HKU BUSINESS SCHOOL
港大經管學院

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Hong Kong SAR's Role in the GBA's Path to Becoming a Global Innovation Hub

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Heiwai Tang
Hongsong Zhang

For decades, Hong Kong has played an important role as an economic and financial gateway between Mainland China and the rest of the world. However, the ongoing deglobalisation trend, partly accelerated by geopolitical tensions and the COVID-19 pandemic, has posed significant challenges to the city's role as a trade and financial intermediary. Moreover, despite the stellar performance of the city's financial sector during the COVID pandemic, increasing specialization in finance and the real estate sectors have contributed significantly to the rise in income and wealth inequalities in the city. A more diversified economy would help foster sustainable and inclusive economic growth in Hong Kong.

The question is, in which direction should Hong Kong diversify its economy? We think the overall strategy should be one that can help Hong Kong leverage the opportunities arising from the pandemic and geopolitical tensions. The overdue economic transformation should be one that (1) fosters the development of a knowledge economy buttressed on science and technology (S&T) and research and development (R&D); and (2) enhances its effective economic collaboration and integration with other Greater Bay Area (GBA) cities according to Hong Kong's comparative advantages, which shall contribute to the development of the region on the one hand, and overcome Hong Kong's limitation on the other.

The Hong Kong Special Administrative Region (HKSAR) Government may want to grasp the opportunities offered by the changing domestic, regional, and global geopolitical and economic environments to implement the necessary policies for facilitating a long overdue economic transformation. Such a transformation should help foster the city's inclusive and sustainable economic growth, creating multiple innovative knowledge-intensive sectors and a variety of good jobs that offer diverse opportunities, upward mobility, and on-the-job training in a polarizing labor force.

To achieve those goals, reindustrialization is an essential step not only to diversify the city's economic portfolio, but to help complete the ecosystem for scientific research and innovation, which will empower the city's role in contributing to the development of the international innovation hub with Shenzhen. In 2019, the manufacturing sector accounted for less than 1% of Hong Kong's GDP. A commonly proposed reason for this tiny share of manufacturing in Hong Kong is its high cost of production, which is related to limited land supply or high wages. However, looking at another "Asian Tiger",

Singapore, or other advanced economies like Switzerland and Israel, one finds counterexamples to reject the hypotheses that high cost of production is a key obstacle to reindustrialization.

Successes in other economies' industrial development are not purely about minimizing costs, which will be quite challenging given lower costs in developing economies. They are more likely outcomes of strategic adoption of technology, automation, supply chain management, and marketing in international markets, together with effective government policies that promote innovation and public-private partnership.

In this study, we aim to analyze the path of Hong Kong's transition into an innovative economy based on its competitive advantages, including its strength in basic science research, world-renowned universities, well established intellectual property rights institutions, deep and mature financial markets, professional service talents and know-how, experience in doing businesses with foreign companies and exporting, as well as transportation and information infrastructures, among others. Being part of the GBA, Hong Kong should exploit opportunities to collaborate with other GBA cities, which tend to be stronger in applied science research and significantly more competitive in advanced manufacturing. We will focus on analyzing the comparative advantages of key GBA cities, which include Shenzhen, Guangzhou, and Dongguan, and identify how they can each collaborate with Hong Kong to create synergy and spillovers from one another.

Hong Kong can serve as a research and design hub in the GBA's path to becoming a global innovation hub. Given its comparative advantages (and disadvantages), Hong Kong can focus on capital- and skill-intensive R&D and innovation, instead of mass industrial production. Hong Kong should collaborate with GBA cities in their traditionally dominating industries like computer, telecommunication, and other electronics on the one hand, and fast-growing industries, like recycling and processing of waste resources and materials and pharmaceutical industry on the other. Moreover, Hong Kong can invest in the upstream and downstream segments of different high-tech supply chains as a way to facilitate the expansion of an integrated market in the GBA, given the strong upstream-downstream vertical industrial clustering as observed in other parts of Mainland China.

To achieve these goals, the HKSAR government can consider incentivizing corporates' and universities' innovation and collaboration with GBA cities through R&D subsidies, streamlined and expanded immigration policy to attract global talents, enhanced livelihood support (e.g. education and housing subsidies) to keep talents, and more flexible measures to attract and retain innovative companies. The HKSAR government should also review its medical, education, and other service industries to enhance mutual mobility of workers in Hong Kong and Guangdong.

