7 percent), and refrigerators (25.1 percent; Chen and others 2003: 25; also Enright and others 2003: 40).

One of the most fundamental changes in Guangdong in the reform period has been the structural change of its economic base from an agricultural to an industrial orientation. The ratio of the contribution of the primary, secondary, and tertiary industries to Guangdong's GDP has changed sharply, evolving from 33.2, 41.1, and 25.7 percent, respectively, in 1980 to 6.0, 51.3, and 42.7 percent, respectively, in 2006 (GDPBS 2007). In 27 years, the secondary sector has become far more important, and the tertiary sector has grown rapidly, at the obvious expense of the primary sector. In 1980–2005 Shenzhen led the province with a rising secondary sector and a stable tertiary sector, while Guangzhou experienced a significant increase in the share of the tertiary sector (table 18.2).

Density, agglomeration, and economic growth

Many factors are behind the rapid economic development that has occurred in the Pearl River delta since the early 1980s. One is the agglomeration effects of towns and cities that

Figure 18.2 The Pearl River delta region and its constituent cities



Source: Yeung (2003: iv).

have found a particular niche in economic production. Many towns in the region, especially in the western wing of the delta, have achieved success in concentrating on and perfecting a single industry, a phenomenon that has been dubbed "one town, one industry" (Yeung, Shen, and Zhang 2005). Many of these towns and cities have grown at an astonishing rate, both in economic output and population. New cities that had been accorded special status, such as the SEZs of Shenzhen and Zhuhai, have grown even faster, with the former exploding from a border town of only 0.33 million inhabitants in 1978 to a metropolis of 8.28 million in 2005 (SSB 2006). The population of Shenzhen grew rapidly in the 1990s, and its population density reached 4,239 persons per square kilometer by 2005, the highest among cities in mainland China (table 18.1).

Another factor spearheading urban-regional change is the role played by Guangzhou, the provincial capital. While it grew more slowly than Shenzhen in the 1980s, Guangzhou caught up rapidly in the 1990s (table 18.1). Guangzhou adopted a new spatial policy of "expansion in the south, optimization in the north, advancement in the east, and linkage in the west." True to the spirit of this policy, Guangzhou developed the mammoth new Baiyun airport in the north in 2004 and gained direct access to the sea in the south by annexing Panyu in 2000. Toward the west, the Guangzhou-Foshan twin-city region is being consolidated. In an easterly direction, Guangzhou has been expanding and consolidating its land transport network with Dongguan. Guangzhou has other infrastructure development plans that are envisaged to enhance its pivotal geographic role in the province, through the purposeful construction of new expressways, railways, and light railways. Guangzhou and Shenzhen grew faster than Beijing and Shanghai throughout the period of 1980–2005. By 2005, Guangzhou and Shenzhen had a higher per capita GDP than Beijing and Shanghai (table 18.1).

The third factor that has led to the increasing density of human settlements

and to greater economic development is the dual-track form of urbanization, which was referred to earlier. The contribution of TVEs is a component of rural urbanization, with Hong Kong businessmen having invested in no fewer than 66,000 such firms.

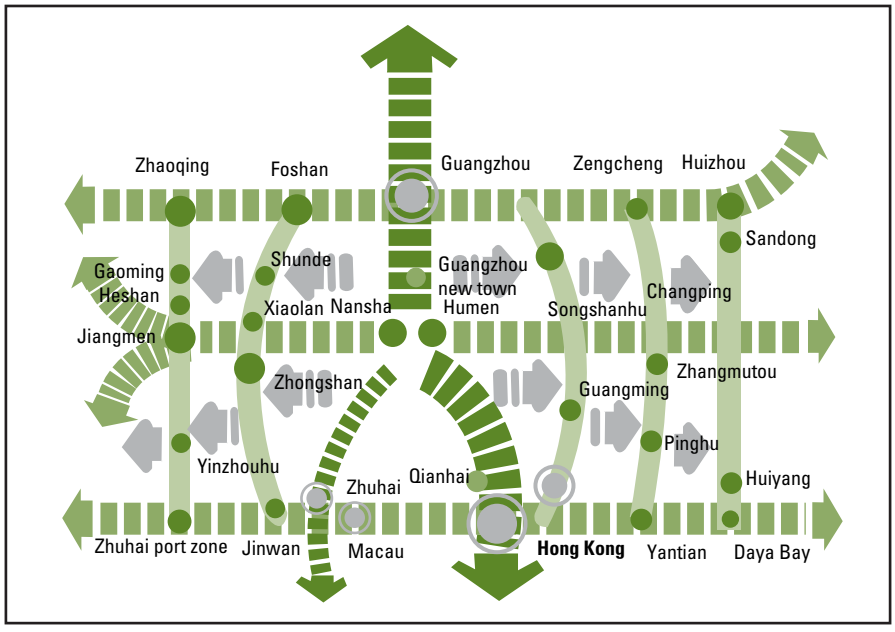
The fourth and last factor that has facilitated the concentration of economic and urban activities in the Pearl River delta is massive and sustained investments in infrastructure. Expressways, railways, ports, airports, power stations, and telecommunications facilities have developed at a breakneck pace.

The region would not have developed so rapidly had it not been for the fact that the open-door policy was attractive to Hong Kong industrialists, who were looking for ways to relocate their manufacturing operations away from the constrained environment of the city-state, which was experiencing rising wages and land prices. The town of Shenzhen, located just across a narrow river from Hong Kong, offered a plentiful amount of land and an almost inexhaustible supply of labor from all over the country, along with favorable policies for investors. Hong Kong entrepreneurs responded positively, moving their industrial production operations en masse, initially to Shenzhen and then to the next town, Dongguan, and elsewhere in the delta. A symbiotic relationship was soon established, with Hong Kong providing capital, modern management skills, and information about global markets and the Pearl River delta offering cheap land, labor, and favorable economic policies. Hong Kong has been serving as a front shop from which businesspeople face the world, handling production orders, designing products, and making major investment and management decisions, whereas the plants in the delta are engaged in the actual production process. This mutually beneficial model is widely known as the "front shop, back factory" arrangement. As many as 10 million workers are currently employed in these factories in the Pearl River delta, which are financed and managed by Hong Kong interests. Such investment also contributes to rapid growth of exports. As shown in table 18.2, Guangzhou and Shenzhen each attracted more foreign capital than Shanghai in the 1980s and 1990s, although they were overtaken by Shanghai in 2000–05. Exports from Shenzhen reached US$101.52 billion in 2005, even greater than Shanghai. It is clear that a portion of foreign investment in Shanghai targets the domestic market of China, such as the industry of car manufacturing, while Shenzhen's industry is mainly export oriented.

An idea of how the Pearl River delta has been developing into a densely populated, economically vibrant, and environmentally sustainable region can be seen in figure 18.3, which shows an urban-regional plan for the delta until 2020. This plan was adopted in 2005 by the Guangdong People's Congress. It envisages limiting the area of development in the delta to around 7,800 square kilometers, capping the population at about 65 million, and engaging in regional infrastructure planning to cope with a population of 80 million. The guiding principle of planning for coordinated development is to "strengthen development centers and create spines and corridors." More specifically, "one spine, three corridors, and five belts" is the broad spatial framework for coordinating and maximizing the urban and regional strengths of the delta (Yeung 2005). The urban-regional plan was initiated by the provincial and central authorities and designed to minimize the costly problem of redundancy and overlap that has characterized some infrastructure and other developments in the delta's cities. As the plan was undertaken and approved without the participation of the authorities of the Hong Kong and Macao special administrative regions, it is being updated by another more holistic study involving the original delta cities plus Hong Kong and Macao. Called the Greater Pearl River Delta Urban Coordinated Plan, the study is scheduled to be completed in 2008.

With Hong Kong and Macao having become part of China in 1997 and 1999, respectively, the integration of these special jurisdictions with the mainland is ongoing. In the first decade since Hong Kong's return to Chinese sovereignty, the pace of integration, whether measured by the flow of people, goods, capital, or information, has been rapid. With ever more Hong Kong people traveling, working, and retiring in the Pearl River delta and beyond, cities in the delta are increas-

Figure 18.3 Urban cluster-coordinated development plan of the Pearl River delta, 2020



Source: Yeung (2005: 9).

ingly catering to their needs, in areas such as the provision of housing, medical care, work, schooling, and so on (Yeung 2007).

Against this trend toward closer integration, some recent policies have fostered better economic relations between Hong Kong and the mainland. Notable among these are the Individual Visit Scheme and the Closer Economic Partnership Arrangement, which were announced in 2003 and implemented beginning in 2004.

Improving regional transport infrastructure

Feverish construction continues in the region. In the four years from 1996 to 2000 alone, Guangzhou invested Y 60.5 billion in urban construction, more than twice the amount of its investment in the 47 years prior to 1996 (Chen and others 2003: 108).[2] Guangdong now has 3,140 kilometers (2005) of expressways, most of them in the Pearl River delta. Guangzhou is the hub of many of these expressways, which is reinforcing the city's bid to become a leading urban center. Within a radius of 100 kilometers, the delta has five large airports that together offer a daily total of 550 international flights and 600 domestic flights. In ocean transport, container throughput in the three-port cluster of Hong Kong, Shenzhen, and Zhuhai is more than 30 million 20-foot equivalent units, surpassing any other port cluster in Asia (Chen and others 2003: 165). Connectivity between Hong Kong and the delta has continued to improve. The 5-kilometer western corridor link between Hong Kong and Shenzhen, consisting of a bridge and a highway, was opened in July 2007, followed the next month by the opening of a rail spur line to the border at Lok Ma Chau. The regional express railway linking Hong Kong with Guangzhou through Shenzhen is under construction and due for completion in 2010–14. In contrast to the situation before 1997, Hong Kong and its people clearly are increasingly taken into consideration in plans for the construction of large-scale infrastructure projects in the delta. There is little doubt that infrastructure will continue to be an important avenue along which the density of development in the Pearl River delta will thicken and lead to more economic and social gains for the people (Yeung and Kee 2007).

