

# Economic Transformation of the Greater Pearl River Delta: Moving Up the Value Chain



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## INTRODUCTION

The Greater Pearl River Delta (PRD) region is evolving from simply being the world's low-cost factory to an increasingly innovative, knowledge-driven manufacturing hub. Spurred by national and provincial directives, and supported financially with loans and heavy infrastructure spending, the region over the next decade will be an increasingly sophisticated and important global economic center.

With about **100 million people**, Guangdong province would rank as one of the world's larger countries, with a population about the same as the Philippines and larger than Germany or Vietnam. The PRD region, where about half of the province's residents live, has a population comparable to that of South Korea. The city of Shenzhen was where China's open-door policy began in 1978, and the region has disproportionate weight in China's economy, accounting for more than one-quarter of China's exports.

**China's current Five-Year Plan (2011-15) will give a powerful push to change.** Industries are being modernized and expanded. The area's heavy industry will enjoy a big boost while low-wage, labor-intensive industries are being encouraged to move inland. Heavy spending on infrastructure and transportation will support an increasingly urbanized population. Energy efficiency initiatives are designed to see that improved quality of life will accompany greater affluence.

Hong Kong plays a key role. It is part of what the Chinese government has coined the Greater PRD region, and at the same time serves a national purpose as China's international financial center. **Moves to liberalize the renminbi (RMB) will benefit Hong Kong's financial sector.** Still, few people expect full currency liberalization—which would include a free-floating, fully convertible RMB—within the next decade. Financial control remains too important for national economic planning.

Higher wages are providing another force for change. China introduced a minimum wage law in 2004. Competitive pressures have led to rapid wage inflation. Yet even as low-wage industries leave, the PRD will remain one of the world's most important manufacturing locations for decades. Its strong supply chain, providing components for countless industries, and good infrastructure ensure that higher wages alone will not undercut Guangdong's role as the workshop of the world.

The Chinese leadership's plans show its long-term vision and determination to shape the Greater PRD region into a leader for broader changes in the nation, namely to become more innovative and to promote more sustainable and equitable growth. As a result of policy changes and large-scale investments, opportunities for businesses to set up more sophisticated operations in the region and also sell to PRD customers will expand.

There is widespread support for the government's vision to steer the economy in a new direction. In addition to providing a better understanding of the economic transformation plans for the Greater PRD region, this briefing also hopes to articulate what success would look like a decade from now.

## OVERVIEW OF GREATER PRD'S ECONOMIC GROWTH

The Greater PRD region officially includes nine cities and two Special Administrative Regions (SARs) (see Appendix I: Greater PRD Map and Key Statistics). Covering less than 1% of China's total land area and less than 4% of its population, **the nine cities in the PRD region account for almost 10% of China's GDP, almost 20% of its foreign direct investment (FDI), and a quarter of its trade**, as well as the majority of the Guangdong province's economy in terms of GDP and trade. The region also has faster growth and greater wealth than the rest of the country (see Appendix II: Relative Size of the Greater PRD Region).

The Greater PRD region's economic take-off can be traced back to 1979, when China's open-door policy and economic reforms jumpstarted the development of nine municipalities designated by the Guangdong government as the Pearl River Delta Economic Zone, in addition to Hong Kong and Macau (which were once colonies but have become special administrative regions of China in 1997 and 1999, respectively). Throughout the last 20 years, industrial development and export processing zones, as well as technology parks, have proliferated, with domestic and foreign enterprises in various industries establishing major operations and headquarters in different cities (see Appendix III: Economic Development by City).

## BACKGROUND FOR ECONOMIC TRANSFORMATION

While the Greater PRD region has succeeded in the past, a number of opportunities and challenges increasingly drive the region to develop in a new direction. As Guangdong Party Secretary Wang Yang put it, the region needs to **"replace the bird but keep the cage"** (*teng long huan niao*), which means removing the outdated, low value-added parts of the economy to make room for innovative, high value-added activities. The impetus for change includes various driving forces, both at home and from abroad.

## RISING COST PRESSURES

The PRD region has experienced wage inflation in recent years, particularly in traditional manufacturing industries. Energy, commodity, and overhead costs have also risen rapidly. These cost pressures are leading to migration and outsourcing of basic manufacturing to other low-cost locations in inland provinces in China and other developing countries like Vietnam, Indonesia, Cambodia, and Bangladesh.