Hong Kong's Advantages and Path to Reindustrialization

Despite rising competition from other GBA cities, especially Shenzhen, Hong Kong still maintains clear comparative advantages to participate in R&D, innovation, and even certain high-end manufacturing production and testing in selected industries. First, as an international financial center, Hong Kong has access to abundant capital from international investors and domestic tycoons and large-scale middle-class households. Second, Hong Kong remains attractive to many foreign talents due to its culturally diverse and inclusive society. Third, its strong intellectual property protection institutions and stable business environment encourage long-term investment in R&D and innovation in the city. Moreover, it has served as the information and capital intermediary between Mainland Chinese companies and the world, contributing substantially to its boom and Shenzhen's growth in the past three decades. Although this role is weakening in recent years following China's global integration and the wide use of information and communication technology, Hong Kong still has a strong competitive edge as an information hub in the GBA, which helps it understand global market trends and the constantly changing knowledge frontier. These factors give Hong Kong comparative advantages in engaging in capital- and skill-intensive activities in the upstream (e.g., R&D, innovation, and small-scale high-end production) and downstream (e.g., marketing, exports, and post-sales services) segments of the region's reindustrialization, in selected industries in the supply chain.

On the other hand, Hong Kong has its own disadvantages, including high labor costs, limited and expensive land space, physical and even cultural distance to various Mainland markets, and lack of manufacturing capacity. The city currently also lacks engineering and industrial talents. Many of the high-tech industrial entrepreneurs and executives who were on the rise in the 80s and 90s have already retired or are about to do so. These disadvantages pose challenges for Hong Kong to compete with other GBA cities and integrate in the supply chain.

To exert Hong Kong's advantages and mitigate its disadvantages, the city can focus on the following activities to pave its way toward reindustrialization:

1. Hong Kong should focus on capital- and skill- intensive activities such as R&D and innovation.

2. Hong Kong can utilize its role as an international information hub and allocate more resources on product design to satisfy the demand of international markets.

3. Hong Kong's reindustrialization should emphasize automation and focus on high-end activities along the supply chains for high value-added products, including medicine, medical equipment, EV parts and components, etc.

4. Hong Kong can also maintain its advantage in providing professional services, including financing, insurance, quality assurance, marketing, post-sales customer services, and patenting, to firms in GBA cities.

Collaboration with GBA Cities to Build a Global Innovation Hub

Given its relatively small size, it is difficult for Hong Kong to establish the whole supply chain for most products. Hence, the city should actively collaborate with other GBA cities in terms of innovation and reindustrialization to fully exert its comparative advantages and create synergetic effects. Given that each GBA city has its own comparative advantages in different industries, Hong Kong can exert its own advantage by participating in partnerships with selected industries in different GBA cities.

Table 1 displays the top five industries of each GBA city in Guangdong province in 2020. Take Shenzhen as an example. The top five manufacturing industries are manufacturing of computer, electronic and optical products, electrical machinery and equipment manufacturing, specific equipment manufacturing, cultural products, and general equipment manufacturing. In contrast, Guangzhou excels at special-purpose equipment manufacturing, electronics, petrochemical industry, energy production, and food products; Dongguan focuses on computer and electronic information, electrical equipment and machinery, rubber and plastic products, metal products, and special-purpose machinery manufacturing.