In the development of the Greater Pearl River delta region—that is, the Pearl River delta plus Hong Kong and Macao—the

concept of the "magic three hours" has been popularized, meaning that the aim is to enable a businessman to travel from Hong Kong to the Pearl River delta in three hours, allowing him to complete his day's work the same day (Enright and others 2003). The present direct rail link between Guangzhou and Hong Kong, which runs 12 times a day in each direction, will be halved to less than an hour. The physical connectivity between cities in the delta will continue to improve with the application of new transport and telecommunications technology.

The area of Guangdong totals 177,901 square kilometers, representing 1.9 percent of China's total area. Within the province, considerable intraregional differentiation and disparities exist. The contrast between those areas of the province that are located within the Pearl River delta and the peripheral areas is striking, both in terms of level of development and ecological endowments. Within the delta itself, there is a significant difference between the eastern and western wings. The eastern wing, represented by Dongguan and Shenzhen, has experienced rapid development during the reform period. This is primarily the result of the benefits derived from its geographic proximity to Hong Kong. The western wing, which includes Zhongshan, Zhuhai, and other cities, has lagged behind, although this area was economically and culturally more advanced than the eastern wing before the onset of economic reforms. Their economic, social, and general conditions have reversed since the 1980s, a result that is traceable to the presence or absence of the "Hong Kong factor." By the same token, much of the available land in the eastern wing has been developed, leaving the western wing, especially Jiangmen, a relative latecomer, with much more room for development (Yeung, Shen, and Zhang 2005).

Traditional studies on regional economics have postulated that, in the experience of Western countries, agglomeration effects take place in developed areas toward which labor, capital, and other factors of production flow from less-developed areas. Central cities derive advantages on account of their economies of scale, the efficiency of their markets, circulation of information, large pool of talent, and superior infrastructure facilities. This agglomeration will continue until developed areas, usually led by central cities, no longer enjoy economies of scale. At this point, faced with escalating land prices and a rising cost of living, polarization begins to reverse.

In Guangdong, the transformation from centrally planned to market-oriented development was basically completed in all 21 prefecture-level cities by the 1990s. By the end of 1994, 95 percent of all retail commodities, about 94 percent of agricultural products, and 93 percent of production materials were regulated by market mechanisms. All of this shows that the opening up of the market occurred at a measured, but substantial, pace with regulatory controls (Zhou 1995).

The tendency has been for economic development in the Pearl River delta to be concentrated in the following six cities: Dongguan, Foshan, Guangzhou, Shenzhen, Zhongshan, and Zhuhai. In 2005 these cities accounted for 10.7 percent of the total area of the province, but 37 percent of its *hukou* population, 80.4 percent of its fiscal revenues, and 70.5 percent of its GDP. In addition, the relative concentration of people, wealth, and goods in the province exceeded Guangdong's relative area by 26.3, 69.7, and 59.8 percent, respectively (GDPBS 2006). Over the past five years, the composite development of the province improved, although a weakening trend is probable in the future. However, the peripheral areas of the north and the west, together with the mountainous areas, were relatively weak over the past five years but are expected to perform more strongly in the future. In addition, considering the phenomenal growth of the province's GDP, with a 14.7 percent rise over the previous year, per capita GDP of US$4,915, and a tertiary sector contributing 46.2 percent to GDP in 2005, there is considerable scope for economic agglomeration before the stage of polarization reversal is reached. Nevertheless, certain industries, especially labor-intensive ones in the electronics, telecommunications, and home appliance sectors, are beginning to relocate from the developed core to the peripheral areas.

The end effect of the structural changes and geographic relocation of industries is a

noticeable shrinking of the development gap between the Pearl River delta and peripheral areas. This is a major move toward the goal of building a *xiaokang*—or moderately affluent—society, which was set out as a national development objective in the Tenth Five-Year Plan, which concluded in 2005. In fact, by 1997, Guangdong had already reached a stage of development beyond that of being able to meet basic needs. In 2003, 16 poor counties in Guangdong were able to shake off poverty; by 2005, 50 poor counties in the mountainous region had reached *xiaokang* status (Chen and others 2003: 113).

Unbalanced development and regional cooperation

For decades or more, physical and artificial barriers have separated the developed from the economically laggard areas within Guangdong. Until recently, it seemed that the considerable regional disparities would be perpetuated. However, after almost three decades of reform, the barriers to factor mobility have been coming down.

The first barrier to fall was the mobility of people. Since 1984, people from the less-developed areas of the province and, in fact, from other provinces, have been allowed to move to more-developed areas, as the long-standing *hukou* or household registration system was relaxed. For the most part, rural people have been allowed to leave rural areas and move to cities to work, where they are considered a temporary or floating population. They have become a critical source of the labor that has fueled the engine of growth in the delta. For years, the recruitment of rural labor has proceeded successfully. The process has helped to minimize rural-urban and interregional disparities, as rural laborers have remitted sizable sums to their families back home. Lately, rising wages and competition for labor from the Yangtze River delta region have posed new challenges for factories in the Pearl River delta. Many rural workers from inland areas have been less inclined to travel long distances to the coastal cities, preferring to take advantage of improved opportunities back home. The migrant labor population in Guangdong is huge, with an official estimate placing it at 21.3 million in February 2004. One out of three jobs in Guangdong is held by someone whose "household registration" is elsewhere. The labor shortage has prompted companies to begin moving their operations farther inland to provinces such as Hunan and Jiangxi, a process facilitated by the recent formation of the Pan-Pearl River Delta Framework. In the long run, China is facing a labor shortage, as its population is aging rapidly (Yang 2005).

The second factor that has elevated the economic status of backward areas within Guangdong is the policy of paired assistance development, whereby an economically advanced city is paired with an economically laggard city or county to encourage the former to provide assistance to the latter, in the form of fiscal allocations, policy support, and technology transfers to alleviate poverty and accelerate development. This policy has, in fact, been applied across the nation and has helped backward cities and regions to achieve rapid economic progress. Especially prominent has been the recent effort to pair up cities, and even provinces, in the western region, where many minority groups live, with thriving cities and provinces along the coast. For example, the economically advanced Jiangsu has been paired with the relatively underdeveloped Guangxi under the paired assistance program. This is a crucial policy aimed at spreading the positive effects of rapid coastal development to other parts of the country, thereby minimizing the problem of growing regional disparities within the country (Yeung and Shen 2004).

In Guangdong, the policy of pairing a developed city with a developing city has been implemented since the mid-1980s. During the past 3 years, 7 developed cities in the Pearl River delta have provided paired assistance to 20 counties in hilly areas, with outstanding results. Over that period, Y 510 million was spent under the program, and 221,000 workers from the hilly counties were gainfully employed, earning a total income of Y 930 million. A total of 328 trade and economic cooperation projects were proposed, 265 of which have been implemented, involving a total investment of Y 845 million. Under the current Eleventh Five-Year

Plan (2006–10), the policy of pairing 7 developed cities with 20 backward counties remains unchanged (*Nanfang Ribao*, June 17, 2006).

Of the hilly and less-developed cities in peripheral areas of Guangdong, Qingyuan is noteworthy. Richly endowed in natural resources, its rapid development is due in part to its recent investments in infrastructure. The opening in 2004 of the expressway linking the city to Guangzhou at a distance of 60 kilometers has put it within a half-hour commute of the provincial capital, thus making Qingyuan more accessible to other areas of the Pearl River delta. This greatly enhances Qingyuan's position as a new focus of development in northern Guangdong. There has been a marked increase in foreign investment in the city, an enhancement of its strategic location as part of a north-south development corridor, and a renewed commitment to harness its plentiful resources in minerals, agriculture, and tourism. Consequently, Qingyuan's GDP soared more than 7.7 times between 1990 and 2005, reaching Y 32 billion in 2005. Foreign investment reached US$173.8 million in 2005, a ninefold increase from 1990.

Shanghai and the Yangtze River delta

The chapter now turns to Shanghai, the hub of the Yangtze River delta. This section attempts to show the contribution of urban agglomeration to economic growth in Shanghai, Shanghai's spatial restructuring, the role of development zones, and the economic diffusion from Shanghai to other cities in the Yangtze River delta region. Shanghai is considered as an emerging world city, and it is revealed that Shanghai's major role in the delta is the diffusion of human resources and provision of producer services. Foreign investors are still the major source of capital and technology in delta.

