Planning prosperity: China's special economic zones

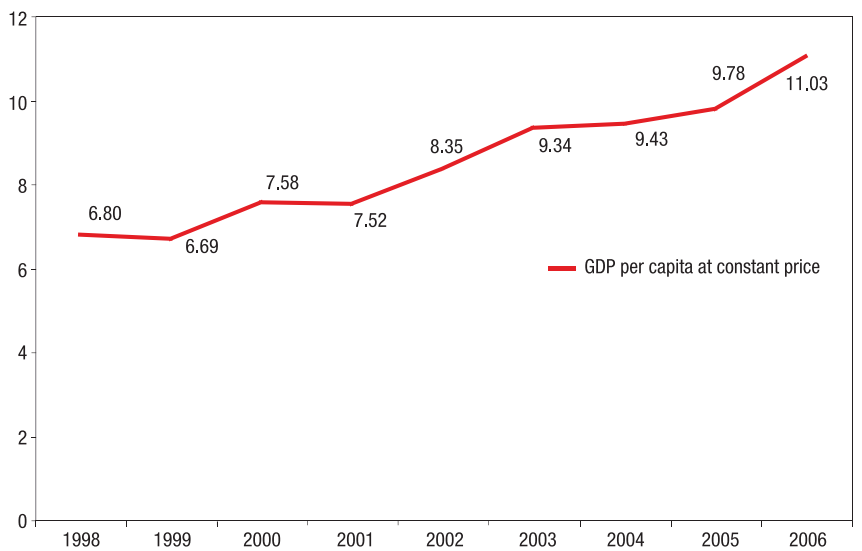
As globalization accelerates and competitive pressures increase, network clusters have emerged as an important form of economic organization to promote firm-level learning anchored on location advantage. Such network formation that has been driven by the high-tech sector has been spawned in specific geographic locations in China. Here, Here **Banji Oyelaran-Oyeyinka**, Director of UN-HABITAT's Monitoring and Research Division, calls attention to the close association of industrial dynamism, city growth and wealth generation.

Just like South Korea and Taiwan before it, China very early recognized the need for fostering industrial clusters in the form of special economic zones (SEZs) as a policy tool to attract flagship firms that are at the centre of global production systems.

For instance, between 1998 and 2006, China's economic growth averaged an annual rate of 8.5 percent (See table right). This strong economic growth has been driven largely by export, the source of growth dynamics had been the clustering of industries along the coastal cities. Most of the regions with per capita Gross Regional Product (GRP) higher than the national average are located along the Changjiang River or the Pearl Delta River region.

As a result of China's huge market which is distributed among different geographic regions, the clusters vary considerably by their size, structural diversity of firms, as well as in the depth of cluster technological knowledge. This is manifested in the co-existence of small and medium enterprises with flagship firms for instance.

China's per capita GDP at constant price



The emergence and growth of high-tech clusters depends largely on two key factors – the proximity to strong science and engineering university bases, and second, the availability of well-developed infrastructure.

Innovative clusters tend to form around sources of knowledge, based on a sophisticated infrastructure in which knowledge is developed, shared and exchanged. This is the case with the network clusters in China which have been formed around 52 high technology zones that started to emerge since 1988. According to statistics by China's leading research firm CCID, 90 percent of the high technology zones are in the electronics information industry.

Among these are the information hardware sector in Zhongguancun Science Park, Shanghai Zhangjiang High Tech Park and the Zhuhai National High Tech Industrial Development Zone which produce more than 70 percent of total industrial output.

The manufacturing bases are concentrated in the Guangdong, Jiangsu, and Fujian province as well as Shanghai, and Beijing main cities. In these regions production is concentrated mainly in three locations including Yangzi River Delta, the Pearl River Delta and Loop Bo Sea Region, which have formed the computer manufacturing industrial clusters in those areas.

However, clusters tend to have different features. For instance, Pearl River Delta has very strong costal manufacturing base relying on component import processing; Loop Bo Sea Region is the most highly knowledge intensive ▶

region with large numbers of low cost science and technology personnel, while Yangzi River Delta combines the above two factors, though it does not have as much concentrated knowledge base as Loop Bo Sea Region.

These clusters are highly concentrated and demonstrate strong linkages between entrepreneurs, investors and researchers. They exist within localized geographical areas and interact within a larger system at the regional, national and international level. As with the rest of east Asia, clusters in China have become key factors in the country's capacity to attract international investment that generates new technological expertise, to interest investors in innovation through the use of venture capital for example, and to benefit from the international mobility of skilled personnel.

