Evolution from Mega-Cities to Mega-Regions in China and Southeast Asia

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Summary

1. In recent years, major cities in China and Southeast Asia have gained increasing prominence as production centers in production networks in East Asia, and also as consumer markets fueled by vigorous purchasing power. The development of these major cities is expected to drive sustainable growth not only in the countries where they are located, but throughout East Asia. In this article we will examine urbanization in East Asia and analyze the current status of these major cities. We will also look at the factors driving the development of these cities, consider their future prospects, and study the issues facing them.

2. East Asia, including China and Southeast Asia, has experienced rapid urbanization since 1950. The urbanization ratio (the urban populations as a percentage of the total population) has risen from 16.1% in 1950 to 44.7% in 2005. It is expected to reach 59.6% by 2025 and 74.3% by 2050. This indicates that China and Southeast Asia are in a transitional phase from rural to urban societies.

3. Generally there is a correlation between the urbanization ratio and the level of economic development. Per capita GDP in major cities, such as Shanghai, Shenzhen (Guangdong Province) and Bangkok (Thailand) are in the $8,000-10,000 range. Diffusion rates for major electrical appliances, such as washing machines, refrigerators and televisions, are all close to 100%, and ownership of recreational durable consumer goods, including LCD televisions and personal computers, is becoming increasingly common. These cities also have large affluent populations. In 2006, the percentage of households in Bangkok and the three neighboring provinces exceeding the average monthly consumption expenditure of 50,000 baht (approximately $1,500) reached 9.4%. It is significant that major East Asian cities are taking on the characteristics of cities in advanced economies from the perspective of consumption as well as production.

4. Major cities, such as Shanghai and Bangkok, have enjoyed conditions that are conducive to development, in terms of labor and capital inputs and productivity. One of the advantages enjoyed by Bangkok, for example, has been the availability of low-cost surplus labor. As investment by foreign businesses accelerated since the second half of the 1980s, Bangkok was able to turn its surplus labor into a key advantage in the form of a low-cost work force. In addition, the concentration of foreign direct investment in the Bangkok area has contributed to the growth of capital stocks. Bangkok has also benefited from economies of scale and diversity merits, which are fundamental characteristics of cities, and its productivity has been further enhanced by its concentration of human capital.

5. These major cities are now evolving into "mega-regions" that encompass the surrounding areas. They are also becoming increasingly specialized in service industries, such as finance and telecommunications. In Bangkok, the service sector's contribution to GDP has risen from 68% in 1990 to 74% in 2007. The level of growth has been especially high in areas with high added value, such as finance, real estate and large-scale retailing. A similar pattern is apparent in China. Regions in which major urban areas are forming include the Yangtse River Delta, centering on Shanghai, and Pearl River Delta, especially around the cities of Shenzhen and Guangzhou.

6. Major cities in China and Southeast Asia are certain to remain major drivers of economic growth in East Asia. However, a number of issues emerge when the future outlook is viewed from the perspective of population dynamics. First, with national birthrates in rapid decline, major cities can no longer look forward to economic development that relies on abundant labor resources. For example, Thailand's population statistics suggest that even if there is a continuing flow of population from rural areas into metropolitan Bangkok, the growth rate of the productive age population will decline. Second, provincial cities and the rural sector, which have hitherto produced outflows of population, are now experiencing shortages of the young workers needed to support economic development. From a human resource distribution perspective, there is strong possibility that it will become impossible to correct income disparity between major cities and provincial cities and the rural sector. Furthermore, if population outflows continue, provincial areas and the rural sector will be affected by accelerating population ageing. The growth potential of major cities will be indirectly affected by income redistribution, including social security systems and measures to correct income disparity.

Introduction

East Asian economies are not immune from the global economic recession triggered by financial instability in the United States. One effect has been a growing tendency to review plans for investment in China and Southeast Asia.

However, this situation is unlikely to have a fatal impact on growth potential in China and Southeast Asia. Growth rates remain high, especially in major cities in these economies. Links among these cities are being strengthened through production networks formed by multinational enterprises, and the functions of the cities are likely to be further strengthened through the establishment and implementation of free trade agreements (FTAs). These factors affect not only cities in Japan and the NIEs (South Korea, Taiwan, Hong Kong, Singapore), but also those in China and Southeast Asia. The development of cities in China and Southeast Asia is now also seen as essential to the sustainable development of East Asia.

There has also been a dramatic increase in the purchasing power of East Asian cities, and their attractiveness as consumer markets increases with each passing year. The *2008 White Paper on International Economy and Trade* stresses the importance of focusing on the consumer markets of emerging economies, including China and Southeast Asia. This view is based on the purchasing power of cities in emerging economies. In a survey conducted by the Japan Bank for International Cooperation (JBIC) in 2008, 37.1% of participating companies cited the current size of local markets as their reason for investing in China, while 25.8% gave the same reason for investing in Thailand. Futhermore the growth potential of local markets was cited by 77.6% and 47.6% of companies, respectively (JBIC [2008]).

While per capita GDPs in China and Southeast Asia are still at developing economy levels, the major cities of China and Southeast Asia, such as Beijing, Shanghai, Bangkok and Kuala Lumpur, are taking on the appearance of cities in advanced economies. If we limit our view just to major cities, productivity and consumer spending are already comparable with levels in advanced economies.

In this article, we will study the major cities of China and Southeast Asia from these perspectives. Part I will provide an overview of the current state of urbanization in East Asia. Current conditions in major cities in China and Southeast Asia will then be ascertained using regional GDP statistics, household budget surveys and other data. In Part II we will analyze the factors that are contributing to development from the perspectives of labor inputs, capital stocks and productivity, using Bangkok as a case study. We will also show how urban areas are expanding into surrounding regions. In Part III we will look at the demographic impact of falling birthrates on the ability of major cities in Southeast Asia to achieve sustainable development, as well as issues affecting development in provincial cities and the rural sector.

The Southeast Asian case studies for this article all relate to Thailand. This is because Thailand has comparatively good statistical resources.

I. The Status of Major Cities in China and Southeast Asia

1. Rapid Urbanization in East Asia

The world trend toward urbanization can be verified using urban population statistics compiled by the United Nations(1).

In this article, urbanization is defined as the growth of the urban population based on government administrative units in each country, and a rise in the urban population as a percentage of the total population. There is no internationally recognized definition of a city, and the United Nations therefore compiles urban population statistics by aggregating the populations of cities according to the definitions used in each country.