Density, agglomeration, and economic growth

Shanghai has been the largest city in China and its leading economic center since the early twentieth century (Yeung and Sung 1996). Throughout its history as a city, it has had a superior agglomeration economy and embedded economic strength. With a population of 5.73 million in 1952, Shanghai's per capita GDP (Y 590) was about five times the national average (Y 119) that year (NBS, Department of Comprehensive Statistics 1999). The city was transformed from an advanced service center to an industrial powerhouse during the decades of the 1950s to the 1970s in the Maoist period when China was closed to the outside world. In the 1980s, economic reform and foreign investment policies focused on Guangdong, and there was no significant development in Shanghai, which had a GDP growth rate of 7.4 percent a year, below the national average (table 18.1).

The city's golden opportunity came in 1990 when the central government made the development of the Pudong New District in Shanghai a priority. Shanghai was designated by the central authorities to become the leading economic center in China, and this resolution was backed up with the most preferential policies for economic development and foreign investment. In less than a decade, a new Shanghai emerged, with advanced infrastructure and facilities.

The investment in infrastructure has been fueled by favorable fiscal policies and land redevelopment in the urban area. The reform of the land market has made it possible for the city government to collect substantial revenues by converting industrial land in the urban area to commercial and residential uses. The change from low-density to high-density land use has led to substantial increases in land value. Another major policy change on the part of the central government has been to allow Shanghai to retain more of its fiscal revenues to enable the city to make major investments in economic restructuring and infrastructure. In 1978 Shanghai's fiscal expenditures only accounted for 13.6 percent of its total fiscal revenues, with more than 86 percent being transferred to the central government. After the implementation of tax reforms and the launching of the Pudong development strategy, fiscal expenditures increased to 22.9 percent of total fiscal revenues in 1986 and to 38.1 percent in 1995. The figure remained at around 36–40 percent from 1995–2006. The Shanghai government's fiscal expenditures

increased from Y 2.60 billion in 1978 to Y 181.38 billion in 2006 (SMSB 2007). Clearly, Shanghai's dramatic development since the 1990s has been due to the decision to allow the Shanghai municipal government to reinvest a greater portion of its fiscal revenues in the city rather than due to the transfer of financial resources from the central government to the city.

Shanghai has grown in size since the 1980s. The optimal size of Shanghai's population is an issue that scholars and the government have debated keenly, without coming to a definite conclusion (Zhou, Yang, and Xiao 2005). The long-standing official policy has been to control the growth of large cities such as Shanghai. In the 1980s, a temporary population was allowed to form in Shanghai. Since 1994, the Shanghai government has adopted more relaxed and positive migration policies. Incentives have been offered to encourage skilled and well-educated people from within and outside China to move to the city, while more and more social services have been extended to include the temporary population. About 30,000 people acquired the "blue-chop" *hukou* in Shanghai from 1994–2000, and about 20,000 of these acquired this status because of their investment in residential property (Kong 2001; Shen 2006). The "blue-chop" *hukou* was valid only in the city, while the normal "red-chop" *hukou* was valid in the whole country. By the end of 2006, 0.12 million foreigners were living in Shanghai (SMSB 2007).

Shanghai's total population (its usual residents) increased from 12 million in 1982 to 18.2 million in 2006. Significant growth came from the temporary population, which reached 4.7 million in 2006. With only 0.1 percent of China's area and 1.4 percent of China's population, Shanghai accounted for 5 percent of the nation's GDP, 12.2 percent of its fiscal revenues, 27.5 percent of its exports, and 10.2 percent of its foreign direct investment (FDI) in 2006 (SMSB 2007). At a fixed price, Shanghai's GDP grew 12.2 percent a year, and per capita GDP grew 10.0 percent a year from 1991 to 2006. During the same period, the city's exports grew 23.9 percent a year, while FDI grew 26.0 percent a year. It is likely that population growth is contributing to economic growth and to the rise in per capita income in Shanghai. However, migrants have provided the bulk of the labor required to construct the city's many large infrastructure projects, which have been completed within a short period of time.

Many other Chinese cities have also grown rapidly in the reform period, due to a similar agglomeration effect. In 1978 Shanghai's per capita GDP was Y 2,529, well above that of other cities in China. The gap between Shanghai and the rest of China narrowed significantly during the reform period. In 2005 Shanghai's per capita GDP was Y 51,461,[3] well above the average for mainland China of Y 14,040 and for Guangdong as a whole of Y 24,438 (table 18.1). However, due to particularly favorable policies for parts of Guangdong in the 1980s and to the influence of Hong Kong, Shenzhen's per capita GDP overtook Shanghai's in 1984. Guangzhou only overtook Shanghai in per capita GDP in 2005. Within the Yangtze River delta, Suzhou had a higher per capita GDP than Shanghai in 2005 (GMSB 2006; JPBS 2006; NBS 2006; SMSB 2007; SSB 2006). These cases have three implications. First, several economic centers may develop in mainland China along with Shanghai. Second, the scale of these centers may expand further without significant negative externalities, as shown by Shanghai. Third, Shanghai's central controlling function is still limited, and it has made limited contributions to its hinterland in the Yangtze River delta and the rest of China in terms of transfers of capital and technology. Shanghai is still building its capacity in these areas and can only be considered an emerging world city. In the world urban system, Shanghai is performing as a "satellite-type" base for FDI and as a regional headquarters for foreign companies (Huang, Leung, and Shen 2007; Markusen 1996; Park 1996; Wei and Leung 2005). Foreign investors are still the major source of capital and technology in these cities as well as in Shanghai.

FDI has contributed to Shanghai's dramatic economic growth since the early 1990s (Wei and Leung 2005). Shanghai has become a hot spot for foreign investment due to its advantageous geographic

location, solid economic foundation, business culture, human resources, and favorable open polices. By 2006, total FDI in Shanghai reached US$66.76 billion, distributed almost equally between the secondary and tertiary sectors. Hong Kong, China, was the largest source of FDI, followed by Japan, the United States; Germany; Taiwan, China; Singapore; and the United Kingdom. In 2006 foreign-funded enterprises accounted for 40.0 percent of industrial output in the city. In addition, Hong Kong; Macao-, and Taiwan, China-funded enterprises also contributed 15.2 percent of Shanghai's industrial output (SMSB 2007). As many foreign-funded enterprises are engaged in outward processing and assembly operations requiring large-scale imports and exports, their share of exports has increased greatly (table 18.2). To some extent, the growth of export-oriented manufacturing in the Pearl River delta in the 1980s and 1990s was reproduced in Shanghai after 2000. In 2006 foreign-funded enterprises contributed 66.9 percent of total exports from Shanghai. In Shanghai, the share of exports due to outward processing also reached 56.2 percent that year (SMSB 2007).

As a major development strategy, the municipal government has made some attempts to develop competitive pillar industries by nurturing indigenous enterprises, attracting FDI, and promoting Sino-foreign joint ventures. In the Eighth Five-Year Plan period of 1991–95, automobile manufacturing, electronic and telecommunications equipment manufacturing, steel manufacturing, petrochemical and fine chemical product manufacturing, power plant equipment and large-scale electric equipment manufacturing, and household electrical appliance manufacturing were identified as six pillar industries. These were revised in 2000 for the Tenth Five-Year Plan period of 2001–05, when two industries remained unchanged, three industries were renamed, one industry was deleted, and a new industry was added (Lei 2005: 165). The value added of the six pillar industries increased from Y 46.81 billion in 1995 to Y 250.5 billion in 2006. Their share of the city's total manufacturing value added increased to 51.9 percent in 2006, indicating increasing specialization and agglomeration, which are expected to enhance the city's competitiveness according to the theory of new economic geography (Fujita, Krugman, and Venables 2001; Krugman 2007).

The service sector picked up momentum in the early 1990s when Shanghai was designated to become the economic center of China. In 1995 the central government proposed building Shanghai into an international economic, financial, trade, and shipping center. The four-centers strategy is in line with the world city postulation, which emphasizes the growth of advanced producer services and the controlling function of the city in regional and global economies. A number of giant projects have laid the foundation for Shanghai to become a world city (Shi and Hamnett 2002; Wu 2000; Yusuf and Wu 2002). These projects include a new mass transit railway system, the Lujiazui financial and trade zone, a new airport in Pudong, and more recently the new Yangshan container port. The completion of these platforms facilitates the agglomeration of service industries, which further attracts capital, talent, and businesses. Since 2000, the share of the tertiary industry in Shanghai's GDP has exceeded 50 percent (table 18.2).

The Shanghai government has adopted various policies to attract transnational corporations to set up regional headquarters and research and development (R&D) centers in the city. In 2004 Shanghai had 86 regional headquarters of transnational corporations, 105 investment companies, and 142 R&D centers funded by foreign companies. There were 63 foreign banks and financial companies and 24 foreign insurance companies in 2006 (Fan 2007). About 80 percent of the top 50 banks in the world had set up branches in Shanghai. More than 400 of the top 500 transnational corporations in the world had invested in Shanghai. Many domestic companies had moved their headquarters to Shanghai, and more than 200 domestic companies had set up offices in Shanghai (Zhao 2005). The Bank of China set up its Shanghai headquarters in 2005. Some 842 companies were listed on the Shanghai Stock Exchange, with a total capitalization of US$918 billion, ranking the exchange the fourteenth largest in the world in 2006 in terms of stock market capitaliza-

tion (World Federation of Exchanges 2007). In 2006 the financial industry's share of the city's GDP reached 7.8 percent. Clearly, Shanghai is making progress in its bid to become an advanced service center. Still, there is much room to develop advanced manufacturing operations in the inner and outer zones of Shanghai.