The local minimum wage provides a comparison of costs between the compensation of basic manufacturing workers in different cities. For example, the first-tier cities of **Shenzhen and Guangzhou have the first and third highest minimum wages in China, at RMB 1,320 (equivalent to \$206) and RMB 1,300 per month** respectively (Zhejiang ranks second, at RMB 1,310). The minimum wage in the second-tier cities in the region, including Zhuhai, Foshan, Dongguan, and Zhongshan, is now RMB 1,100.<sup>1</sup> Third-tier cities of Huizhou, Jiangmen, and Zhaoqing and inland cities such as Chongqing and Chengdu have equivalent minimum wages, between RMB 800 and 900 per month. **On average, these rates have risen 20% or more over the past year.<sup>2</sup> Indeed, some companies have reported a doubling of wages in five years.** By one estimate, general worker wages have risen to about RMB 3,000 per month, more than double the minimum wage.<sup>3</sup> Taiwanese company Foxconn, the world's largest electronic component manufacturer with over 300,000 workers based in Shenzhen, reported recently that costs for the company per employee increased one-third during the first six months of 2011, year-over-year.<sup>4</sup> In addition, a labor contract law implemented in 2008 by the Chinese government aiming at worker protection has increased costs for domestic and foreign companies. Therefore, China as a whole is becoming a more costly base for labor-intensive manufacturing operations compared to parts of South and Southeast Asia—the **minimum wage in Vietnam ranges from RMB 400 to 600 per month, and Bangladesh, Cambodia, and Laos all have minimum wages below RMB 500 per month.**<sup>5</sup>

### EQUITABLE GROWTH

As part of its push for more balanced economic growth across the country, the Chinese government has been actively promoting the development of the inland provinces. In the past three decades, the government had allowed the coastal provinces to develop and get rich first. This has resulted in a widening prosperity gap between first-tier cities like Shanghai, Beijing, Shenzhen, and Guangzhou and the rest of the country. The wave of immigrant workers leaving their families behind in inland provinces to pursue better job opportunities in big cities, and university graduates staying in cities to earn better incomes, have further led to a concentration of wealth. To rebalance growth, the government has invested heavily in infrastructure and offered business migration incentives to attract cost-conscious PRD businesses to relocate to inland provinces, while encouraging higher-end producers looking for qualified yet more expensive talent to stay in the PRD.

### VALUE CHAIN AND HUMAN RESOURCE UPGRADING

China wants to move away from low-end manufacturing but is afraid of the impact on employment. In the near future, aging demographics will mean a growing shortage of young workers relative to retirees. According to the United Nations, China's number of 15- to 24-year-olds will fall by 62 million by 2025—a decline of more than one-quarter from today.<sup>6</sup> By some accounts, the PRD region is already facing a labor shortage of 2 million, due to unintended effects of the one-child policy, expanded college enrollment, and high mobility of young workers.<sup>7</sup> With the PRD the country's main production base, the ideal path is to move up the value chain. Chinese manufacturers are well-positioned to do that, as they have through the years gained expertise in producing simpler, more efficient, and improved goods for their global clients.<sup>8</sup> Although China is still relatively weak in producing breakthrough innovations, Chinese producers are well-positioned for incremental innovations and can charge higher prices for the higher-quality products and high-skilled workers who produce them.

## RESOLVING TRADE IMBALANCES

China's trade surplus with the U.S., at \$273 billion in 2010,<sup>9</sup> is the world's largest and indicative of an imbalance—the U.S. has been buying cheap goods from China, and China has been accumulating U.S. Treasuries. Both countries have agreed to take steps to resolve the imbalance, but with little result.

Since 2005, China has loosened its peg to the U.S. dollar and allowed the RMB to rise, thus raising the price of Chinese exports. (The Chinese government maintained a peg of RMB 8.27 per USD from 1997 to 2005.<sup>10</sup> As of August 2011, the RMB exchange rate was around 6.4 to the USD.) At the same time, Chinese companies are looking to produce higher value-added goods and services to serve its growing domestic market as well as compete globally. The price increase and greater market competition mean Chinese producers must move away from low-cost, low-end businesses.

## THE 12<sup>TH</sup> FIVE-YEAR PLAN

China's 12<sup>th</sup> Five-Year Plan, issued in March 2011, aims to transform the Chinese economy. Usually the best indicator of the country's overall direction in economic development in the coming five years, the **current Five-Year Plan lays out an economic vision to upgrade industry, foster innovation, and successfully transition the world's factory into a research-driven, high value-added economy.**

The current plan goes beyond, and to some extent departs from, China's success model that has enabled rapid growth in the past, focusing instead on restructuring and reforming the economy for long-term prosperity. During the last Five-Year Plan, China achieved an annual average growth of over 11%, exceeding the planned 7.5%. Significantly, in the current Five-Year Plan, the nation's **annual GDP growth target has been revised down to 7%.** While continuing to build on China's strength in exports, the plan **emphasizes the need for internal demand- and consumption-driven growth.** It strives to improve incomes and quality of life across populations rather than generating rapid growth that benefits some geographies and populations disproportionately. It plans to upgrade low-end, low-cost industries to develop more innovative ones. Moreover, the plan **focuses on moving from energy-intensive to green, energy-efficient growth.**

There are currently three complementary plans guiding the development of the Greater PRD region. Besides the national 12<sup>th</sup> Five-Year Plan, Guangdong also has a provincial 12<sup>th</sup> Five-Year Plan. In addition, the National Development and Reform Commission (NDRC) also issued the Outline of the Plan for the Reform and Development of the Pearl River Delta (2008-2020). The provincial plan serves as a supplement to and detailing of the national plan, while the Reform and Development Plan, which was approved by the State Council in 2008, takes a longer-term approach of the PRD's development up to 2020. The three overlapping plans paint a picture of an integrated, innovative, and efficient Greater PRD, a pioneer and testing ground for the whole country in building high value-added manufacturing and knowledge-based services industries.