According to the United Nations urban population statistics, the percentage of the world's population living in cities (the urbanization ratio) at the start of 19th century was about 5%. Even at the start of the 20th century, the ratio was still only around 13%, and cities were seen as special places. The urbanization ratio did not begin to rise on

a global level until the 1950s. There was a rapid increase from 29.1% in 1950 to 46.6% in 2000 (Fig. 1).

Developed economies led the urbanization trend[2]. The urbanization ratio for developed economies was already high at 52.5% by 1950 and reached 73.1% in 2000. While the ratio for developing economies was only 18.0% in 1950, it subsequently rose rapidly and had climbed to 40.2% by 2000. Because of this global surge in urbanization, encompassing both developing and developed economies, the 20th century has been called the "century of urbanization."

The world urbanization ratio reached 50% (United Nations [2008]) and is expected to increase to 57.2% by 2025, and 69.6% by 2050. By 2050, the ratios for developed and developing economies will have reached 86.2% and 67.0% respectively. With the majority of the world's population living in cities, the 21st century can perhaps be described as the "city-led century."

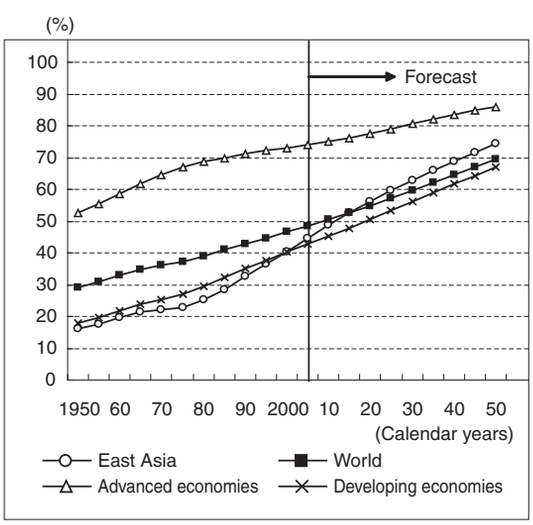
This trend toward urbanization has been even more conspicuous in East Asia[3]. In 1950, the urbanization ratio for East Asia was lower than the 18.0% average for developing economies at just 16.1%. The ratio subsequently rose rapidly. It exceeded the average for developing economies in 1995-2000 and had reached 44.7% by 2005. There has been a substantial increase of 28.6 percentage points over the past 55 years.

East Asia's urbanization ratio is expected to exceed the world average by around 2015 and reach 74.3% in 2050. In 1950 East Asia was 36.4 percentage points behind the developed economies, but this gap had narrowed to 29.3 points by 2005 and is expected to shrink to 11.7 points by 2050. Urbanization ratios vary considerably within East Asia (Table 1). In 2005, ratios ranged from 100% in Singapore and Hong Kong down to 26.4% in Vietnam.

Care must be taken over comparisons, since definitions of what constitutes a city vary from country to country. However, we can identify some characteristics. For example, we can draw a distinction between Japan and the NIEs, which have high urbanization ratios and high income levels, and China and Southeast Asia, where both of these indicators are low.

In 1950, Vietnam's urbanization ratio was the lowest at 11.6%, while China's was just 13.0%. The ratio for Thailand was also low at 16.5%. These figures reflect the fact all three countries

Fig. 1 Urban Population Ratio (Urbanization Ratio)



Source: United Nations, *World Urbanization Prospects: The 2007 Revision Population Database*

Table 1 Population, Urbanization Ratio and Per Capita GDP of East Asian Countries/Regions

Country/ Region	Population (Millions)	Urbanization Ratio (%)			Per Capita GDP ($)
	2007	1950	2005	2050	2007
Japan	127.8	34.9	66.0	80.1	34,226
South Korea	48.1	21.4	80.8	81.9	20,016
Taiwan	23.0	—	58.1	—	16,790
Hong Kong	6.9	85.2	100.0	100.0	29,910
Singapore	4.6	99.4	100.0	100.0	35,165
China	1,321.3	13.0	40.4	72.9	2,484
Thailand	65.2	16.5	32.3	60.0	3,894
Malaysia	27.2	20.4	67.6	87.9	6,890
Indonesia	219.9	12.4	48.1	79.4	1,845
Philippines	85.3	27.1	62.7	83.9	1,658
Vietnam	85.2	11.6	26.4	57.0	809

Notes: Populations and urbanization ratios for Japan and Thailand are based on 2006 statistics, and those for South Korea and the Philippines on 2005 statistics.
Source: Population: ADB, *Key Indicators 2008*, urbanization ratios: United Nations, *World Urbanization Prospects*, *The 2007 Revision Population Database*, (ADB, *Key Indicators 2008* for Taiwan only), per capita GDP: IMF, *International Financial Statistics*

had extremely large rural populations. In subsequent decades, economic development was accompanied by urbanization, and in 2005 the urbanization ratios were dramatically higher, at 26.4% for Vietnam, 32.3% for Thailand and 40.4% for China. However, these ratios are still low compared with other Asian economies. Rural and agricultural development remain important policy areas in all three countries, and the reduction of urban-rural income gaps is also a major priority. These countries are also in transition from rural societies to urban societies, and the cities are expected to provide the impetus for rural development.

2. Productivity in Major Cities

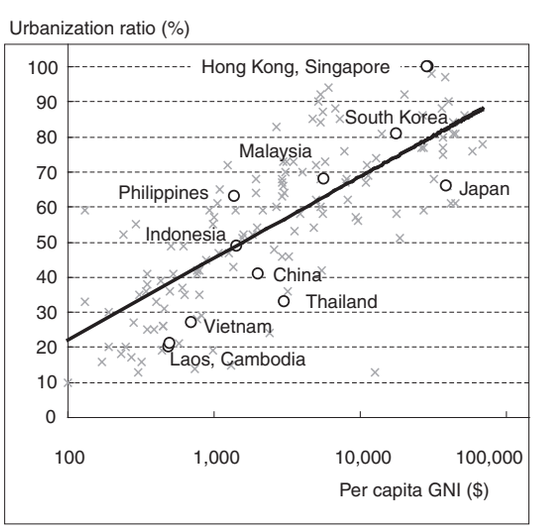
Fig. 2 analyzes the relationship between urbanization ratios and income levels (per capital GNI) in 2006. While there is a correlation between urbanization ratios and income levels, an increase in urbanization is not necessarily accompanied by a rise in income levels. This is especially true of developing economies, where the advance of urbanization has generally been unrelated to income levels, and where the problem of large-scale unemployment resulting from urban population growth that substantially exceeds the employment capacity of cities called "over-urbanization". The urbanization in developing economies is caused by the high birthrates of urban dwellers, and by mass inflows of population from rural areas. The impact of migration from the rural sector has been especially significant in East Asia. (See Appendix I: "Urbanization Population Movement in East Asia.")