Spatial restructuring and development zones

Shanghai has an area of 6,340.5 square kilometers encompassing 18 districts and 1 county. Shanghai's population and its economic activities have long been concentrated in the city's old urban districts. Based on different population densities in 2006, the city can be divided into a core, an inner zone, and an outer zone (see table 18.3). The core consists of 9 old urban districts with a population density of 17,000–42,000 persons per square kilometer. The inner zone consists of 3 urban districts with a population density of 4,000–6,000 persons per square kilometer. The outer zone consists of 6 urban districts and Chongming County, with a population density of fewer than 2,000 persons per square kilometer. This zone still has large rural areas. The average population density of Shanghai was 2,863 persons per square kilometer in 2006.

The core only has an area of 289 square kilometers, but it accommodated 36 percent of the total population in 2006. The temporary population is concentrated in the inner and outer zones, where most industrial jobs are located. They accounted for more than 31 percent of the total population in the inner and outer zones and 14.5 percent of the total population of the urban core. The population in the urban core is the most educated, with 16.9 percent having received a university education, compared with only 3.6 percent in the outer zone in 2000. The population in the urban core declined 6.3 percent in the period of 2000–06, due to a negative rate of natural increase and relocation of the population to other areas. In contrast, the population in the inner and outer zones increased more than 22 percent in the same period, mainly due to the arrival of a temporary population.

However, large-scale urban renewal and land development have taken place in all three zones. Many factories were located in the urban core of the city in the 1980s, but many of them have moved elsewhere since the early 1990s. Like many other large cities, housing is in high demand in Shanghai, and the property market is booming. The price of new housing increased 65 percent from 2000–06. The price of residential land also increased 69.7 percent. This has not affected the price of land used for industrial and storage purposes, which declined 9.2 percent in the same period (SMSB 2007). The Chinese government has taken many measures to cool down the hot housing market, but with very limited impact at the time of writing.

With development of the commercial and service sectors in the urban core, a great deal of industrial development has been taking place in the inner and outer zones of the city. According to table 18.4, the urban core only accounted for 11.8 percent of industrial employees and 9.3 percent of industrial output in 2006. The value of industrial output increased 10.9 percent in the urban core in the period of 2001–06, but the increase in the inner and outer zones in the same period was 193.6 and 236.5 percent, respectively.

There were 7 national development zones and 24 municipal development zones in

Table 18.3 Distribution of population in Shanghai, 2006

Indicator	Core	Inner zone	Outer zone	City
Usual residents (millions)	6.50	6.00	5.65	18.15
Population density (persons per square kilometer)	22,446	5,113	1,158	2,863
Share of temporary population (percent)	14.5	32.9	31.0	25.7
Population growth, 2000–06 (percent)	–6.3	23.9	22.0	10.6
Share of population with university education in 2000 (percent)	16.9	9.4	3.6	10.9

Source: SMSB (2002, 2007).

Table 18.4 Industrial distribution in Shanghai, 2006

Indicator	Core	Inner zone	Outer zone	City
Share in the total of the city (percent)				
Employees	11.84	37.10	49.95	100.00
Industrial output	9.34	46.78	39.54	100.00
Total profit	14.60	56.29	27.99	100.00
Industrial indicators				
Industrial output per employee (yuan per person)	54,332	86,835	54,518	68,874
Industrial employees per 100 population	4.91	16.66	23.85	14.86
Change in industrial output, 2001–06 (percent)	10.85	193.58	236.49	181.22

Source: SMSB (2007).
Note: Including all state-owned enterprises and nonstate-owned enterprises with sales revenues of more than Y 5 million.

Shanghai in 2006. There were 3,701 industrial enterprises in these zones, accounting for 25.7 percent of all industrial firms and 34.9 percent of all industrial employees in Shanghai. These firms contributed 46.4 percent of industrial output and 68.5 percent of the industrial exports of the city. Thus the industrial zone development policy has contributed significantly to industrial growth in Shanghai. However, not all industrial zones have been successful so far. Only a limited number of them, such as the 7 national development zones and 7 of the municipal development zones, have achieved significant industrial agglomeration, which enhances the efficiency and competitiveness of industrial production. The other 17 municipal development zones are small in scale, contributing industrial output of Y 98 billion as a whole in 2006. Clearly, there is much room to improve the spatial distribution of industrial zones, although this may be difficult to do under the existing decentralized institutional framework of economic administration (Shen 2007; Zhang 2002). It has become a common practice for each city, district, or even town government to set up industrial zones to attract foreign investment to their own territory.

Economic diffusion

There is a close economic relationship between Shanghai and other cities in the Yangtze River delta region. Many cities have grown along with Shanghai. The region consists of 16 cities, including the municipality of Shanghai, 8 prefecture-level cities in Jiangsu province, and 7 prefecture-level cities in Zhejiang. The region comprises an area of 109,839 square kilometers with a population of 93.23 million in 2005. It accounts for about 1.1 percent of China's territory and 7.1 percent of China's population, while contributing 18.6 percent of the nation's GDP.

Compared with Shanghai, other cities in the Yangtze River delta have a much lower population density and GDP density per square kilometer of land area (see table 18.5). In terms of per capita GDP, Shanghai is well above most cities in the region except for Suzhou. The per capita GDP of a city in the region generally declines as its distance from Shanghai increases. Shanghai's population and total GDP are also far higher than those of any other city in the region. The second-largest city is Suzhou, which has less than half of Shanghai's population and GDP. In terms of industrial output and exports, Shanghai's contribution is much greater than that of any single city in the region. Thus Shanghai is strong in both services and advanced manufacturing, with services making up 51.4 percent of the city's GDP in the first half of 2007. Other cities in the Yangtze River delta are still industrial cities, with services making up less than 42 percent of their GDP in the first half of 2007. The exceptions are Hangzhou, Nanjing, and Zhoushan.

Shanghai and other cities in the Yangtze River delta have close demographic, social, cultural, and economic connections. In fact, many people in Shanghai are originally from Jiangsu and Zhejiang. Since the early twentieth century, Shanghai has been the dominant service center in the region and indeed the nation and has attracted capital and

Table 18.5 Population and GDP density in the Yangtze River delta region, 2005

City	Population (million)	Population density (persons per square kilometer)	GDP density (yuan million per square kilometer)	Per capita GDP (yuan)	GDP (yuan billion)	GDP growth rate first half of 2007 (percent)
Shanghai	17.78	2,859	294	51,486	915	13.0
Jiangsu cities	43.57	898	60	33,587	1,463	15.6
Nanjing	6.86	1,042	73	35,147	241	15.6
Wuxi	5.57	1,163	117	50,353	280	15.4
Changzhou	4.11	939	60	31,712	130	15.5
Suzhou	7.53	887	95	53,473	403	16.0
Nantong	7.34	917	37	20,056	147	16.0
Yangzhou	4.51	680	28	20,444	92	15.5
Zhenjiang	2.96	769	45	29,448	87	15.3
Taizhou[a]	4.69	809	28	17,532	82	15.4
Zhejiang cities	31.88	578	37	31,922	1,018	14.8
Hangzhou	7.51	452	35	39,199	294	14.4
Ningbo	6.56	678	51	37,343	245	14.7
Jiaxing	4.00	1,021	59	29,021	116	14.0
Huzhou	2.72	467	22	23,703	64	14.5
Shaoxing	4.39	532	35	32,972	145	14.7
Zhoushan	1.03	712	39	27,333	28	17.1
Taizhou[a]	5.68	604	27	22,038	125	14.4
Yangtze River delta	93.23	849	62	36,431	3,396	14.5
China	1,307.56	136	4	14,002	18,308	11.5

Sources: Population, GDP, and land area data from JPBS (2006: 86, 510–13); NBS (2006); SMSB (2006: 3, 10–11); ZPBS (2006: 46, 603–05); growth rate of China from http://www.stats.gov.cn/was40/gjtjj_detail.jsp?channelid=75004&record=62; other growth rates from http://www.stats-sh.gov.cn/2005shtj/csj/sjxx/76.htm.
Note: The growth rate of the cities in Jiangsu and Zhejiang is the unweighted average of their cities. The growth rate of the Yangtze River delta region is the unweighted average of Shanghai and the cities in Jiangsu and Zhejiang. The population data for Jiangsu and Zhejiang are based on a survey of 1 percent of the population on November 1, 2005.
a. Two cities, Taizhou in Jiangsu and Zhejiang, have the same English spelling but different names in Chinese.

talent from all over China. In the 1970s and 1980s, Shanghai played an important role in the development of TVEs in Jiangsu and Zhejiang by providing technology, technical expertise, and subcontracting services. Since the early 1990s, advanced producer services such as financial services, trading, and port and airport logistics have played an important role in facilitating the inflow of FDI and industrial development in other Yangtze River delta cities. Shanghai has been attracting the regional and national headquarters of transnational corporations, R&D centers, and advanced manufacturing, while many other FDI and manufacturing operations have located in other Yangtze River delta cities. Shanghai is also an advanced center of higher education, and many young people have found employment in the region's cities after receiving higher education and training in Shanghai. Thus the diffusion of human resources and provision of producer services are two important functions of Shanghai in the region.