## HIGHLIGHTS OF POLICIES FOR TRANSFORMING THE GREATER PRD REGION

### UPGRADING INDUSTRIES

At the heart of the government plans is the restructuring of the PRD economy from “made in Guangdong” to “created in Guangdong.”<sup>11</sup> The vision is to accomplish this in two ways. First, the government plans to upgrade traditional industries. It plans to **modernize strategically important capital-intensive industries**, including manufacturing equipment, autos, steel, petrochemicals, shipbuilding, and power generation equipment. The focus is on making industry structure leaner and more efficient, improving the variety and quality of products, and enhancing industry innovation. In addition, the government plans to upgrade other traditional manufacturing industries, including household electronics, textiles and garments, food and beverages, construction materials, paper, and Chinese medicine, so that they can compete with global brands.

Second, PRD will be the **testing ground for emerging high-tech as well as services industries**. These include information and communication technologies (ICT), biotechnology, new materials, environmental technologies, and marine technology. The Guangdong government also plans to cultivate breakthrough innovations, cooperating with industry players in areas ranging from broadband technologies, modern Chinese medicine and bioinformatics, electric vehicles, LED technologies, and material science, to various green technologies.<sup>12</sup> In terms of services, the PRD’s planned focus will be financial services, conventions and exhibitions, logistics, IT and high-tech services, outsourcing, creative industries, headquarter services, and tourism.<sup>13</sup> Specific PRD cities are mentioned as hubs for various industries (see Appendix III: Economic Development by City).

Movement toward industrial upgrading and the development of new industries has already begun: **Last year, the Guangdong government launched over 500 projects with a total investment of RMB 1.2 trillion** (including RMB 10 billion from the government budget over the 12<sup>th</sup> Five-Year Plan period) focused on **upgrading the region’s innovation capacity**. There are about 100 projects each focused on strategic emerging industries, advanced manufacturing, modern service industries, upgrading of traditional industries, and modern agriculture, and more than 90% of the projects have already begun construction.<sup>14</sup> Additionally, **new industrial clusters are planned for Shenzhen, Qianhai, Zhuhai, Hengqin, Guangzhou, Nansha, and Hetao**. This year, Guangdong province has also signed **new investment agreements worth over RMB 2 trillion with 70 state-owned enterprises (SOEs) on more than 200 projects to modernize traditional industries**, more than doubling the previous amount invested in this area.<sup>15</sup>

The national Five-Year Plan also supports the development of a **Shenzhen-Hong Kong Innovation Circle, to expand collaboration in R&D and production**. So far, Shenzhen-based BYD, which specializes in electric vehicles (EVs) and rechargeable batteries, has set up a new R&D facility in the Hong Kong Science Park to develop EVs for public transport, and both United Kingdom and Germany universities have set up research and engineering laboratories partnering with research institutes in Hong Kong and Shenzhen. For instance, Southampton University has set up a web science laboratory with Tsinghua University’s graduate school in Shenzhen.<sup>16</sup> BGI has collaborated with the University of Hong Kong on the genomic sequencing of a scarlet fever pathogen, as well as with University Medical Center Hamburg-Eppendorf on the genomic sequencing of a rare E. coli strain originating in Germany that has infected thousands of people since May 2011.<sup>17</sup>



Further supplementing this push for change are efforts in the education sector. The Guangdong government aims to **increase school enrollment and enhance the caliber of higher education by inviting international players to Guangdong**. So far, the University of Birmingham has announced plans to launch a Guangzhou center, while Guangzhou, Zhuhai, and Shenzhen plan to establish cooperative programs with three to five well-known foreign universities by 2020.<sup>18</sup>

### **REBALANCING GROWTH BETWEEN COASTAL AND INLAND CITIES**

The national 12<sup>th</sup> Five-Year Plan advocates a shift of Guangdong's labor-intensive manufacturing inland, a "win-win" tactic that would both upgrade the Guangdong region and help develop inland markets. The Guangdong government has been rewarding labor-intensive manufacturers who choose to relocate their production facilities elsewhere in China with cash incentives equaling 0.3% of their total annual output value.<sup>19</sup> Many companies are already making the move. A slew of computer companies, including Hewlett-Packard, Acer, Dell, and Lenovo have already relocated.<sup>20</sup> In 2010, Foxconn began moving its manufacturing inland, including a newly opened, 100,000-worker factory in Zhengzhou and expanding its factories in Wuhan, Taiyuan, Nanning, Chongqing, and Chengdu. The Shenzhen base will be reallocated to R&D functions.<sup>21</sup> It has also said that it will use more machines for routine tasks such as spraying, welding, and assembling, in order to cut rising labor costs. Foxconn is planning to increase the number of robots to 300,000 in 2012 and a million by 2015 from the current 10,000 robots, and at the same time move workers to more value-added positions.<sup>22</sup> It will likely become even easier to convince labor-intensive manufacturers to move inland, as the rising costs currently affecting the PRD region show no sign of slowing.