As shown in Fig. 2, urbanization ratios are low in China and Southeast Asia. However, there are regions within countries that have high urbanization ratios. These regions also have high levels of economic development.

Fig. 3 examines the relationship between the urbanization ratio and per capita GDP in Thai provinces. Most provinces have low urbanization ratios, but the ratio for the Bangkok metropolitan area has reached 100%. Second-ranked Nonthaburi Province has an urbanization ratio of 66.1%. There is a strong correlation between the urbanization ratio and per capita GDP. In 2005, Bangkok's per capita GDP of 299,000 baht ($7,434) was three times higher than the national average of 109,000 baht ($2,710).

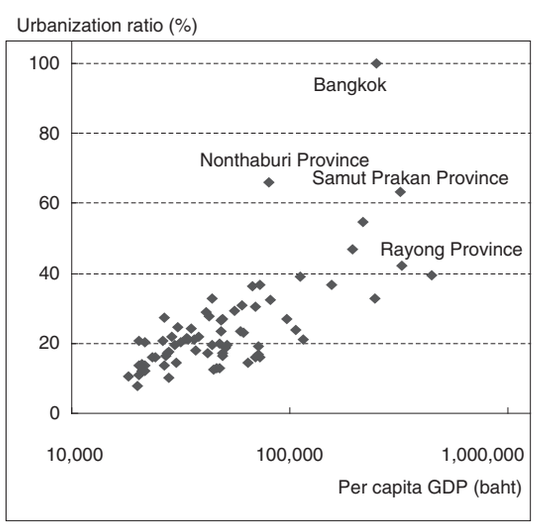
As is apparent from Fig. 3, there are several provinces that have higher per capital GDP than

Fig. 2 Relationship between Urbanization and Income Levels



Source: World Bank, *World Development Indicators*

Fig. 3 Per Capita GDP and Urbanization Ratios of Thai Provinces (2000)



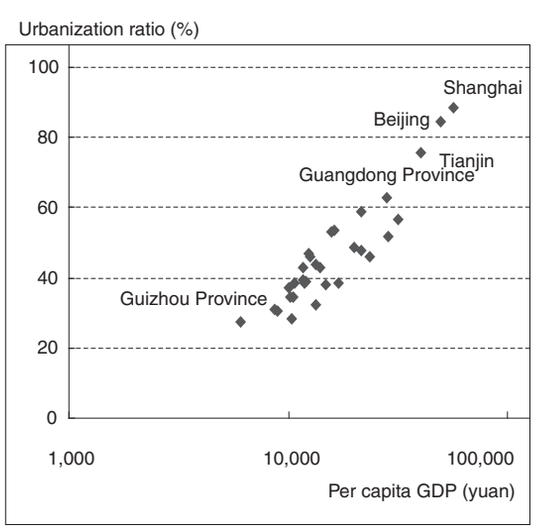
Source: NESDB, *Gross Regional and Provincial Product,* National Statistical Office(2002)

Bangkok, even though their urbanization ratios are lower. However, most provinces have low populations, and the higher income levels reflect the fact that foreign companies have moved into industrial estates in these provinces. For example, the population of Bangkok stood at 6.84 million in 2007, while that of Rayong Province, which had the highest per capita GDP, was only 580,000. The higher income level does not indicate that Rayong produces more than Bangkok.

Fig. 4 compares urbanization ratios and per capita GDP in China's provinces in 2006. Both indicators were highest in Shanghai, which had an urbanization ratio of 88.7% and per capita GDP of 66,367 yuan (approximately $8,849). Beijing was in second place (84.3%, 49,780 yuan) and Tianjin third (75.7%, 40,550 yuan). However, Shanghai, Beijing and Tianjin have populations of 18.15 million, 15.81 million and 10.75 million respectively, and it is inappropriate to compare these cities with other provinces where have population about 10 million people.

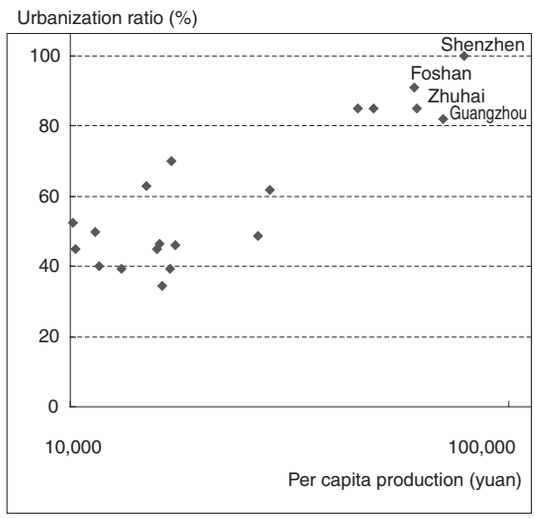
Let us look at Guangdong Province, for example. Guangdong has a population of 94.49 million, which is larger than the total population of Thailand. As a province, its urbanization ratio of 63.0% and per capita GDP of 28,164 yuan

Fig. 4 Per Capita GDP and Urbanization Ratios in Chinese Provinces (2006)



Source: *China Statistical Yearbook 2007*

Fig. 5 Urbanization Ratios and Per Capita GDP in Guangdong Province (2007)



Source: *Guangdong Statistical Yearbook 2008*

(approximately $3,755) are low compared with Shanghai and Beijing. However, there are cities within Guangdong that are comparable to Shanghai and Beijing in terms of urbanization ratios and per capita GDP levels.

Fig. 5 analyzes the urbanization ratios and per capita GDP of regions within Guangdong Province. Shenzhen City has an urbanization ratio of 100%, and its per capita GDP of 78,946 yuan (approximately $10,526) is higher than that of Shanghai. With a population of 8.62 million, Shenzhen is larger than Bangkok. Other cities in Guangdong with high per capita GDP and large populations include Guangzhou (82%, 70,768 yuan, 10.05 million), and Foshan (91%, 60,863 yuan, 5.92 million).