In 2003 the Shanghai government announced the "173 project" to develop 173 square kilometers of low-cost industrial land in various industrial zones (Tan 2003). This project is considered to have induced unnecessary competition with other cities for FDI. We believe that Shanghai should focus on producer service functions and high value added advanced manufacturing. Industrialization based on cheap land and labor should be avoided for long-term, sustainable development. Shanghai should continue to improve the quality of its human resources, infrastructure, and institutional environment for investment, which will compensate for the rising costs of land and labor in the city—only two out of many factors that figure in the investment decisions of transnational corporations.

Overall, other Yangtze River delta cities have grown rapidly due to both the Shanghai factor and other development conditions. Their GDP growth rates ranged from 14 to

17 percent in the first half of 2007, greater than the 13 percent of Shanghai. In the long term, the per capita GDP of the various cities in the Yangtze River delta is expected to converge (table 18.5).

The current level of development of all cities in the Yangtze River delta is significantly higher than that of cities in many other areas in China. Yangtze River delta cities and even Shanghai still have ample land for further industrial and urban development. With effective measures for controlling pollution and negative externalities, these cities may expand further to create millions of jobs for skilled workers and labor migrants. In the meantime, public investment should focus on enhancing urban infrastructure and social services to match the increasing demand of a growing population for a high standard of living. Otherwise, urban agglomeration will lead to serious social and environmental problems. Thus the key question is not whether urban agglomeration should be adopted as a strategy for development, but whether suitable policies will be devised to prevent the emergence of serious social and environmental problems.

The Bohai Bay region

As the third major city-cluster region in China, the Bohai Bay region has always played a strategic role in the development of northern China. Conventionally, the Bohai Bay region refers to the area centered on Beijing and Tianjin, along with an agglomeration of eight cities that is sometimes called the Beijing-Tianjin-Hebei region, or, for short, the JJJ (Jing-Jin-Ji) region, "Ji" being the alternative name of Hebei. The Greater Bohai region includes the JJJ region, together with the Liaodong peninsula and the Shandong peninsula (figure 18.1).

Compared with the two more-developed regions that have been the focus of the discussion so far, the Bohai Bay region has suffered from relatively slow growth since China reopened to the world in the early 1980s. This is largely due to the presence of Beijing, the national capital, which has been a double-edged sword. While Beijing is the center of political power and, hence, a place where economic agglomeration might naturally be expected to occur, its status as the nation's capital has also meant that anything that might affect political or social stability in the city has been a source of concern. Any policy changes or experiments, such as those that were allowed to be carried out in Fujian and Guangdong in the early years of the launching of economic reforms, were frowned upon. Moreover, for years the JJJ region has suffered from a national fiscal system in which Beijing, Tianjin, and the surrounding cities in Hebei typically were only allowed to retain a small portion of their fiscal revenues. After remitting the required percentage to the central government, the fiscal resources that these cities retained were insufficient to pursue infrastructure and other development projects. Consequently, it is hardly surprising that per capita government expenditures in Beijing, Hebei, and Tianjin were among the lowest in the country, as all of these places suffered from a heavy tax burden (Wei 1996; Wei and Jia 2003). In addition, the JJJ region has paled in comparison to the Pearl River and the Yangtze River delta regions with regard to foreign investment. Over the past three decades, capital from Hong Kong, Taiwan, and elsewhere has poured into the other two destinations because of their more favorable policies, geographic propinquity, and cultural affinity. By comparison, the JJJ region has remained a backwater, as revealed by major economic indicators (see tables 18.6 and 18.7). Beijing is an outstanding case. Its GDP growth rate was below the national average in the 1980s but has gained momentum since then. It attracted much foreign capital and had a large share of exports in 2005 (table 18.1 and 18.2). Beijing had the highest share of tertiary industry among the cities in mainland China in 2005 due to its position as the national capital.

The region, nevertheless, is about to enter a new phase of rapid growth, as the national Eleventh Five-year Plan (2006–10) highlights the Tianjin Binhai New District (see box 18.1), as a new target for growth, much as Pudong in Shanghai was designated in 1990. Another powerful boost for the region is the fact that the Olympic Games were hosted by Beijing in August 2008. Beijing, Tianjin, and other host cities in the

Table 18.6 Comparison of the three coastal regions in China, 2005

Indicator	Yangtze river delta	Pearl river delta	JJJ[a]	Subtotal[b]	China
GDP (yuan billion)	3,389.83	1,805.94	1,848.97	7,044.74	18,308.50
Economic structure					
Primary	4.1	2.8	7.0	4.5	12.6
Secondary	55.0	50.9	44.0	51.2	47.5
Tertiary	40.9	46.3	49.0	44.3	39.9
Per capita GDP (yuan)	40,612	41,990	24,772	35,146	14,040
Total investment in fixed assets (yuan billion)	1,617.20	529.68	768.72	2,915.60	8,877.36
Total consumption (yuan billion)	1,073.89	563.05	639.19	2,276.13	6,717.66
Exports (US$ billion)	275.96	227.12	67.68	570.76	761.90
Realized foreign capital (US$ billion)	26.33	11.51	9.05	46.89	63.81

Sources: JPBS (2007: 530); NBS (2007); NBS, International Statistical Information Center (2007: 4, 6, 13); see also table 7.
a. Figures for the JJJ city-region are used here for comparison instead of those for the whole Bohai Bay region.
b. All figures in the subtotal have been calculated by the authors.

region have begun to reap the benefits of the "Olympic economy," with rapid urban (re)construction and upgraded transport networks. The agglomeration and dispersion effects arising from this new impetus for the development of the JJJ region are discussed below.

A high-density JJJ city-region

Broadly defined, the Bohai Bay region consists of an extensive area encompassing more than 30 cities surrounding the Bohai Bay. However, the focus of this report is on the JJJ city-region, with Beijing and Tianjin as its core. The dominance and agglomeration effects of Beijing and Tianjin in political, economic, and transport development are revealed in the data presented in table 18.7. The two cities cover only 15 percent of the area of the JJJ city-region, yet they account for approximately 35 percent of the population, 57 percent of the GDP, and 80 percent of the realized foreign investment. Beijing is unrivaled as the business center of the region. It is the top location in the country for the headquarters of domestic firms, with one-fifth of the top 500 Chinese enterprises locating their headquarters in that city. In addition, 239 foreign R&D centers and 16 headquarters of foreign enterprises are located in Beijing. It is hardly surprising that Beijing ranked first for three consecutive years in the China headquarters economy index.[4] The economies of Beijing and Tianjin are well developed and veer toward high value added employment. Employment in the secondary and tertiary sectors accounted for 24.6 and 68.6 percent of the labor force, respectively, in Beijing and for 40.6 and 40.5 percent in Tianjin in 2005 (see table 18.8). The density of employment in the secondary and tertiary industries in both cities is far higher than in Hebei. For instance, in 2005, some 187,000 science and technology personnel, or 62 percent of such workers in Beijing, were concentrated in Zhongguancun, the Silicon Valley of Beijing (BMBS 2006, 2007). According to the 2007 Chinese Cities Competitiveness Report, Beijing ranks fourth while Tianjin ranks twelfth nationally in competitiveness. Among all of the Bohai Bay cities, they stand first and third, respectively, with second place going to Qingdao (eleventh overall) in the Shandong peninsula (Ni and others 2007: 3). Beijing has advantages in manpower, capital, science and technology, and infrastructure, while Tianjin has potential strengths in capital, science and technology, and infrastructure competitiveness.

The prominence of Beijing and Tianjin, however, has yet to bring better development to the region, as the problems of overagglomeration have begun to afflict them. The problem is more acute in Beijing, because, as the nation's capital from as far back as the Ming Dynasty (1368–1644), Beijing has been a magnet for all kinds of activities. By contrast, the pace of development in Tianjin has been slow in the past few decades, as it lies in the shadow of Beijing (Wei and Jia 2003). For instance, Beijing's airport, the

Table 18.7 Major indicators of the JJJ city-region, 2005

Area[a]	Area (square kilometers)	Population (millions)	GDP (yuan billion)	Economic structure (percent)			Per capita GDP (yuan)	Total investment in fixed assets (yuan billion)	Total consumption (yuan billion)	Exports (US$ billion)	Realized foreign capital (US$ billion)
				Primary	Secondary	Tertiary					
Beijing	16,578	15.38	688.63	1.39	29.43	69.19	45,444	282.72	290.28	30.87	3.53
Tianjin	11,611	10.43	369.76	3.04	55.47	41.49	35,783	151.68	119.01	27.42	3.65
Shijiazhuang	15,722	9.61	178.68	13.87	48.45	37.68	19,370	92.90	60.60	3.72	0.44
Qinhuangdao	7,467	2.88	49.12	10.44	38.75	50.80	18,087	16.49	14.70	1.84	0.24
Tangshan	13,206	7.26	202.76	11.65	57.30	31.06	28,466	63.57	46.86	1.20	0.50
Cangzhou	13,419	6.84	113.08	11.97	53.39	34.63	16,532[b]	35.45	25.01	0.63	0.14
Chengde	39,519	3.37	36.03	18.25	50.94	30.81	9,870	18.93	11.79	0.12	0.11
Langfang	6,330	3.96	62.12	16.22	54.10	29.69	16,200	34.16	17.82	0.59	0.26
Baoding	22,159	10.73	107.21	18.29	48.80	32.91	9,990	56.03	38.51	1.10	0.13
Zhangjiakou	36,829	4.18	41.58	16.20	44.72	39.08	9,876	16.78	14.61	0.20	0.04
JJJ	182,840	74.64	1,848.97	7.08	43.96	48.96	24,772[b]	768.72	639.19	67.68	9.05
Hebei	190,000	68.51	1,009.61	14.89	51.83	33.29	14,782	421.03	295.29	10.93	2.28