### **REDUCING POLLUTION AND INCREASING GREEN INDUSTRIES**

The Guangdong government aims to **reduce energy consumption per unit of GDP and CO<sub>2</sub> emissions per unit of GDP by 16% and 17% respectively in the coming five years**.<sup>23</sup> The government has warned that it will restrict energy consumption and decrease the growth of industries with high energy consumption in its efforts to reduce the release of major pollutants. In particular, the Guangdong government aims to increase energy efficiency for three key industries, including heavy industry, construction, and transportation, as well as promote energy-efficient products.<sup>24</sup>

### **BUILDING INFRASTRUCTURE AND INTEGRATING CITIES**

The PRD plans aim to foster regional integration in infrastructure, urban planning, social services, environmental protection, and culture among the nine cities in the PRD—as well as between the PRD, Hong Kong, and Macau.

An important element of regional integration is the development of infrastructure links to speed transit. During the next five years, **the Guangdong provincial government plans to invest RMB 1.52 trillion in infrastructure projects**.<sup>25</sup> Many of these projects are already under way, including extensive intercity railways between the PRD cities. Guangzhou, Shenzhen, Foshan, and Dongguan will build a 400 km subway in the next five years. Other key projects for the next five years include the Guangzhou-Shenzhen-Hong Kong express railway, the Hong Kong-Zhuhai-Macau Bridge, the Shenzhen-Maoming express railway, and airport expansion projects in Shenzhen, Guangzhou, and Hong Kong (see Appendix IV: Highlights of Infrastructure Projects in Greater PRD).



In particular, the **provincial Five-Year Plan highlights the construction of three “city circles” (Guangzhou-Foshan-Zhaoqing, Shenzhen-Dongguan-Huizhou, and Zhuhai-Zhongshan-Jiangmen)**. Besides plans to expand railway linkages, highways within the three circles have become free of charge for vehicles with local annual passes. Mobile phone roaming charges and tariffs between cities will be cancelled by 2015.<sup>26</sup> In terms of urban planning, the three circles will work together on environmental protection and natural resources management, such as cross-border river pollution control and smart power grid networks. In addition, the Lingnan Tong smart card, used for transportation and retail payments in many PRD cities, has signed a framework agreement with Hong Kong’s Octopus to develop a two-in-one smart card covering e-payment networks in Hong Kong and mainland China.<sup>27</sup>

#### **INTERNATIONALIZING THE RMB: HONG KONG**

The 12<sup>th</sup> Five-Year Plan has an entire chapter devoted to Hong Kong, compared to the single paragraph in the 11<sup>th</sup> Five-Year Plan and one sentence in the 10<sup>th</sup> Five-Year Plan. **The Chinese government promises to support Hong Kong’s development as an offshore RMB center**, in addition to continuing to build on its strengths in finance, trade, logistics, shipping, tourism, and professional services particularly to help speed up the economic restructuring of mainland PRD cities such as Shenzhen, Guangzhou, and Dongguan.<sup>28</sup> Hong Kong also plans to develop six new pillar industries, with significant collaboration with other Guangdong cities. The Chinese government has reiterated its vision for Hong Kong to build on its strength as an international financial center. Hong Kong already has the largest RMB liquidity pool outside mainland China. In August 2011, Vice Premier Li Keqiang highlighted the Chinese government’s support for Hong Kong’s development as an RMB-denominated asset market and a key channel for RMB flows back to onshore markets. Foreign investors, including Hong Kong companies, will be allowed to invest in mainland China in RMB. China will start an exchange-traded fund (ETF) linked to Hong Kong equities and introduce a RMB qualified foreign institutional investor (RQFII) scheme for companies to invest in domestic Chinese securities.<sup>29</sup> The Chinese government also plans to expand RMB bond sales in Hong Kong and has **sold the country’s largest amount of offshore RMB-denominated treasury bonds to date in Hong Kong in August 2011, totaling RMB 20 billion**. Hong Kong therefore is positioned to play an important role in the RMB’s gradual move into a globally circulated currency. However, as long as China does not have a free-floating currency and maintains a closed capital account, the RMB cannot become a truly global currency.

#### **ENCOURAGING CHINESE COMPANIES TO “GO OUT”**

Another vision of the Chinese government is to build world-class Chinese brands. **Guangdong’s target is to build two or three world-class multinational companies with more than \$20 billion in annual sales by 2015.**<sup>30</sup> A number of cooperation projects within the region have started, paving the way for Chinese companies to increase their influence in Asia and beyond. The Guangdong government has highlighted a focus on **cooperating with ASEAN countries, as part of the China-ASEAN Free Trade Area**, in industries such as energy, ICT, tourism, and agriculture. Currently, there are 2,250 Guangzhou businesses doing business with ASEAN nations, including more than 80 businesses with an annual trade volume above \$50 million.<sup>31</sup> The Guangzhou government is **working with Singapore to build the Sino-Singapore Guangzhou Knowledge City**, with a vision of establishing a R&D and knowledge center in the region with a resident population