3. Expanding Purchasing Power of Major Cities

Major cities with per capita GDP approaching $10,000 have emerged in China and Southeast Asia. In recent years, these cities have attracted increasing interest as consumer markets.

In 2007, 8.78 million cars were sold in China. This is substantially higher than the total for Japan (5.5 million). At 1.67 million, sales in the ASEAN

4 (Thailand, Malaysia, Indonesia, the Philippines) have also reached a level at which manufacturers can expect to earn reasonable profits. Obviously, the main source of this consumption activity is urban residents. According to *China Statistical Yearbook 2007*, diffusion rates for washing machines, refrigerators and televisions in Chinese cities have reached 100%, and recreational durable consumer goods, such as digital cameras, personal computers and LCD televisions, are also becoming common. A similar pattern is apparent in major Southeast Asian cities.

An analysis of household budget surveys provides a slightly more detailed picture of purchasing power in major Chinese and Southeast Asian cities.

The 2006 Household Socio-Economic Survey is a valuable source of data on the purchasing power of cities in Thailand. The survey divides Thailand into five regions: the Bangkok metropolitan and surrounding provinces (The Greater Bangkok Metropolitan area), central region, northern region, northeastern region and southern region. Reports based on the survey cover household incomes, expenditure and debt. The figures for Greater Bangkok are aggregates for Bangkok and the three neighboring provinces of Nonthaburi, Pathum Thani and Samut Prakan. In 2006, Greater Bangkok had a population of 10.09 million.

According to the survey, the average monthly household income for Thailand was 17,787 baht (approximately $500). The figure for Greater Bangkok was almost twice as high at 34,532 baht (approximately $1,000). Similarly, the average monthly household expenditure for Thailand was 14,311 baht (approximately $400), while the figure for Greater Bangkok was nearly twice as high at 24,833 baht (approximately $800). The figures

Table 2 Gross Household Income and Expenditure in Thai Cities (2006)

Income

(%)

Monthly Income	Total	Greater Bangkok	Central	North	Northeast	South
Average (baht)	17,787	34,532	22,520	19,222	20,126	23,442
Under 1,500 baht	1.2	—	0.4	0.6	0.8	0.3
1,500-3,000 baht	5.6	0.3	1.6	3.9	3.8	1.3
3,001-5,000 baht	11.6	1	4.1	9.9	9.6	4.3
5,001-10,000 baht	28.0	13.1	18.2	26.8	25.5	21.9
10,001-15,000 baht	17.6	18.5	23.6	17.9	17.4	19.2
15,001-30,000 baht	22.3	33.5	34.2	23.6	23.0	30.8
30,001-50,000 baht	8.1	16.4	11.8	10.2	12.7	13.4
50,001-100,000 baht	4.4	12.5	5.2	6.0	5.9	7.3
Over 100,000 baht	1.1	4.7	1.1	1.1	1.2	1.5

Expenditure

(%)

Monthly Expenditure	Total	Greater Bangkok	Central	North	Northeast	South
Average (baht)	14,311	24,833	17,724	15,736	15,435	18,758
Under 1,500 baht	0.3	—	0.1	0.2	0.2	—
1,500-3,000 baht	3.9	0.2	1.0	3.2	2.5	0.8
3,001-5,000 baht	11.4	0.8	3.8	10.1	8.8	4.3
5,001-10,000 baht	34.2	15.4	22.3	31.8	33.4	22.9
10,001-15,000 baht	20.9	24.1	28.1	19.9	20.6	23.5
15,001-30,000 baht	20.6	34.8	32.6	23.2	24.2	34.2
30,001-50,000 baht	6.2	15.3	8.9	7.9	7.5	10.2
Over 50,001 baht	2.7	9.4	3.3	3.6	2.9	4.1

Notes: "Greater Bangkok" consists of Bangkok and the three provinces of Nonthaburi, Pathum Thani and Samut Prakan.
Source: National Statistical Office, *The 2006 Household Socio-Economic Survey 2006*

for Greater Bangkok are also higher than those for other cities (Table 2).

As shown in Table 2, the report on the survey divides households into a number of categories according to their average monthly income and expenditure. In the Greater Bangkok area, 17.2% of all households had average monthly incomes in excess of 50,000 baht (approximately $1,500), while 4.7% were above the 100,000 baht ($3,000) level. Similarly, 9.4% of households had average monthly expenditure in excess of 50,000 baht. In Thailand, the prices of essential goods in the clothing, food and housing categories are low, so it should be assumed that actual purchasing power is greater than might be suggested by the figures[(4)]. For example, based on purchasing power parity, 100,000 baht is equivalent to about $7,500.

A similar analysis can be applied to China. Income and expenditure data for Chinese cities can be found in the people's livelihood sections of the *China Statistical Yearbook* and the statistical yearbooks for individual provinces, such as the *Shanghai Statistical Yearbook* and the *Guangdong Statistical Yearbook*. Readers should be aware that while the Thai statistics show monthly figures for households, the Chinese statistics are compiled on a yearly per capita basis.

The statistics show that the per capita yearly disposable income for Chinese cities is 13,786 yuan (approximately $1,840). This rises to 23,623 yuan ($3,150) in Shanghai and 17,699 yuan ($2,360) in Guangdong Province. The national average for per capita yearly expenditure is 9,997 yuan ($1,330). The figures for Shanghai and Guangdong Province are much higher at 17,255 yuan ($2,300) and 14,337 yuan ($1,910) respectively (Table 3).