Sources: BMBS (2007: 46–49); Hebei Provincial Government Office (2007: 191–203, 471–79); NBS (2007); TMBS (2007: 70–76).
a. Beijing and Tianjin are both municipalities, and the remaining eight are prefecture-level cities under the administration of Hebei province.
b. The per capita GDP figures for Cangzhou and JJJ were calculated by the authors.
c. Chengde's per capita GDP was US$1,205, and the exchange rate was US$1 = CNY 8.1917

BOX 18.1 ***Tianjin Binhai New District: the third pole in China***

The Tianjin Binhai New District (TBND), strategically positioned as the only coastal window of Tianjin, encompasses the Tianjin technological development area, the Tianjin free trade zone, Tianjin port, and some other local administrative districts (figure 18.1). The TBND is the third type of zone in China for carrying out experiments in reform; as such, it enjoys various preferential policies and rights (the other two types are the SEZs in Guangdong, Fujian, and Hainan and the Pudong New District in Shanghai). It is set to develop into the new economic center of North China and to become its most populated area. The latest United Nations estimate puts the combined nonagricultural population of Beijing and Tianjin at more than 18 million (UN Population Division 2006), but with the national urbanization policy and the present Olympic fervor, the Chinese government revealed that the figure has surpassed 20 million already. The TBND is now home to a *hukou* population of about 1.1 million and will probably be one of the most popular urban destinations for newcomers.

In the past few years, the authorities of the TBND have chosen to adopt some progressive strategies in developing the zone's industrial and financial activities. For example, an A320 Airbus assembly line has been set up next to the Tianjin Airport. Also located in the zone are a large-scale (1-million-metric-ton scale) ethane manufacturing enterprise, a chemical industrial park, a high-tech textile industrial park, and more. With the attraction of these new manufacturing operations, the TBND is on the way to establishing itself as a strong industrial base in the region. Its stronger industrial presence is reflected in the heightened contribution of secondary industries to GDP, from 66.9 percent in 2003 to 71.5 percent in 2006 (TMBS 2007: 489). In relation to Tianjin, TBND accounted for 43.9 percent of the city's GDP, 67.4 percent of its exports, and 76.0 percent of its realized FDI in 2005, compared with 40.6 percent, 62.2 percent, and 74.4 percent, respectively, in 2003. However, a sound financial architecture and an efficient transport infrastructure network are necessary to support healthy industrial development. In this respect, the TBND has been allowed to experiment with reforms in the financial sector, especially in dimensions not presently offered in Shanghai and Shenzhen, with a view to pursuing greater openness in China's financial sector. For example, a new commercial bank—China Bohai Bank—was established in 2005. It runs with a high degree of flexibility and freedom that no other bank in China enjoys at this moment; it provides various banking, investment, and insurance services. Also, the central government has initially granted the Tianjin branch of the Bank of China the sole right to provide qualified individual direct investment services in the Hong Kong stock market, a new investment vehicle in China that is expected to be implemented in the near future.

For the construction of transport infrastructure, besides the highway and railway linkages to other cities of the JJJ city-region, the projects expanding Tianjin's airport and port are the most significant. Even though the work of expanding the airport is ongoing, this has not affected its operations. The airport continues to set records in the number of routes, frequency of flights, number of passengers, and volume of goods handled. The 2008 Summer Olympic Games in Beijing will surely provide the airport with the opportunity to realize a new wave of rapid growth and development. Immediate coordination with the Beijing airport appears to be a matter of high priority. Similarly, Tianjin's port is experiencing speedy growth in size and capacity, and its total throughput has soared since 2001. It is now the sixth-largest port in the world, the fourth-largest in China, and the largest in North China. The port has been allowed to set up the largest bonded port zone in China. The present imperative of Tianjin port is to seek closer integration and coordination with other ports in the Bohai Bay to consolidate its hub status. Of all ports, Caofeidian port in Tangshan is the first choice in seeking greater integration. Caofeidian has benefited from the integration of Beijing Shougang (the country's best-known iron and steel manufacturing enterprise) and Tanggang, whose production line has been relocated to Caofeidian. Caofeidian is likely to develop as a modern heavy industrial port city in the future.

busiest air hub in China, handled 48.74 million passengers in 2006, but Tianjin's airport ranked only thirtieth, with a mere 2.76 million passengers. In rankings of competitiveness, Tianjin's airport came fourth out of five major airports in the region, clearly a mismatch with its status as one of the four special municipalities in China (Chu and Wu 2006). At present, the two cities, especially Beijing, are facing the consequences of over-agglomeration, such as serious air pollution; worsening traffic jams;[5] increasing shortages of water, land, and energy; population pressure; and so on (Li and Hu 2007: 175). With regard to the province of Hebei—the immediate hinterland of Beijing and Tianjin—poverty has become a challenge due to a "vacuum effect." A recent report has shown that some 2.73 million people in the peripheral areas of Beijing and Tianjin live in poverty, and such regional imbalance has been described as "modern mega cities and backward hinterland" by Lu Dadao (quoted in Li and Hu 2007). Thus

Table 18.8 Employment in three cities of China, 2005

Indicator	Beijing	Tianjin	Hebei
Total employed persons (1,000)			
Primary	622	805	15,623
Secondary	2,264	1,733	10,484
Tertiary	6,318	1,831	8,566
Total	9,204	4,269	34,673
Employment density (persons per square kilometer)			
Primary	37.52	69.33	82.23
Secondary	136.57	149.26	55.18
Tertiary	381.11	149.08	45.08
Employment structure (percent)			
Primary	3.8	18.9	45.1
Secondary	24.6	40.6	30.2
Tertiary	68.6	40.5	24.7

Source: NBS (2007: 127).
Note: The data for Hebei province are used here instead of those for the eight cities, because of the availability of the data.

the competitiveness of other cities in the JJJ city-region is far lower than that of Beijing and Tianjin. Even Tangshan, generally considered the third JJJ city after Beijing and Tianjin, ranked only forty-third among all Chinese cities.

Improving regional transport infrastructure

In developing the JJJ city-region, shortening travel distances and minimizing socioeconomic disparities are high on the list of priorities. Support from the central government and effective local policies are equally important. Consequently, the top-down national expressway and railway plans have called for building a comprehensive transport network in the region. This will be complemented by local public works plans, such as the new urban planning strategies of Beijing and Tianjin, the JJJ regional planning study, the JJJ transport infrastructure development plan, and so on. A clear division of labor is envisaged for the cities. For example, Beijing will play down its role as an economic center, with the intention of decentralizing some major financial activities and heavy industries from Beijing to the Tianjin Binhai New District, Tangshan, and other cities (Li and Hu 2007).

Several projects to build expressways, high-speed railways, ports, and airports have been or are about to be launched in the region. The main purpose is to strengthen the coherence of the JJJ city-region and the Greater Bohai Bay region. Among these, a new Beijing-Tianjin expressway will shorten the travel time between the two cities to about 1 hour from the present 2.5 hours, and another five new expressways will connect the JJJ city-region. New 200 kilometer per hour high-speed railways are now in service between Beijing and Bohai Bay cities,[6] and a new intercity high-speed railway and a light railway will serve the route between Beijing and Tianjin. It is estimated that operation of the high-speed railway will contribute an extra Y 20 billion to China's GDP.[7] The lifestyles and travel patterns of Beijing and Tianjin commuters will change as a result. A new airport will be built between Beijing and Tianjin, in keeping with the view that all airports in the region will have to be integrated. Tianjin Port, now under expansion, will serve as the seaport hub and logistics center of North China. All of these projects will facilitate a smoother and denser flow of goods and people throughout the JJJ city-region, consolidate the hub functions of Beijing and Tianjin, and increase their spillover effects. For other parts of the Greater Bohai Bay region, the most spectacular project is the Bohai Strait channel project, which will provide a land link via a bridge between the Liaodong peninsula and the Shandong peninsula. It will sharply reduce the travel distance to about one-tenth of the present distance of more than 1,000 kilometers and contribute to the integration of the region. This project will fill a missing link in China's north-south coastal corridor and is similar to the three bridges over Hangzhou Bay in the Yangtze River delta and the proposed Hong Kong-Zhuhai-Macao bridge in the Pearl River delta. The integration of the entire Chinese coastal region will be significantly advanced.

In sum, the experience of the development of the JJJ city-region reflects the view that core cities can, through their agglomeration and dispersion effects, not only decisively affect their own pattern of development, but also add to the strength of the whole region. Proper coordination, cooperation, and division of labor among cities are critical to circumventing the excessive agglomeration of core cities and the hollowing out of peripheral areas.

Support from the central government and local development strategies are equally critical to the success of regional development in China. Above all, on the evidence deduced from the Bohai Bay region, transport infrastructure is a forerunner to successful urban-regional change and the tool for enhancing the flow, communication, and integration of cities.