of 77,000, creation of 35,000 jobs in five years, and a GDP of RMB 100 billion in 10 years.<sup>32</sup> The provincial Five-Year Plan also emphasizes **cooperation with Taiwan on emerging industries and agriculture under the Economic Cooperation Framework Agreement (ECFA). Guangdong and Hong Kong have agreed on a number of pilot measures under the Closer Economic Partnership Arrangement (CEPA) to advance trade and investment.**<sup>33</sup> In 2010, 121 Guangdong enterprises listed on the Hong Kong Stock Exchange, raising \$35 billion.<sup>34</sup> Beyond Asia, the local government also plans to cooperate with the EU and NAFTA on tourism, technology, talent, and trade.<sup>35</sup> It also intends to explore new markets such as Brazil, Russia, and the Middle East.<sup>36</sup>

### WHAT WOULD SUCCESS LOOK LIKE?

The planning documents have articulated a number of specific targets for the region's economic development by 2015. It is worth noting that, compared to previous Five-Year Plans, provinces are bound to fewer hard quantitative targets. Rather, many of the targets are predictive and provinces are expected to make significant progress in economic, social, and environmental aspects.

Highlights of relevant targets for PRD include the following:

Indicator	2010 (Guangdong Five-Year Plan)	2015 (Guangdong Five-Year Plan)	2020 (NDRC Plan)	Type of Target
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#### Economic

GDP	RMB 4.5 trillion	RMB 6.7 trillion	-	Predictive
GDP per capita	RMB 47,000	RMB 66,000	RMB 135,000	Predictive
Value-added of service industry	44.6%	48%	60%	Predictive
Value-added of high-tech manufacturing	20.6%	26%	-	Predictive

#### Social

Total population <sup>37</sup>	97.3 million	102.3 million	-	Predictive
Urbanization	64%	68%	80%	Predictive
Tertiary enrollment	28%	36%	-	Predictive

Indicator	2010 (Guangdong Five-Year Plan)	2015 (Guangdong Five-Year Plan)	2020 (NDRC Plan)	Type of Target
Urban income per capita	RMB 23,898	RMB 35,100	Double that of 2012 (not specified)	Predictive
Rural income per capita	RMB 7,890	RMB 11,600	Double that of 2012 (not specified)	Predictive

#### Environmental

Reduction in energy intensity per GDP	-	16%	-	Binding
Reduction in CO <sub>2</sub> emissions per GDP	-	17%	-	Binding
Green space per urban resident	12.4 square meters	13 square meters	15 square meters	Predictive

**The PRD a decade from now likely will resemble a large middle-income country, with many similarities to Japan of the late 1970s or South Korea of the early 1990s.** Most of the region will be middle-class, and four of every five residents will live in cities, though pockets of poverty (primarily rural) will remain.

Manufacturing will continue to be an important part of the PRD's success. But low-wage labor-intensive industries will be long gone. In their place will be higher value-added light industries, likely to be as diverse as bicycles and clothes, and increasing and increasingly efficient heavy industries from steel to petrochemicals.

Just as Germany, Japan, and South Korea have kept strong positions in engineering- and design-intensive manufacturing, many companies in the Greater PRD are likely to be able to do the same.

The PRD's unique position in the global supply chain—where key components for countless industries are sourced—along with good and ever-improving transportation links by air, sea, and land not only to developed Asia and the West but increasingly to the interior of China and by land to

Vietnam and Southeast Asia, will ensure that the PRD's importance in global manufacturing remains secure long after its low-cost labor disappears.

Cities will be dense, with a vast conurbation sprawling around the PRD, from Hong Kong and Shenzhen in the southeast, up the Pearl River to Guangzhou and, on the west side of the PRD, past Foshan and Zhuhai, and down to Macau.

Public transportation, especially rail, will be better than today, but vastly increased numbers of private automobiles will mean that traffic will move slowly (the PRD will be more like Seoul than Tokyo in its reliance on cars).

In many ways, the PRD's growth trajectory will resemble that of Japan and the four Tigers, especially South Korea. From 1960 to 1990, South Korea was one of the world's fastest-growing economies, with growth averaging more than 8% a year. It grew by focusing on labor-intensive, low-cost manufactured exports, as well as heavy industries—an industrial structure not unlike that of the PRD. By the late 1980s, the South Korean government and businesses made a concerted effort to develop more innovative, high-tech industries, while upgrading its traditional pillar industries including shipbuilding, autos, and semiconductors. The country's growth in GDP per capita from \$1,765 in 1960 to \$5,468 in 1980, to \$19,604 in 2000<sup>38</sup>—levels that China aspires to—show that political will is important and that the overall goal is possible.