The statistical yearbooks for provinces show the numbers of electrical appliances and other items owned per 100 households. These figures indicate that between 2000 and 2007, the number of mobile telephones owned per 100 households rose from 29 to 217 in Shanghai, and from 58 to 206 in cities in Guangdong Province. There has been a

Table 3 Comparison of Income and Expenditure in Chinese Cities (2007, Per Capita, Per Annum)

	National	Shanghai		Guangdong Province	
		Whole	Top 20%	Whole	Top 10%
Population (millions)	593.79	16.48	3.3	59.66	5.97
Disposable income (yuan/year)	13,786	23,623	47,149	17,699	47,124
Consumption expenditure (yuan/year)	9,997	17,255	30,820	14,337	33,998
Food	3,628	6,125	8,500	5,057	8,373
Clothing/footwear	1,042	1,330	2,547	815	1,999
Housing	982	1,412	2,272	1,445	3,556
Furniture/ housework items,	602	959	1,713	853	2,441
durable consumer goods	286	438	741	355	1,105
Health/medical	669	857	1,363	753	1,767
Transportation/ communication	1,357	3,154	7,691	2,966	8,930
Education/culture/ recreation	1,329	2,654	5,026	1,995	5,570
Entertainment goods	343	741	1,446	469	1,351
Others	358	764	1,708	454	1,363
Engel coefficient (%)	36.3	35.5	27.6	35.3	24.6

Source: *China Statistical Yearbook 2008, Shanghai Statistical Yearbook 2007, Guangdong Statistical Yearbook 2008*

similar increase in the number of air conditioners owned, which has risen from 96 in 2000 to 189 today in the case of Shanghai, and from 98 to 184 in cities in Guangdong Province. These statistics are indicative of rapid growth in the market for electrical appliances in urban China.

There is a substantial high-income stratum in urban China. According to the *Shanghai Statistical Yearbook*, the per capita annual disposable income of those in the top 20% in terms of income (about 3.3 million people) is 47,149 yuan (approximately $6,290), while their annual consumption expenditure is over three times higher than the national average at 30,820 yuan ($4,110).

Similarly, the *Guangdong Statistical Yearbook* states that the per capita annual disposable income of the top 10% of income earners (about 5.97 million people) in Guangdong is similar to the figure for the top 20% in Shanghai at 47,174 yuan (approximately $6,290). Annual consumption expenditure by this group amounts to 33,998 yuan ($4,533).

While these amounts are not large in absolute terms, the number of people included in the top 10% in Guangdong Province is equivalent to over 80% of the population of Bangkok. This suggests that the group includes many people whose income is even higher. As in Thailand, the low cost of living in China means that purchasing power is greater than indicated by these figures.

II. Development Drivers in Major Cities—Case Study: Bangkok, Thailand

Obviously, not all cities in China and Southeast Asia are evolving toward "developed" status in the manner of Shanghai, Shenzhen and Bangkok. Income levels vary from city to city.

As shown in Fig. 6, for example, the per capita yearly disposable income of urban residents in China varies by a factor of 2.4 between the highest in Shanghai and the lowest in Gansu Province. In Part II we will use Bangkok as a case study for an analysis of the factors that drive development in these cities.

1. Initial Condition: Excessive Urbanization Driven by Population Inflows

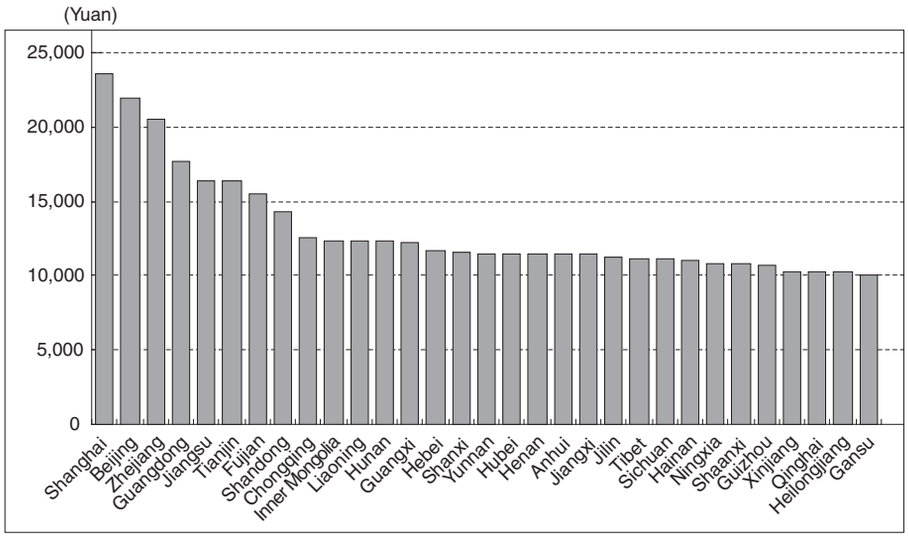
Bangkok is a city located in the Chao Phraya Delta. In the first half of the 19th century, it was a small port town with a population of less than 50,000. After the signing of the Bowring Treaty with Britain in 1855, large-scale irrigation systems were established in the Chao Phraya Delta to support the production of rice for export. Large numbers of people migrated to Bangkok, including rice growers and rice exporters. According to Thailand's earliest census data, Bangkok's population had increased to 527,000 by 1919[(5)].

In short, Bangkok's growth as a city resulted from an influx of population from other regions. According to the 2000 census, 37.3% of Bangkok's residents were borned in other provinces[(6)]. However, population movement in Thailand traditionally resulted mainly from relocation among rural villages over short distances (within the same provinces). It was not until the 1970s that this pattern changed in response to industrialization in Bangkok and rapid population growth in rural areas.

According to census data, approximately 130,000 people moved to Bangkok between 1955 and 1960. The number rose to around 300,000 in the 1965-1970 period, and to about 340,000 between 1975 and 1980[(7)]. For many years, the majority of these migrants came from areas close to Bangkok in central Thailand. However, northeastern Thailand overtook the central region as the leading source of migrants in the 1975-1980 period. The northeastern region has the lowest income levels in Thailand, and migration was driven by a combination of the pull effect of industrialization in Bangkok, and the push effect of population growth in the northeast (Machiko Watanabe [1988]).

This is typical of population movement in developing economies, as described in the Lewis model. The Lewis model divides developing economies into modern industrial and traditional agricultural sectors and analyzes the labor transition between two sectors. In the case of Thailand, the modern industrial sector is represented by

Fig. 6 Per Capita Yearly Disposable Income of Urban Residents (2007)



Source: *China Statistical Yearbook 2008*

Bangkok, and the traditional agricultural sector by the northeastern region. According to the model, surplus labor from the traditional agricultural sector flows to the modern industrial sector, which achieves continuing growth by absorbing surplus labor.

Bangkok is certainly Thailand's main industrial area. In 1980 it accounted for 46% of national industrial output. However, while the number of people employed in the industrial sector doubled from 210,000 in 1970 to 430,000 in 1980, the industrial sector did not have sufficient capacity to absorb surplus labor. As a result, many of migrants remained in low-income jobs in the informal sector, such as street trading and odd-job work.