Conclusions

This chapter has chosen the three most developed city-regions of China to bring home their experiences in pioneering rapid economic development and social modernization in the country over the past three decades.

In the Chinese transition to rapid growth and development, Chinese cities, especially those along the coast, have been catalysts for change. This is in large measure due to the advantages of their geographic location, which provides easy access to and from foreign countries, and to their considerable store of administrative, technological, economic, and cultural experience. The growth of the three coastal regions as shown in this chapter is led by the urbanization of large cities such as Beijing, Guangzhou, Shanghai, and Shenzhen. While the rapid growth of the coastal regions is planned and expected by Chinese economists, the rapid growth and expansion of large coastal cities are beyond the imagination of urban planners, as the long-standing official policy is to control the growth of large cities. In a word, the strong force of urban agglomeration has produced a model of development in coastal China led by large cities. Large cities with powerful city governments and agglomeration advantages have been very successful in attracting foreign investment and promoting economic development under the triple processes of globalization, decentralization, and marketization (Shen 2007).

To conclude, we would like to draw the similarities and differences among the three coastal regions, focusing on Guangzhou, Shenzhen, Shanghai, and Beijing, which are their leading economic centers. Guangzhou and Shenzhen are in Pearl River delta, Shanghai is in the Yangtze River delta, and Beijing is in the Bohai Bay region. These four cities share the following characteristics. First, Beijing, Guangzhou, Shanghai, and Shenzhen are mega cities, each with a population of more than 8 million in 2005. From 1980–2005, their population grew dramatically due to the inflow of migrants, mostly from rural areas. For example, population in Shanghai grew from 11.57 million to 17.99 million in the period, and Shenzhen grew from a small town to a city with a population of 8.28 million. Second, these cities are densely populated, with population density over 1,277 persons per square kilometer, which may be underestimated, as some counties and rural areas are included in the city boundary. Third, these cities were more advanced and had higher per capita GDP at the beginning of the period than China as a whole. Their GDP grew faster than that of China as a whole, with the exception of Beijing and Shanghai in the 1980s. With an expanding population, the gap in per capita GDP widened between these cities and the rest of China, indicating the strong force of agglomeration economies. Finally, there is a tendency of convergence among these cities. The tertiary sector became important in 2005, contributing more than 46 percent of GDP. All cities attracted large foreign investment in 2005, and their exports expanded greatly in the period of 1980–2005. To some extent, the growth of export-oriented manufacturing in the Pearl River delta in the 1980s and 1990s was repeated in Shanghai after 2000.

Nevertheless, the leading cities in the three regions also demonstrate major differences in terms of growth dynamics, economic structure, and degree of internationalization. First, there are differences in growth dynamics. Beijing and Shanghai grew slowly in the 1980s, even slower than the national average. Their growth speeded up after 1990. Guangzhou and Shenzhen grew faster than Beijing and Shanghai from 1980–2005, although their growth slowed down after 2000. By 2005, Guangzhou and Shenzhen had a per capita GDP higher than that of Beijing and Shanghai. These cases demonstrate that a few leading cities rather than one primary city may achieve high levels of development in a large country like China. Their growth may not occur at the expense of other leading cities.

Second, there are differences in economic structure. Shenzhen and Shanghai had similar shares of secondary and tertiary industries in GDP in 2005, around 50 percent in each sector. Foreign investment plays an important role in the expansion of manufacturing industry in both cities. As the provincial capital of Guangdong, Guangzhou had a smaller share of secondary industry (39.7 percent) and a larger share of tertiary industry (57.8 percent) in GDP than Shenzhen and Shanghai in 2005. As the capital of China, Beijing had the smallest share of secondary industry (29.4 percent) and the largest share of tertiary industry (69.2 percent) in GDP. They experienced a different pace of economic restructuring. Shanghai and Beijing were industrial cities in 1980, and their share of secondary industry in GDP declined sharply from more than 68 percent to below 49 percent from 1980–2005. Their share of tertiary industry in GDP increased sharply, from below 27 percent to more than 50 percent in the same period. Guangzhou experienced similar changes on a smaller scale. In Shenzhen the share of secondary industry in GDP grew rapidly at the expense of agriculture, while the share of tertiary sector in GDP was stable at 45–51 percent in the period of 1980–2005.

Third, there are differences in the pace and degree of internationalization. The Pearl River delta region was the first to adopt favorable policies for foreign investment. Shenzhen led the country in attracting foreign investment and generating exports. Investment from Hong Kong played an important role in the expansion of industrial production and exports in the form of outward processing. Shanghai came later in adopting an open policy. It has attracted much foreign investment since the early 1990s, when the policy of developing the Pudong New District was adopted, and its export growth closely followed that of Shenzhen in the period of 1990–2005. Exports from Shenzhen reached US$101.52 billion in 2005, even greater than exports from Shanghai. It is clear that a portion of foreign investment in Shanghai targets the domestic market, such as the industry of car manufacturing, while Shenzhen's industry is mainly export oriented.

Guangzhou is the provincial capital of Guangdong province. It attracted more foreign capital than Shanghai and Beijing in the 1980s and 1990s. But by 2005, it attracted the least foreign capital among the four cities. Its exports also grew more slowly than those of other cities in the period of 2000–05. Clearly Guangzhou is less export oriented than other cities. Beijing is the capital of China, and its economy, like that of Guangzhou, is less export oriented. But foreign investment and exports grew rapidly from 2000–05, indicating the growing influence of globalization.

This chapter has shown that the Pearl River delta, the Yangtze River delta, and the Bohai Bay area, in a sequenced pattern of reform and openness, have accounted for the bulk of the success of the country's reform program, which has been carried out over the past three decades. The Pearl River delta region was the first to adopt an open policy, and foreign investment from Hong Kong played an important role in the development of an outward-processing-based and export-oriented economy. Shenzhen and Guangzhou outperformed other major cities in China in per capita GDP by 2005. Shanghai in the Yangtze River delta was China's major industrial base before 1980. An open policy was implemented in Shanghai on a large scale only after 1990, and Shanghai underwent a dramatic transformation, with significant expansion of advanced manufacturing and tertiary industries. Shanghai has a good foundation of human resources, R&D capacity, and business traditions. Transnational corporations from Hong Kong and Western countries made significant investment in Shanghai. The Bohai Bay region is relatively less advanced. But as the capital of China, Beijing has considerable national resources, and its service economy is well developed. Under the general policy of economic reform and opening, the Pearl River delta, the Yangtze River delta, and the Bohai Bay region and their major cities have achieved significant development by making use of both domestic and foreign resources. They demonstrate the important role that urbanization and large cities have played in the development of China.

Notes

Yue-man Yeung is emeritus professor, and Jianfa Shen is professor, both at the Chinese University of Hong Kong. Thanks are due to Gordon Kee for his research assistance in the preparation of this chapter.

1. These are 2 of 14 coastal cities in China that were declared open and granted the authority to pursue favorable policies and given other advantages to attract foreign investment.

2. China's currency is the renminbi, and its currency unit is the yuan.

3. US$1 = Y 8.19 in 2005.

4. See "Headquarter Economy Ranking, Beijing the Strongest in R&D [in Chinese]," September 18, 2007 (http://big5.china.com.cn/news/txt/2007-09/18/content_8909056.htm).

5. For example, about 2.5 hours are needed to travel the 120 kilometers between Beijing and Tianjin. On average, for about 6 hours a day the travel speed on the Beijing-Tianjin expressway reportedly is less than 60 kilometers per hour. See "Traffic Accidents Keep Increasing, Slowing Down the Traveling Speed in Jing-Jin-Tang Expressway [in Chinese]." November 17, 2004 (http://news.xinhuanet.com/newscenter/2004-11/17/content_2227725.htm). Traffic accidents increased by double digits from 2001–03.

6. The sixth acceleration of the speed of China's railways was carried out nationwide on April 18, 2007. See "The Sixth Speed Acceleration of Railway Brings Coordinated Economic Development in the Bohai Ring Region [in Chinese]." October 18, 2007 (http://www.gov.cn/jrzg/2007-10/18/content_778773.htm).

7. See "GDP of TBND, December 2006 [in Chinese]." February 28, 2007 (http://www.bh.gov.cn/jjfz/2007-02/28/content_9386550.htm).

References

BMBS (Beijing Municipal Bureau of Statistics). Various years (2006, 2007). *Beijing Statistical Yearbook.* Beijing: China Statistics Press.

Chen, Guanghan, Yunyun Zhou, Jiaan Ye, and Fengxuan Xue, eds. 2003. *Research on Enhancing the International Competitiveness of the Greater Pearl River Delta* [in Chinese]. Guangzhou: Zhongshan University Press.

Chu, Yanchang, and Yuhua Wu. 2006. "Comparative Study of the Competitiveness of Major Airports in the Bohai Ring Region [in Chinese]." *Zonghe Yunshu* 8-9: 101–04.

DCA (Department of Civil Affairs of Guangdong Province) and MPH (Map Publishing House of Guangdong), eds. 2000. *Atlas of the Administrative Divisions of Guangdong Province*. Guangzhou: Map Publishing House of Guangdong.

Enright, Michael J., Ka-mun Chang, Edith E. Scott, and Wen-hui Zhu. 2003. *Hong Kong and the Pearl River Delta: The Economic Interaction*. Hong Kong: 2022 Foundation.