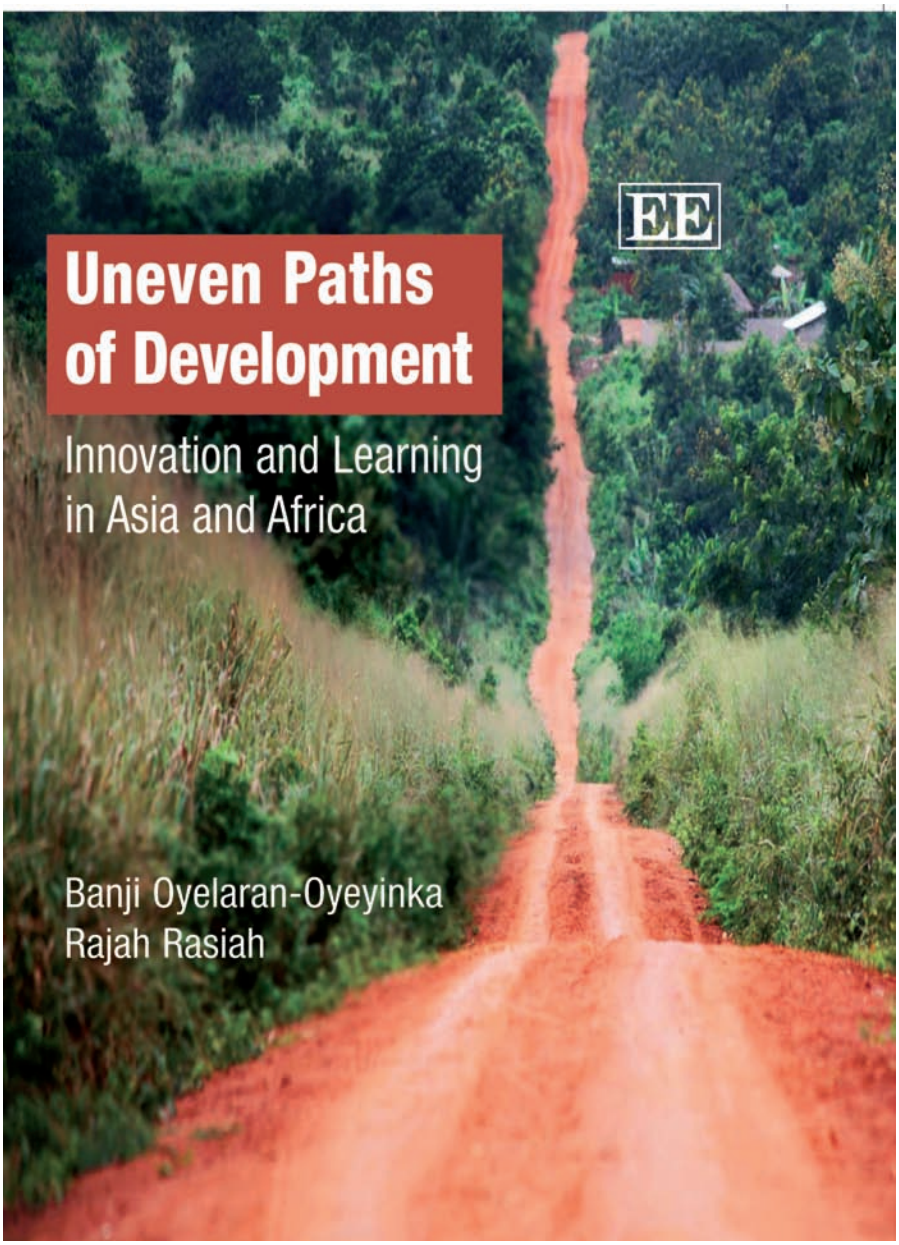
To illustrate the variety of clusters, I present two case studies, which reflect these characteristics common to a number of east Asian countries. The first is the Dongguan SME Network clusters and the second is the Tianjin flagship network clusters.

Case 1: Dongguan Electronics SMEs Network Cluster

Dongguan town is located in the middle of the Guangdong, Shenzhen and Hong Kong Economic Corridor, which is the most developed region of the Pearl River Delta. It has the best geographic location, which makes it the preferred location for global electronics manufacturing industry. Since the 1990s, Dongguan's geographic advantage has been a source of considerable FDI flow which has led to the growth of its IT hardware manufacturing industry.

Investment from Taiwan has helped to integrate Dongguan into the global electronics industry production system, and promoted the formation of industry network clusters. Dongguan has thrived on sub-contracting forms of collaboration of large, medium and small enterprises; interaction between upstream and downstream manufacturing which subsequently fostered assembly network clusters.

There are over 800 Taiwan computer and electronics enterprises in Dongguan, and they have become the dominant players in the cluster. The production output of Dongguan exceeds 60 billion Yuan per year, with Taiwanese firms contributing over 50 percent of this value, much of which is traded in global markets. Dongguan has become one of the largest global computer and electronics products manufacturing bases as well as one of the largest electronics components export bases.



What were the main triggers to the growth of this cluster?

In addition to favourable policies, the initial reasons that Foreign Direct Investment started flowing into Dongguan were cheap land and its close proximity to Hong Kong. These factors combined with the favourable institutional context transformed to the special advantages of Dongguan, to build a global network of supply system.

Much of this network advantage hinges on the fulcrum of consistent sector and national policies.

Case 2: Tianjin Electronics Flagship Network Clusters

Tianjin Economy and Technology Development Area (TEDA) contrasts with Dongguan. While the latter is made up largely of small and medium-size enterprises (SMEs), this one is driven mostly by large enterprises especially the multinational corporation flagships. For instance, in 2001, large enterprises generated gross production value of CNY 70.2 billion (USD 10.2 billion), which was 91 percent of total industrial production while SMEs contributed only 9 percent.