By 1980, Bangkok's population had swollen to 4.7 million. This is equivalent to 10.4% of Thailand's total population and 39.6% of its urban population. The population of the second biggest city, Nakhon Ratchasima in northeastern Thailand, was only 200,000. This concentration of population into a primate city is a characteristic of urbanization in developing economies, especially in Southeast Asia, and excessive urbanization has become the focus of concern, both within the countries concerned and internationally.

2. Absorption of Employment and Growth of Capital Stocks through Foreign Investment

Thailand has formulated and implemented national economic and social development plans at approximately 5-yearly intervals since 1951. Under the third plan (1972-1976), Thailand sought to correct excessive urbanization by promoting family planning as a way of limiting population growth, and by dispersing industries to provincial areas to prevent an excessive concentration of industrial activity in Bangkok (Nitaya Kmonwatananisa [2008]).

Semi-compulsory birth control measures caused a dramatic decline in Bangkok's total fertility rate, from 3.2 in 1980 to 2.2 in 1990 and 1.6 in 2000. This rapidly reduced population pressure within the city.

In addition, Bangkok's surplus labor problem was radically changed by an influx of foreign business capital. After the 1985 Plaza Accord, many companies, including companies from Japan and the Asian NIEs, established business operations in Thailand.

Fig. 7 traces trends in the level of foreign direct investment inflows since 1970. There is a clear

divergence between the pattern before 1985 and trends since that year. In 2007, the cumulative total of foreign direct investment since 1980 reached approximately $75.3 billion, of which $26.3 billion, or 34.8%, came from Japan. Obviously this investment has contributed to the growth of capital stocks, which has supported economic growth from a production perspective.

Also significant is the regional distribution of this investment. Because of the limited availability of data on this aspect, we will use figures relating to Japanese investments approved by the Board of Investment (BOI). The cumulative total of Japanese investment approved by the BOI between 1973 and 2006 was 1,647.5 billion baht.

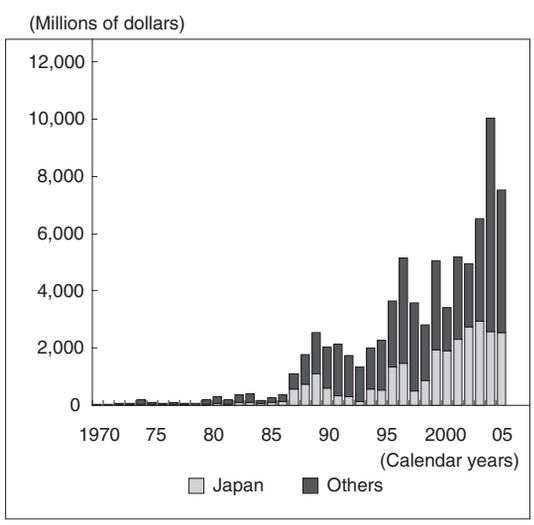
Fig. 8 analyzes these investment approvals by region. In 1980, the level of investment in Bangkok was low for several reasons, including high land prices and a shortage of suitable sites for the construction of large factories, as well as government incentives for investment in provincial areas.

In Fig. 8, "Greater Bangkok" consists of Bangkok and the five neighboring provinces of Nonthaburi, Pathum Thani, Samut Prakan, Samut Sakhon and Nakhon Pathom, together with Ayutthaya Province and Rayong Province. The majority of investment in the 1980s was directed into greater Bangkok (excluding Bangkok proper), but since the 1990s investment has flowed primarily into Ayutthaya Province and Rayong Province. All of these provinces are close to Bangkok (Fig. 9). With the passage of time, the focus of investment has expanded from Bangkok into the surrounding areas.

This shift has been accompanied by a decline in Bangkok's share of industrial GDP, from 46.4% in 1990 to 18.9% in 2000 and 13.7% in 2007, and a rise in the share of greater Bangkok (excluding Bangkok proper) from 27.6% to 32.0% and 33.4% respectively in the same years. If Ayutthaya and Rayong are included, the shares rise to 29.9%, 50.6% and 53.2% respectively. These figures show that Thailand's industrial zone has expanded from Bangkok into the surrounding provinces. In 2007, Bangkok and the seven surrounding provinces accounted for 66.9% of Thailand's total industrial GDP. In addition to the contribution from foreign companies, local businesses have also played a role in these changes. A significant number relocated their operations from Bangkok to the neighboring provinces during the period in question (Akira Suehiro [1997]).

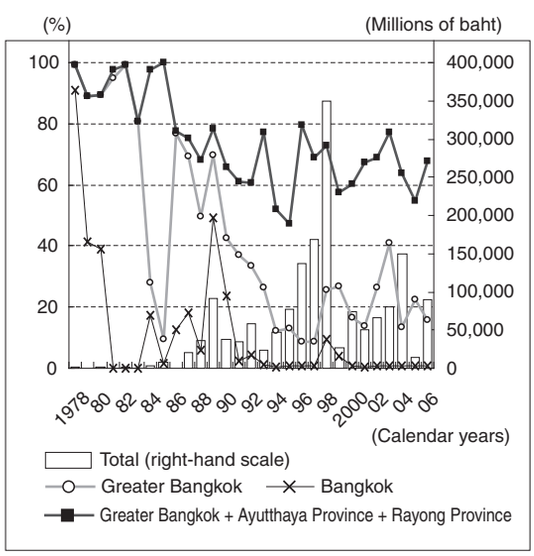
Job numbers provide an additional indicator of

Fig. 7 Foreign Direct Investment Inflows (Net)