Nevertheless, a few key questions remain in determining the extent to which the vision for Greater PRD economic transformation will be realized:

- **As manufacturers reinvent and upgrade themselves, new jobs will be created but old ones will be killed. Can the labor force in the Greater PRD re-skill itself?**
- **Beyond government investment, will the deepening of capital markets keep pace with the need for funding industry growth, or will the financial sector continue to be repressed?**
- **As companies invest in more innovation, how can they succeed in commercializing their products and services to compete against established innovators?**
- **How will the regulatory, patent, and intellectual property environment evolve in order to support knowledge-intensive, R&D-focused industries?**

**APPENDICES**

**APPENDIX I: GREATER PRD MAP AND KEY STATISTICS<sup>39</sup>**

<b>Zhaoqing</b> * 86.2 ‡ 4.1/na ⌘ 22,415	<b>Foshan</b> * 482.0 ‡ 3.7/2.3 ⌘ 80,686	<b>Guangzhou</b> * 913.8 ‡ 7.9/2.4 ⌘ 89,082	<b>Dongguan</b> * 376.4 ‡ 1.8/4.6 ⌘ 56,601	<b>Huizhou</b> * 141.5 ‡ 3.2/0.7 ⌘ 35,819	<b>Jiangmen</b> * 134.1 ‡ 3.9/0.3 ⌘ 32,139
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<b>Zhuhai</b> * 103.9 ‡ 1.0/0.5 ⌘ 69,889	<b>Zhongshan</b> * 156.6 ‡ 1.5/1.0 ⌘ 62,304	<b>Shenzhen</b> * 820.1 ‡ 2.5/6.5 ⌘ 92,772	<b>Macau</b> * 223.7 (MOP) ‡ 0.5/na ⌘ 409,828 (MOP)	<b>Hong Kong</b> * 1,743.8 (HKD) ‡ 6.8/0.2 ⌘ 246,733 (HKD)
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**APPENDIX II: RELATIVE SIZE OF THE PRD REGION<sup>40</sup>**

Category	PRD Region	Guangdong Province	China
Land area	54,733 square kilometers	179,800 square kilometers	9.6 million square kilometers
Total population <sup>41</sup>	47.9 million	96.2 million	1.3 billion
GDP (2009)	RMB 3.2 trillion	RMB 3.9 trillion	RMB 33.5 trillion
GDP growth (2001-2009)	21.9%	13.6%	9.6%
GDP per capita (2009)	RMB 67,407	RMB 41,166	RMB 25,188
Total exports (2009)	\$342 billion	\$358 billion	\$1.2 trillion
Total imports (2009)	\$243 billion	\$252 billion	\$1.0 trillion
Foreign direct investment (2009)	\$16.9 billion	\$19.5 billion	\$90.0 billion
Total retail sales of consumer goods (2009)	RMB 1.1 trillion	RMB 1.5 trillion	RMB 13.3 trillion

**APPENDIX III: ECONOMIC DEVELOPMENT BY CITY<sup>42</sup>**

**FIRST TIER CITIES**

Most open, internationalized mainland Chinese cities within the PRD

Selected economic development milestones	Representative companies with headquarters or operations	Industries specifically mentioned in government plans
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**Shenzhen**

1979: Established as the first Special Economic Zone (SEZ) in China	<ul style="list-style-type: none"> <li>■ Baidu</li> <li>■ BGI</li> <li>■ BYD</li> </ul>	<ul style="list-style-type: none"> <li>■ Banking and finance</li> <li>■ Auto</li> <li>■ Genomics</li> </ul>
1990: Creation of Shenzhen Stock Exchange	<ul style="list-style-type: none"> <li>■ China Merchants Bank</li> </ul>	<ul style="list-style-type: none"> <li>■ LED display technology</li> </ul>
1996: Shenzhen Hi-Tech Industrial Park established	<ul style="list-style-type: none"> <li>■ Huawei</li> <li>■ Hon Hai Group</li> <li>■ Ping An Insurance</li> </ul>	
2001: Shenzhen Software Park established	<ul style="list-style-type: none"> <li>■ Tencent</li> <li>■ Vanke</li> <li>■ Wal-Mart</li> <li>■ ZTE</li> </ul>	



Selected economic development milestones	Representative companies with headquarters or operations	Industries specifically mentioned in government plans
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**Guangzhou**

1984: Guangzhou Economic and Technological Development Zone established

1991: Guangzhou High-tech Industrial Development Zone established

1992: Guangzhou Free Trade Zone established

2000: Guangzhou Export Processing Zone established

2005: Guangzhou Nansha Export Processing Zone established

2009: Foshan and Guangzhou governments agreed to merge the two cities

- CNOOC
- China Southern Airlines
- Guangzhou Automobile Group
- Honda
- Matsushita
- P&G
- PetroChina
- Siemens

- Sinopec
- Toyota
- Auto
- Shipping
- Biotech and pharmaceuticals
- Mobile technology

## SECOND-TIER CITIES

Major economies in the region focused on manufacturing for export markets

Selected economic development milestones	Representative companies with headquarters or operations	Industries specifically mentioned in government plans
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### Zhuhai