Table 1: Top 5 Dominant Industries in GBA Cities

Major industrial industries in the Greater Bay Area cities in 2020: Sorted by GDP, from largest to smallest					
	1	2	3	4	5
Guangzhou	**Manufacture of special-purpose machinery**	**Manufacture of computer, electronic and optical products**	**Manufacture of chemicals and chemical products**	**Electricity, steam and air conditioning supply**	**Manufacture of food products**
Shenzhen	Manufacture of computer, electronic and optical products	Manufacture of electrical equipment and machinery	Manufacture of special-purpose machinery	Manufacture of cultural and educational,art and craft, sports and entertainment products	Manufacture of general-purpose machinery
Zhuhai	**Manufacture of electrical equipment and machinery**	**Manufacture of computer, electronic and optical products**	**Manufacture of pharmaceuticals, medicinal chemical and botanical products, and medical and dental instruments and supplies**	**Manufacture of chemicals and chemical products**	**Manufacture of general-purpose machinery**
Foshan	Manufacture of electrical equipment and machinery	Manufacture of basic metals and fabricated metal products, except machinery and equipment	Manufacture of non-metallic mineral products	Manufacture of motor vehicles, trailers and semi-trailers	Manufacture of rubber and plastics products
Huizhou	**Manufacture of computer, electronic and optical products**	**Manufacture of chemicals and chemical products**	**Manufacture of electrical equipment and machinery**	**Electricity, steam and air conditioning supply**	**Manufacture of rubber and plastics products**
Dongguang	Manufacture of computer, electronic and optical products	Manufacture of electrical equipment and machinery	Manufacture of rubber and plastics products	Manufacture of basic metals and fabricated metal products, except machinery and equipment	Manufacture of special-purpose machinery
Zhongshan	**Manufacture of electrical equipment and machinery**	**Manufacture of computer, electronic and optical products**	**Manufacture of general-purpose machinery**	**Manufacture of basic metals and fabricated metal products, except machinery and equipment**	**Manufacture of chemicals and chemical products**
Jiangmen	Manufacture of food products	Electricity, steam and air conditioning supply	Manufacture of basic metals and fabricated metal products, except machinery and equipment	Manufacture of computer, electronic and optical products	Manufacture of electrical equipment and machinery
Zhaoqing	**Manufacture of non-metallic mineral products**	**Manufacture of computer, electronic and optical products**	**Manufacture of basic precious and other non-ferrous metals**	**Manufacture of furniture**	**Manufacture of basic metals and fabricated metal products, except machinery and equipment**

Source: The Statistical Yearbook of each city.

On the other hand, GBA cities have been undergoing fast economic transformation in the past decade, pressured by changing economic conditions such as rising wages and

land costs. Governments in these cities have been actively pushing for industrial upgrading in response to these challenges. Therefore, a new set of fast-growing industries emerged and they created new business opportunities not only for these cities, but also for Hong Kong. As shown in Table 2, the GBA cities have experienced industrial upgrading from 2012 to 2020. Guangzhou experienced fastest growth in specific equipment manufacturing, water production and supply, fuel gas production and supply, wooden furniture and related products, and pharmaceutical manufacturing. In contrast, Shenzhen's top five fast-growing industries are recycling and processing of waste resources and materials, specific equipment manufacturing, arts products, automobile, and pharmaceutical manufacturing.

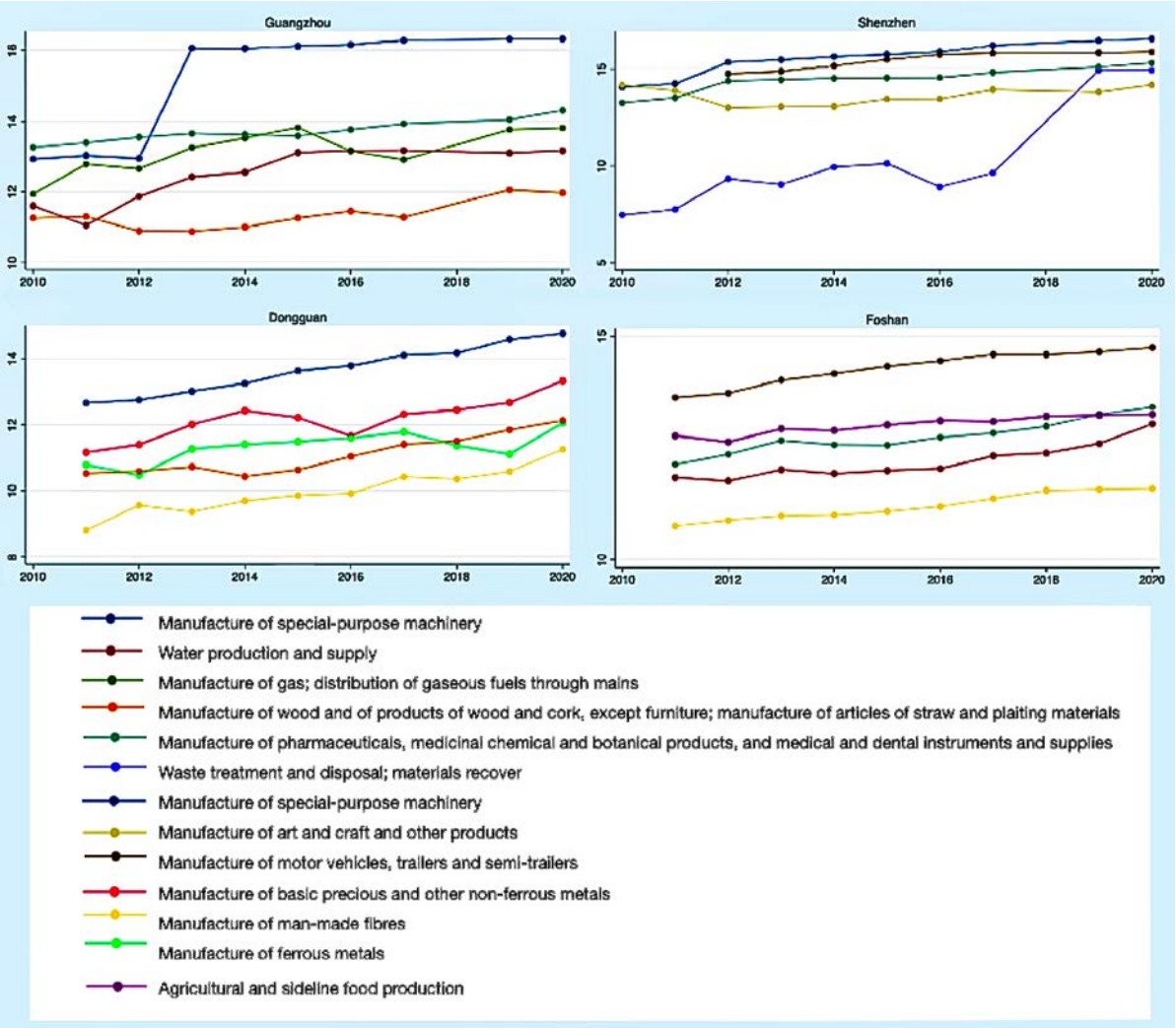
Table 2: Top 5 Fastest-growing Industries in GBA Cities