Source: Bank of Thailand

Fig. 8 Regional Distribution of Approvals for Japanese Investment in Thailand

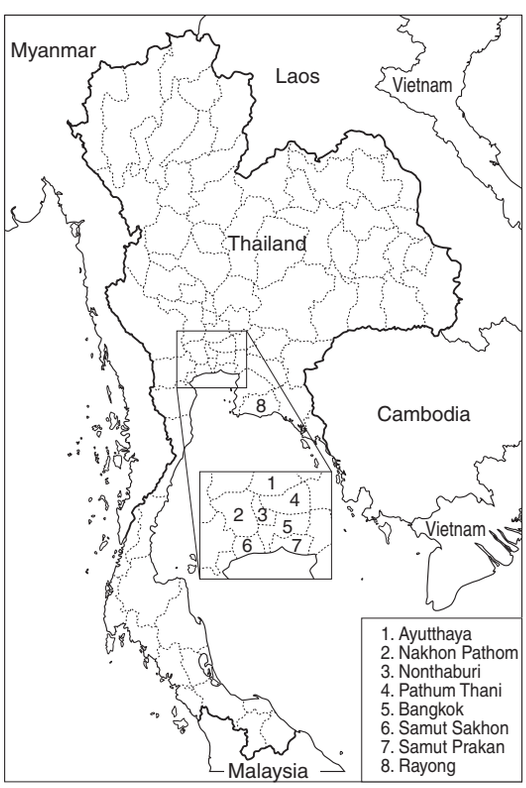


Source: Thai Board of Investment (BOI)

the expansion of industrialization from Bangkok to the surrounding areas. The number of people employed in the industrial sector in Bangkok rose from 431,805 in 1980 to 765,026 in 1990 but had fallen back to 578,655 by 2000. The total for the seven provinces around Bangkok meanwhile rose from 248,338 in 1980 to 524,143 in 1990 and 860,727 in 2000.

Foreign business investment gave Thailand the opportunity to turn its surplus labor into an asset in the form of a low-cost labor force. This allowed Thailand to become an export production base for labor-intensive products. Total exports expanded from $6.5 billion in 1980 to $23.1 billion in 1990 and $68.8 billion in 2000, while exports of industrial products surged from $2.5 billion (38% of total exports) to $15.0 billion (65%) and $54.2 billion (79%), respectively. Today Thailand is struggling to compete with China and Vietnam in the area of labor-intensive products, but many Japanese companies still see Thailand as a source of low-cost labor[8].

Fig. 9 Thailand's Provinces



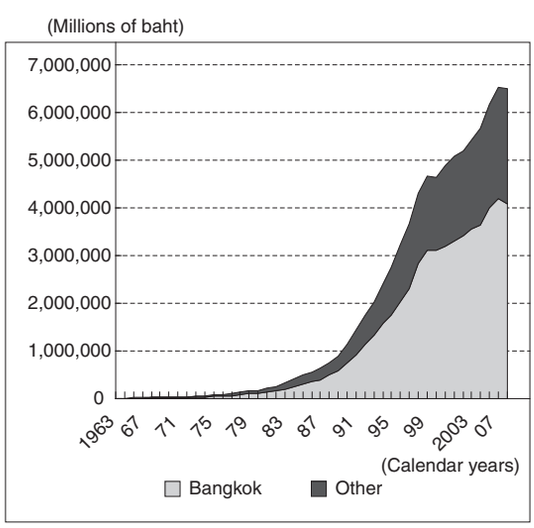
Also significant is the fact that economic development has given households and businesses in Bangkok increased capacity to save. There are no statistics concerning the savings rates of households and businesses in Bangkok, but deposits with commercial banks in Bangkok rose sharply during the high-growth period in the second half of the 1980s and have consistently accounted for over 60% of the national total (Fig. 10). This accumulation of funds has obviously contributed to the growth of capital stocks in Bangkok.

3. Improvement of Productivity and Concentration of Human Resources in Mega-Cities

We will next look at productivity in Bangkok. In general, cities are more productive than rural areas. It is also well-known that cities offer external economies, including economies of scale, economies of agglomeration and urban diversity (Tokuoka [2002], Hamaguchi, Nishikimi [2004]).

Economies of scale occur when increases in the scale of production lead to reductions in the average cost per unit of production, and when large-scale production yields improvements in production efficiency. These benefits of scale are

Fig. 10 Deposits with Commercial Banks



Source: Bank of Thailand

achieved not only within individual companies, but also in clusters of companies. Specific examples of situations in which these effects can occur include industrial areas consisting of clusters of heavy manufacturing facilities and supporting industries[9].

Benefits from urban diversity relate to the market diversification resulting from the expansion of consumption. Market diversification encourages specialization in particular areas, such as consumer goods. Other benefits include synergies resulting from the existence of many different entities in close proximity, ease of access to a wide range of information, and the development of diverse employment formats.

Another factor that has helped to lift productivity in the major cities of China and Southeast Asia is the tendency for high-quality human capital to accumulate in major cities. Key components that influence the productivity of human capital are likely to include the experience, technical training, knowledge and human networks of individuals. The following analysis is based on the final educational attainment and level of education.

Table 4 shows the final educational attainment of the labor force of Thailand and Bangkok. The total working population is 37.62 million, of which Bangkok accounts for 4.09 million, or 10.9%.

Thailand's educational system is broadly divided into elementary, secondary and tertiary levels. At the national level, the majority of people (71.4%) have been educated to elementary level or lower.

In Bangkok, too, the percentage of people educated to elementary level or below is high at 49.1%. However, Bangkok also has 1.06 million university graduates, who make up 26.0% of the working population. The total labor force includes 3.11 million university graduates, of whom 34.2% are concentrated in Bangkok.

This high concentration of human capital in cities can also be observed in Chinese cities and other Southeast Asian cities. In the case of Bangkok, the following factors appear to be intensifying this trend.

First, because of their high incomes, Bangkok residents can afford to educate their children to a higher level. In 2006, households in Bangkok and the three neighboring provinces spent an average of 733 baht per month on education. This is almost three times higher than the national average of 283 baht.

Second, people who relocate to Bangkok tend to have higher levels of education. For example, people who moved to Bangkok in 2006 had reached a higher final educational attainment than those who moved to other provinces. Furthermore, while Bangkok has a total net outflow of migrants, there is a net inflow of highly educated people.

Third, higher educational institutions, such as universities, are concentrated in Bangkok, and

Table 4 Final Educational Attainment of Thailand's Labor Force (2008)

		National (a)		Bangkok (b)		Bangkok ratio (b/a, %)
		1,000s	%	1,000s	%	
Elementary	None	12,500	33.2	643	15.7	5.1
	Elementary school	8,551	22.7	728	17.8	8.5
	Lower secondary	5,816	15.5	637	15.6	11.0
Secondary	General	3,710	9.9	428	10.5	11.5
	Vocational	1,278	3.4	215	5.3	16.8
	Teacher training	11	0.0	0	0.0	0.0
Tertiary	University	3,111	8.3	1,064	26.0	34.2
	Technical colleges	1,739	4.6	278	6.8	16.0
	Teacher training	746	2.0	60	1.5	8.0
	Other	155	0.4	34	0.8	21.9
Total		37,617	100.0	4,087	100.0	

Source: National Statistical Office, *Labor Force Survey 2008, Q2*

many people decide to remain in the capital after completing their education. Obviously, urban employment is advantageous for those seeking higher incomes. As Bangkok evolves into an international city, it is increasingly able to attract talented human capital from other countries.