1980: Special Economic Zone established	<ul style="list-style-type: none"> <li>■ British Petroleum</li> <li>■ ExxonMobil</li> </ul>	<ul style="list-style-type: none"> <li>■ Shipping</li> <li>■ New medicine</li> </ul>
1992: Zhuhai High-Tech Industrial Development Zone established	<ul style="list-style-type: none"> <li>■ Founder Group</li> <li>■ Gree-Daikin</li> </ul>	
1996: Zhuhai Free Trade Area established	<ul style="list-style-type: none"> <li>■ Panasonic</li> <li>■ Philips</li> <li>■ Siemens</li> <li>■ Sumimoto</li> </ul>	

### Foshan

1992: Foshan Hi-Tech Development Zone established	<ul style="list-style-type: none"> <li>■ Esquel</li> <li>■ Haier</li> <li>■ Kelon</li> </ul>	<ul style="list-style-type: none"> <li>■ Furniture</li> <li>■ Household appliances</li> <li>■ Shipping</li> </ul>
2009: Foshan and Guangzhou governments signed agreement to merge the two cities' urban planning and infrastructure	<ul style="list-style-type: none"> <li>■ Midea</li> </ul>	<ul style="list-style-type: none"> <li>■ Auto</li> <li>■ Thin-film solar cells</li> <li>■ Machinery equipment</li> <li>■ LED lighting</li> <li>■ Financial services</li> <li>■ Food and beverages</li> </ul>

Selected economic development milestones	Representative companies with headquarters or operations	Industries specifically mentioned in government plans
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### Zhongshan

<p>1990: Zhongshan National Torch High-Tech Industrial Development Zone established</p>	<ul style="list-style-type: none"> <li>■ Chant Group</li> <li>■ Vatti</li> <li>■ Zhongshun Group</li> </ul>	<ul style="list-style-type: none"> <li>■ LED lighting</li> <li>■ Equipment manufacturing</li> <li>■ Fine chemicals</li> <li>■ Healthcare</li> <li>■ Wind power</li> <li>■ Household appliances</li> <li>■ Food and beverages</li> </ul>
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### Dongguan

<p>2005: Opening of the high-tech industrial park Dongguan Science &amp; Technology Museum</p>	<ul style="list-style-type: none"> <li>■ BBK Electronics</li> <li>■ Dongguan Anwell Digital Machinery</li> <li>■ Dongguan Konka Electronic</li> <li>■ Dongguan Lamex Furniture</li> <li>■ Qisheng Electronics</li> </ul>	<ul style="list-style-type: none"> <li>■ Textiles</li> <li>■ Thin-film solar cells</li> </ul>
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### THIRD-TIER CITIES

Emerging economies in the region dominated mostly by domestic enterprises

Selected economic development milestones	Representative companies with headquarters or operations	Industries specifically mentioned in government plans
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#### Huizhou

1992: Huizhou Zhongkai High-tech Industrial Development Zone established	<ul style="list-style-type: none"> <li>■ CNOOC</li> <li>■ CSPC</li> <li>■ Desay Auto Electronics</li> </ul>	<ul style="list-style-type: none"> <li>■ Petrochemicals</li> <li>■ Household appliances</li> <li>■ Construction materials</li> </ul>
1993: Huizhou Dayawan Economic and Technological Development Zone established	<ul style="list-style-type: none"> <li>■ TCL</li> </ul>	
2005: Huizhou Export Processing Zone established		

#### Jiangmen

1992: Hi-tech Industry Development Zone established	<ul style="list-style-type: none"> <li>■ ABB Group</li> <li>■ Haojue Motorcycles</li> <li>■ Jingling Electrical Appliances</li> <li>■ Vinda</li> <li>■ Lee Kum Kee</li> </ul>	<ul style="list-style-type: none"> <li>■ Household appliances</li> <li>■ Paper making</li> <li>■ Textiles (special fibers)</li> <li>■ Food and beverages</li> <li>■ Modern agriculture and fishery</li> <li>■ Ceramics</li> <li>■ Thin film solar cells</li> <li>■ LED lighting</li> </ul>
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Selected economic development milestones	Representative companies with headquarters or operations	Industries specifically mentioned in government plans
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### Zhaoqing

1998: Zhaoqing High-tech Industrial Development Zone established	<ul style="list-style-type: none"> <li>■ Fenghua High-Tech</li> <li>■ Xinghu Science and Technology</li> <li>■ Zhaoqing Blue Ribbon Group</li> </ul>	<ul style="list-style-type: none"> <li>■ Food and beverages</li> <li>■ Construction materials</li> </ul>
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### SPECIAL ADMINISTRATIVE REGIONS

Former colonies that have returned to Chinese sovereignty but operate largely as separate economic systems

Selected economic development milestones	Representative companies with headquarters or operations	Industries specifically mentioned in government plans
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### Hong Kong