Fastest Growing Industrial Sector in Greater Bay Area Cities (2012-2020): Sorted by growth rate, from largest to smallest					
	1	2	3	4	5
Guangzhou	**Manufacture of special-purpose machinery**	**Water production and supply**	**Manufacture of gas; distribution of gaseous fuels through mains**	**Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials**	**Manufacture of pharmaceuticals, medicinal chemical and botanical products, and medical and dental instruments and supplies**
Shenzhen	Waste treatment and disposal; materials recovery	Manufacture of special-purpose machinery	Manufacture of art and craft and other products	Manufacture of motor vehicles, trailers and semi-trailers	Manufacture of pharmaceuticals, medicinal chemical and botanical products, and medical and dental instruments and supplies
Zhuhai	**Waste treatment and disposal; materials recovery**	**Manufacture of plastics products**	**Manufacture of gas; distribution of gaseous fuels through mains**	**Repair and installation of machinery and equipment**	**Manufacture of food products**
Foshan	Water production and supply	Manufacture of pharmaceuticals, medicinal chemical and botanical products, and medical and dental instruments and supplies	Manufacture of motor vehicles, trailers and semi-trailers	Manufacture of man-made fibres	Agricultural and sideline food production
Huizhou	**Manufacture of gas; distribution of gaseous fuels through mains**	**Manufacture of measuring, testing, navigating and control equipment; watches and clocks; optical instruments and photographic equipment**	**Repair and installation of machinery and equipment**	**Water production and supply**	**Manufacture of special-purpose machinery**
Dongguang	Manufacture of special-purpose machinery	Manufacture of basic precious and other non-ferrous metals	Manufacture of man-made fibres	Manufacture of ferrous metals	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
Zhongshan	**Manufacture of motor vehicles, trailers and semi-trailers**	**Manufacture of measuring, testing, navigating and control equipment; watches and clocks; optical instruments and photographic equipment**	**Water production and supply**	**Manufacture of furniture**	**Manufacture of general-purpose machinery**
Jiangmen	Waste treatment and disposal; materials recovery	Mining and quarrying of non-metal ores	Manufacture of general equipment	Manufacture of motor vehicles, trailers and semi-trailers	Manufacture of basic precious and other non-ferrous metals
Zhaoqing	**Manufacture of gas; distribution of gaseous fuels through mains**	**Manufacture of furniture**	**Manufacture of motor vehicles, trailers and semi-trailers**	**Manufacture of beverages**	**Manufacture of man-made fibres**

Source: The Statistical Yearbook of each city.