Fan, Shaoqing. 2007. "Overview of Financial Industry in 2006." (http://www.stats-sh.gov.cn/2005shtj/tjfx/ndxx/userobject1ai2618.html.)

Fujita, Masahisa, Paul Krugman, and Anthony J. Venables. 2001. *The Spatial Economy: Cities, Regions, and International Trade*. Cambridge, MA: MIT Press.

GDPBS (Guangdong Provincial Bureau of Statistics). Various years (1992, 2006, 2007). *Statistical Yearbook of Guangdong Province.* Beijing: China Statistics Press.

GMSB (Guangzhou Municipal Statistics Bureau). 2006. *Guangzhou Statistical Yearbook 2006*. Beijing: China Statistics Press.

Guangzhou Economic Yearbook Editorial Committee. 1983. *Guangzhou Economic Yearbook 1983*. Guangzhou: Guangzhou Economic Yearbook Editorial Committee.

Hebei Provincial Government Office. 2007. *Hebei Economic Yearbook 2006.* Beijing: China Statistics Press.

Huang, Yefang, Yee Leung, and Jianfa Shen. 2007. "Cities and Globalization: An International Cities Perspective." *Urban Geography* 28 (3): 209–31.

JPBS (Jiangsu Provincial Bureau of Statistics). Various years (2006, 2007). *Jiangsu Statistical Yearbook.* Beijing: China Statistics Press.

Kong, Yan. 2001. *Reading Shanghai 1990–2000.* Shanghai: Shanghai People's Press.

Krugman, Paul. 2007. "The 'New' Economic Geography: Where Are We?" In *Regional Integration in East Asia: From the Viewpoint of Spatial Economics,* ed. Masahisa Fujita, pp. 23–34. New York: Palgrave Macmillan.

Lei, Xinjun. 2005. "A Study on the Key Industries and Development Path of the Advanced Manufacturing Industry in Shanghai in 11th FYP Period." In *Building a Harmonious World City: A Study of the Development and Planning Ideas of 11th FYP of Shanghai,* eds. Ronghua Wang and Xuejin Zuo, pp. 161–87. Shanghai: Press of Shanghai Academy of Social Sciences.

Li, Shu, and Meijuan Hu. 2007. "Beijing: Leading the Beijiing-Tianjin-Hebei Metropolitan Region [in Chinese]." *Chinese National Geography* 9: 172–81.

Lin, George C. S. 1999. "State Policy and Spatial Restructuring in Post-Reform China, 1978–95." *International Journal of Urban and Regional Research* 23 (4): 670–96.

Markusen, Ann. 1996. "Sticky Places in Slippery Space: A Typology of Industrial Districts." *Economic Geography* 72 (3): 33–78.

NBS (National Bureau of Statistics). Various years (1982, 1991, 2001, 2006, 2007). *China Statistical Yearbook*. Beijing: China Statistics Press.

NBS (National Bureau of Statistics), Department of Comprehensive Statistics. 1999. *Comprehensive Statistical Data and Materials on 50 Years of New China*. Beijing: China Statistics Press.

NBS (National Bureau of Statistics), International Statistical Information Center. 2007. *Yangtze River Delta and Pearl River Delta and Hong Kong and Macao Special Administrative Region Statistical Yearbook 2006.* Beijing: China Statistics Press.

Ni, Pengfei, and others, eds. 2007. *Annual Report on Urban Competitiveness No. 5* [in Chinese]. Beijing: Social Sciences Academic Press.

Park, S. O. 1996. "Networks and Embeddedness in the Dynamic Types of New Industrial Districts." *Progress in Human Geography* 20 (4): 476–93.

Shen, Jianfa. 2005. "Space, Scale, and the State: Reorganizing Urban Space in China." In *Restructuring the Chinese City: Changing Society, Economy, and Space,* eds. Laurence J. C. Ma and Fulong Wu, pp. 39–57. London: Routledge.

———. 2006. "Understanding Dual-Track Urbanisation in Post-Reform China: Conceptual Framework and Empirical Analysis." *Population, Space, and Place* 12 (6): 497–516.

———. 2007. "Scale, State, and the City: Urban Transformation in Post-Reform China." *Habitat International* 31(3–4): 303–16.

Shi, Wenjun. 2003. "Epoch-Making Important Fiscal System Reform [in Chinese]." *Shuiwu Zhonghen* (November): 12–14. (www.cnki.net.)

Shi, Yulong, and Chris Hamnett. 2002. "The Potential and Prospect for Global Cities in China: In the Context of the World System." *Geoforum* 33 (1): 121–35.

SMSB (Shanghai Municipal Statistics Bureau). Various years (2001, 2002, 2006, 2007). *Shanghai Statistical Yearbook.* Beijing: China Statistics Press.

SSB (Shenzhen Statistics Bureau). 2006. *Shenzhen Statistical Yearbook 2006*. Beijing: China Statistics Press.

Tan, Heng. 2003. "Shanghai '173 Project.'" (http://news.sina.com.cn/c/2003-06-12/10561162773.html.)

TMBS (Tianjin Municipal Bureau of Statistics). 2007. *Tianjin Statistical Yearbook 2006.* Beijing: China Statistics Press.

UN (United Nations) Population Division. 2006. *World Urbanization Prospect: The 2005 Revisions*. New York: United Nations.

Wei, Yehua. 1996. "Fiscal Systems and Uneven Regional Development in China, 1978–1991." *Geoforum* 27 (3): 329–44.

Wei, Yehua, and Yanjie Jia. 2003. "The Geographical Foundations of Local State Initiatives: Globalizing Tianjin, China." *Cities* 20 (2): 101–14.

Wei, Yehua, and C. K. Leung. 2005. "Development Zones, Foreign Investment, and Global City Formation in Shanghai." *Growth and Change* 36 (1): 16–40.

World Federation of Exchanges. 2007. "Domestic Market Capitalization." (http://www.world-exchanges.org/WFE/home.asp?menu=406.)

Wu, Fulong. 2000. "Global and Local Dimensions of Place-making: Remaking Shanghai as a World City." *Urban Studies* 37 (8): 1359–77.

Yang, Dali L. 2005. "China's Looming Labor Shortage." *Far Eastern Economic Review* 168 (10, January): 19–24.

Yeung, Yue-man. 2002. *Internal and International Migration in China under Openness and a Marketizing Economy.* Occasional Paper 129. Hong Kong Institute of Asia-Pacific Studies, Chinese University of Hong Kong.

———. 2003. "Integration of the Pearl River Delta." *International Development Planning Review* 25 (3): iii–viii.

———. 2005. *The Pearl River Delta Mega Urban-Region: Internal Dynamics and External Linkages.* Occasional Paper 12. Shanghai-Hong Kong Development Institute, Chinese University of Hong Kong.

Yeung, Yue-man, ed. 2007. *The First Decade: The Hong Kong SAR in Retrospective and*

Introspective Perspectives. Hong Kong: Chinese University Press.

Yeung, Yue-man, and Xu-wai Hu, eds. 1992. *China's Coastal Cities: Catalysts for Modernization*. Honolulu: University of Hawaii Press.

Yeung, Yue-Man, and Gordon Wai-man Kee. 2007. *The Networked Region: Basic Infrastructure Development in the Pan-Pearl River Delta* [in Chinese]. Research Monograph 70. Hong Kong Institute of Asia-Pacific Studies, Chinese University of Hong Kong.

Yeung, Yue-Man, and Jianfa Shen, eds. 2004. *Developing China's West: A Critical Path to Balanced National Development*. Hong Kong: Chinese University Press.

Yeung, Yue-Man, Jianfa Shen, and Li Zhang. 2005. *The Western Pearl River Delta: Growth and Opportunities for Cooperative Development with Hong Kong*. Research Monograph 62. Hong Kong Institute of Asia-Pacific Studies, Chinese University of Hong Kong.

Yeung, Yue-Man, and Yun-wing Sung, eds. 1996. *Shanghai: Transformation and Modernization under China's Open Policy*. Hong Kong: Chinese University Press.

Yusuf, Shahid, and Weiping Wu. 2002. "Pathways to a World City: Shanghai Rising in an Era of Globalization." *Urban Studies* 39 (7): 1213–40.

Zhang, Tingwei. 2002. "Urban Development and a Socialist Pro-Growth Coalition in Shanghai." *Urban Affairs Review* 37 (4): 475–99.

Zhao, Hong. 2005. *The Development Report of China's Headquarters Economy (2005–2006)*. Beijing: Social Sciences Academic Press.

Zhou, Haiwang, Xin Yang, and Lichun Xiao. 2005. "A Study on the Population Growth in Shanghai in 11th FYP Period." In *Building a Harmonious World City: A Study of the Development and Planning Ideas of 11th FYP of Shanghai,* ed. Ronghua Wang and Xuejin Zuo, pp. 215–32. Shanghai: Press of Shanghai Academy of Social Sciences.

Zhou, Yi. 1995. "Guangdong's Openness and Reform: Retrospect and Prospect [in Chinese]." (http://www.chinareviewnews.com/crn-webapp/search/siteDetail.jsp?id=100149497&sw=%E5%91%A8%E4%B9%89.)

ZPBS (Zhejiang Provincial Bureau of Statistics). 2006. *Zhejiang Statistical Yearbook 2006*. Beijing: China Statistics Press.