1997: Handover of sovereignty from Great Britain to China  2003: Signing of Closer Economic Partnership Agreement (CEPA) with China	<ul style="list-style-type: none"> <li>■ Bank of China</li> <li>■ Cheung Kong</li> <li>■ China Mobile</li> <li>■ Hutchison Whampoa</li> <li>■ Jardine Matheson</li> <li>■ Sun Hung Kai</li> <li>■ Swire Pacific</li> </ul>	<ul style="list-style-type: none"> <li>■ Financial services</li> <li>■ Trade</li> <li>■ Logistics</li> <li>■ Shipping</li> <li>■ Tourism</li> <li>■ Professional services</li> <li>■ Six new pillar industries (education services, medical services, testing and certification services, environmental industries, innovation and technology, and cultural and creative industries)</li> </ul>
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Selected economic development milestones	Representative companies with headquarters or operations	Industries specifically mentioned in government plans
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#### Macau

1999: Handover of sovereignty from Portugal to China	<ul style="list-style-type: none"> <li>■ Air Macau</li> <li>■ MGM</li> <li>■ Sands Macau</li> <li>■ Shun Tak Holdings</li> </ul>	<ul style="list-style-type: none"> <li>■ Gaming</li> <li>■ Tourism</li> </ul>
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#### APPENDIX IV: HIGHLIGHTS OF INFRASTRUCTURE PROJECTS IN GREATER PRD<sup>43</sup>

Project	Expected Year of Completion	Estimated Cost (RMB billion)
Guangzhou-Zhuhai Intercity Railway	2010	17.8
Xijiang River Water-Diversion Project	2010	8.9
Guangdong Natural Gas Pipeline Project (first phase)	2011	8.0
Guangzhou Port Sea Channel (third phase)	2011	1.1
Dongguan-Huizhou Intercity Railway	2012	25.3
Shenzhen Baoan Airport Expansion Project	2012	21.4
Guangzhou-Dongguan-Shenzhen Intercity Railway	2012	19.7
Shenzhen "Three Networks Integration" Pilot Project (Telecommunications networks, computer networks, and three cable television networks)	2012	n/a
Zhanjiang Jianjiang Water Supply Project	2012	3.2
Guangzhou-Foshan-Zhaoqing Intercity Railway	2013	19.7
Guangzhou-Foshan subway (part of the Guangzhou, Shenzhen, Foshan, and Dongguan subway)	2013	14.7
Shenzhen-Huizhou Intercity Railway	2014	29.8

Project	Expected Year of Completion	Estimated Cost (RMB billion)
Guangzhou-Shenzhen-Hong Kong Express Railway	2015	70.2
Shenzhen-Maoming Express Railway	2015	59.3
Guangzhou Baiyun Airport Expansion Project (third runway and terminal two)	2015	14.0
Guangdong Electricity Network	2015	29.2
Hong Kong-Zhuhai-Macau Bridge	2016	32.7
Liantang-Heung Yuen Wai Checkpoint between Hong Kong and Shenzhen	2018	9.6
Hong Kong International Airport Expansion Project (new concourse and possibly third runway)	2020 (2030 with third runway)	19.2 (70.6 with third runway)

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<sup>8</sup> Dan Breznitz and Michael Murphree, *Run of the Red Queen: Government, Innovation, Globalization, and Economic Growth in China* (New Haven: Yale University Press, 2011).

<sup>9</sup> U.S. Census Bureau foreign trade statistics, 2011.

<sup>10</sup> Renminbi (Chinese  *yuan*) exchange rates 1969-2010, <http://www.chinability.com/Rmb.htm>.

<sup>11</sup> NDRC Outline of the Plan for the Reform and Development of the Pearl River Delta, Chapter 4, Section 1.

<sup>12</sup> Guangdong 12<sup>th</sup> Five Year Plan, Chapter 2, Section 2.

<sup>13</sup> NDRC Outline of the Plan for the Reform and Development of the Pearl River Delta, Chapter 2.



- <sup>14</sup> “Guangdong Accelerates Modern Industry Construction,” Newsgd.com, May 26, 2011, [http://www.newsgd.com/specials/12thFive-Year/news/content/2011-05/26/content\\_24654283.htm](http://www.newsgd.com/specials/12thFive-Year/news/content/2011-05/26/content_24654283.htm); “85% of 500 projects are under construction,” (in Chinese), *Nanfeng Daily*, July 11, 2011, [http://epaper.nfdaily.cn/html/2011-07/11/content\\_6985136.htm](http://epaper.nfdaily.cn/html/2011-07/11/content_6985136.htm).
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- <sup>37</sup> Total population includes: 1) people with local Hukou (either living in the city or living elsewhere in China or overseas for less than six months); 2) people without local Hukou but live in the city for six months or more and register as temporary residents.

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<sup>40</sup> Guangdong Statistical Yearbook 2010. Includes nine cities: Shenzhen, Guangzhou, Foshan, Dongguan, Zhuhai, Zhongshan, Huizhou, Jiangmen, and Zhaoqing, but excludes Hong Kong and Macau.

<sup>41</sup> Total population includes: 1) people with local Hukou (either living in the city or living elsewhere in China or overseas for less than six months); 2) people without local Hukou but live in the city for six months or more and register as temporary residents.

<sup>42</sup> Guangdong 12th Five-Year Plan; Wikipedia; government websites; Hong Kong Trade Development Council.

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