The growth rates of these industries are stunning. As shown in Figure 1, the value-added of the specific equipment manufacturing in Guangzhou expanded by almost 30 times from 2012 to 2020 to reach 123 billion RMB in 2020. In Shenzhen, the recycling and processing of waste resources and materials industry expanded by 272 times during the same period to reach an annual value-added of more than 30 billion RMB in 2020.

Figure 1: Value-added (in logarithm) of Top-5 Fastest-growing Industries in 4 GBA Cities



Source: The Statistical Yearbook of each city.

Hong Kong can leverage the opportunities arising from the economic transformation in GBA cities to strengthen its R&D, innovation, and reindustrialization through economic collaboration and integration with GBA cities. Besides joining the supply chains of the traditionally strong industries in the GBA cities, Hong Kong can play a more proactive role and try to direct its R&D and innovation toward serving the recently fast-growing industries in these cities, to help them develop more new products and improve technology and product quality.

Take the potential collaboration between Hong Kong and Shenzhen as an example. Given Shenzhen's traditional advantage in manufacturing of computer, telecommunication and other electronics, electronical machinery and equipment manufacturing and cultural products, Hong Kong can invest more R&D and innovation in these industries that focus on providing production services and design new

products for these industries. Moreover, Hong Kong may also invest in Shenzhen's fast-growing industries in recycling and processing of waste resources and materials, because Hong Kong also has a large demand for waste management and experiences in this industry. In addition, Hong Kong can also utilize its strong research capability in the pharmaceutical industry to strengthen collaboration with Guangzhou, Shenzhen, and Foshan, whose pharmaceutical manufacturing industry experienced a rapid growth in the past 10 years. Hong Kong can specialize in R&D to develop new medicines, medical equipment, and new examination methodologies.

Moreover, based on our research of industrial clustering in China, horizontal clustering of an industry typically leads to a boom of vertical industrial clustering, creating new business opportunities in both the upstream and downstream industries. Hence, Hong Kong should identify and invest in the beneficial upstream and downstream sectors of growing supply chains. Given the large market potential, Hong Kong can on the one hand invest in R&D in new technologies, new materials, and intermediate inputs that are in the upstream sectors of emerging industries in each of the GBA cities. On the other hand, Hong Kong can also invest in the downstream sectors of those supply chains, utilizing the productivity growth of the fast-growing industries in the GBA and its own strength in the export-related professional services.

Challenges and Policy Recommendations

On the path to reindustrialization and innovation, Hong Kong faces a series of challenges. These challenges include competition from other GBA cities, high costs of labor and land, high housing and rental costs, frictions in cross-border collaboration and integration, as well as the lack of R&D culture in an economy dominated by financial and professional services.

To overcome these challenges and pave its way toward innovation and reindustrialization, we recommend the HKSAR government to consider the following policy measures.

1. Hong Kong needs a strengthened R&D-enhancing policy. This includes but is not limited to R&D tax reduction and improved property rights sharing between researchers and universities in order to incentivize more applications of basic research and development.

2. Hong Kong needs enhanced measures to attract more international innovative firms to create the external economy of scale in R&D and innovation. These measures include reducing labor costs and land costs in science parks through various incentive programs. One possibility is to build governments' subsidized apartments to house local and foreign talents in Hong Kong Science and Technology Parks Corporation, or provide rental subsidies to young talents who

work in strategic industries. In addition, Hong Kong needs to improve its current talent policies by launching an enhanced talent program and simplifying immigration policy for international talents, especially in STEM fields.

3. A big challenge for Hong Kong is to keep existing talents. The current double stamp tax policy significantly raises the costs for the newly immigrant talents to purchase an apartment, which in turn increases the likelihood that they leave Hong Kong in the short run. The HKSAR government may consider a "buy-pay-rebate" double stamp tax policy, allowing non-residents to purchase apartments by paying a double stamp tax first, but which be fully rebated if they subsequently obtain permanent residency. This measure encourages new talents to purchase property, increasing their probability of staying in Hong Kong.

4. Different local governments in the GBA can enhance cross-border collaboration between Hong Kong businesses and those in other GBA cities by further reducing border frictions against integration, providing more information services to both employers and employees, increasing cross-border business exchanges, and improving cross-border labor mobility by providing mutually acceptable medical and educational services for people who are willing to work in any city in the GBA.