Further reading

Uneven Paths of Development: Innovation and Learning in Asia and Africa published by Edward Elgar Publishing. This book by Banji Oyelaran-Oyeyinka, who is also Professorial Fellow at UNU-MERIT in the Netherlands, and Rajah Rasiah, Professor of Technology and Innovation Policy in the Faculty of Economics and Administration at the University of Malaya, Malaysia, and Professorial Fellow at UNU-MERIT, carries interesting new insights into the issues raised in this article. It seeks answers to the questions why east Asian countries have grown so fast, and African countries so slowly, for the last quarter century, although many countries in the two regions started off on a relatively even footing. It represents an important step forward to understanding this. A must-read for students of economics as well as practitioners seeking to understand and promote economic development, it draws on country data and experiences.

Gross profits (including taxes) contributed by large enterprises was 94.52 percent in the same year. Foreign direct investment was CNY 72.7 billion (USD 10.6 billion), which was 94.29 percent for the industry, while state-owned, collective, stock share holders and other economic types amounted to only 5.71 percent. Gross profits (including taxes) by foreign direct investment were 95.9 percent. In the main, TEDA is a high-tech zone made up of electronics, telecommunications and computer and related component sub-sectors dealing in production and trade. In 2001, there were 28 multinational corporations in the top Fortune 500 companies engaged in 48 projects in TEDA; by 2003 the number reached 70.

However, there are drawbacks to excessive reliance on multinational corporations. A closer examination of the flagships' contributions to local capability formation shows that the transfer of technological capability to local firms has been limited. First, hi-tech industry development in TEDA has relied largely on enterprise network controlled by flagships leaving out local enterprises that are mostly small, with relatively dated equipment and limited assets to compete. Second, within the network clusters in TEDA, the linkages between the flagships and local enterprises in high tech production is rather weak and as such the channels for technology diffusion in TEDA is very limited. Concern for product quality and standard has meant that some key components and raw materials continue to be imported from both within and outside China.

In 2007, there were 48,472 hi-tech enterprises in the development areas, employing a total of 6.5 million people, equivalent to about 8.5 percent of total employment. Among the large and medium-sized enterprises in these hi-tech industries, only 0.47 million were engaged in science and technological activities. While the distribution of these enterprises and personnel vary across regions, most of the cities with a greater number of hi-tech enterprises also engage more workers.

Five lessons learned

But then what are the lessons for other latecomer countries? There are five main issues to be raised.

Clearly, the growth of the Chinese industrial clusters, actively promoted by the government has resulted in the transformation of the cities involved over time into global production zones creating very unique forms of industrial organizations. The representative network clusters of Chinese hi-tech industry are located in Yangzi River Delta, the Pearl River Delta and Bohai Loop regions, which contribute nearly 80 percent of the country's industrial growth.

Second, much of the transformation of the Chinese city clusters has been due partly to historical and strategic reasons as well as political choices far back in the past. For instance, the initial condition of the country such as high pools of scientists and engineers, and the presence of knowledge infrastructure has been an important variable. In other words, development is path-dependent; history matters: the investment a country made in the past will shape the configuration of development today.

Third, contrary to the Neo-liberal prescription advocating neutral industrial policy, State action is crucial for latecomer development. The competitive advantages of high technology industry could only have been possible through the same kinds of strategic policy initiatives that have proven successful in other east Asian miracles. The relationship of government-business is "Governed interdependence"; a kind of productive and complementary relationship: government agencies need the private sector for implementation of policies, while the private sector needs public agencies for coordination of catch-up activities, particularly in financial allocation, risk-sharing and technological upgrading. The relationship between public and private sectors was not fixed, but co-evolved with the industry over time.

Fourth, consistent with what is known about the behaviour of dynamic sectors everywhere, innovation processes of firms in high-tech areas are strongly shaped by their specific knowledge base, qualifications and skills, required organizations and institutions involved, as well as specific competitive challenges from a globalizing economy. These instruments were purposely targeted by policy in China contrary to much of what we see in Africa today.

Finally, Chinese policy was able to proactively respond competently to changes in the external environment. Over time the environment within which Chinese industry developed changed significantly as policies evolved. First, market deregulation increased competition. Second, along with the reform of the industry, there was a focus on changes to rapid urbanization whereby cities such as Zhenzhen, Shanghai and Beijing were radically transformed.

Very importantly, an open market policy did not mean less intervention in the Chinese case. A number of measures were taken to support the development of the domestic computer industry including tax policies; the setting up of the Development Fund, subsidiaries, and licenses as well as the emphasis on national production.

Centres of wealth generation

In summary, in all of these cases, cities emerged as important centres of wealth generation in China. Taking all the 287 cities at prefecture level together, they make up only 28 percent of the total population and 6.5 percent of the total area, but they contributed 63 percent of the GDP in 2007.

In particular, they accounted for 73 percent and 66 percent of the nation's tertiary and secondary industries, and over 90 percent of the total value of exports and imports.

The broader lesson for poorer countries is that cities are central to poverty alleviation in ways in which they can become centres of production and innovation. ◆