4. The Expansion of the Metropolitan Area and Bangkok's Evolution as a Service Economy

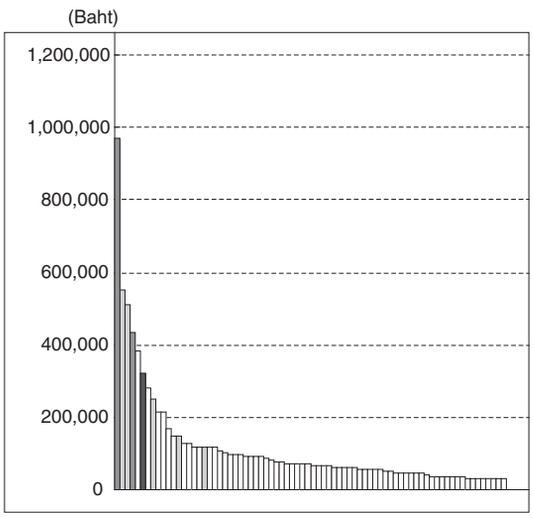
As described above, Bangkok has enjoyed a number of advantages over other cities, including increased labor inputs because of migration from provincial areas, the accumulation of capital stocks through foreign investment, and a productivity boost resulting from its high concentration of human capital. Other cities have also made progress, but they do not enjoy the same advantages as Bangkok, and there is still considerable disparity among cities. (See Fig. 6 for an analysis of income disparity among Chinese cities.)

Fig. 11 ranks Thailand's provinces according to per capita GDP in 2007. The levels are conspicuously higher in Bangkok, greater Bangkok, Rayong Province and Ayutthaya Province, indicating that there is significant income disparity among regions. These results suggest that urban development has taken Bangkok beyond the mega-city stage, and that Bangkok is now expanding into a mega-region.

In recent years researchers have taken a close interest in the expansion of metropolitan areas around major cities into mega-regions. Richard Florida has observed that the unit of economic activity is shifting to mega-cities, which are able to accumulate business resources across national boundaries. He emphasizes the importance of these cities as drivers of the world economy (Richard Florida [2007])[10].

A similar phenomenon is occurring in China, albeit on a larger scale than in Bangkok. The area in question is the Yangtse River Delta region, consisting of Zhejiang Province, which centers on Shanghai, and Jiangsu Province. Infrastructure is currently being developed to make a 200km zone centering on Shanghai accessible within one hour. Shenzhen is also attracting attention as the hub of the Pearl River Delta region, which consists of Guangdong Province, including the city of Guangzhou, and Hong Kong. Industrial parks in these cities are linked by expressways. Expressways are also being built to link cities in the Bohai Rim region, which includes the cities of Beijing and Tianjing, together with Shandong Province, Liaoning Province and Hebei Province (Table 5).

Fig. 11 Per Capita GDP of Thailand's Provinces (2007)



Notes: Bangkok, Greater Bangkok, Rayong Province, Ayutthaya Province
Source: NESDB, *Gross Regional and Provincial Product*

With the expansion of the industrial sector into the provinces around Bangkok, Bangkok has increasingly tended to specialize in the service industries, such as finance and information. The contribution of service industries to GDP in Bangkok has expanded from 67.6% in 1990 to 72.3% in 2000 and 74.1% in 2007. The number of people employed in the service sector has also risen over the same period, from 1.89 million to 2.22 million and 2.88 million, respectively. There is still an extensive informal service sector in Bangkok. However, the growing importance of services in the industrial structure in recent years should be seen as a sign that the formal service sector is expanding. We will now examine changes in the number of jobs in the formal and informal service sectors. For the sake of convenience, we will define the

Table 5 Population and Economic Scale of Mega-Regions (2006)

	Yangtse River Delta	Pearl River Delta	Bohai Rim	Greater Bangkok
Core cities	Shanghai	Shenzhen, Guangzhou (Guangdong Province), Hong Kong	Beijing, Tianjin	Bangkok
Regional population and GDP	Shanghai, Zhejiang Province, Jiangsu Province Population: 145.43 million GDP: $746.2 billion	Guangdong Province, Hong Kong Population: 101.49 million GDP: $616.2 billion	Beijing, Tianjin, Shandong Province, Liaoning Province, Hebei Province Population: 233.56 million GDP: $855.6 billion	Bangkok + 5 provinces Population: 11.37 million GDP: $105.6 billion

Source: *China Statistical Yearbook 2007*, NESDB, *Gross Regional and Provincial Product*

Table 6 Structure of Bangkok's Working Population

	Unit	1980	1990	2000	2007
Population	Persons	4,697,071	5,882,411	6,357,144	6,782,355
Working population	Persons	2,017,549	2,967,136	3,225,657	4,046,150
Manufacturing	Persons	431,805	765,026	578,655	842,560
Per capita GDP	1,000 baht	184.6	358.5	612.8	529.0
Services	Persons	1,349,034	1,890,771	2,216,560	2,877,660
Commerce	Persons	448,864	614,373	751,209	957,050
Transportation	Persons	142,988	200,451	234,819	335,030
Finance/ real estate	Persons	68,464	118,709	232,042	455,030
Others	Persons	688,718	957,238	998,490	1,130,550
Per capita GDP	1,000 baht	125.8	316.4	516.1	564.6

Source: National Statistical Office (2002), NSO, *Labor Force Survey 2008 Q2*

formal service sector as consisting of commerce, transportation, telecommunications and finance, and informal service sector as consisting of all other service industries[(11)].

In 1980, 660,000 people were employed in the formal service sector. This is slightly lower than the 690,000 figure for the informal service sector. The relative sizes of the formal and informal service sectors remained basically unchanged in 1990, at 930,000 and 960,000, respectively. However, by 2000 the formal service sector was bigger, with 1.22 million jobs, compared with 1.0 million in the informal service sector. This trend has since intensified, and the totals for 2007 were 1.75 million and 1.13 million, respectively (Table 6).

The percentage of workers employed in service industries has also risen, from 54.0% in 1970 and 53.4% in 1980, to 58.3% in 1990 and 60.1% in 2000. At the same time, the service industries have gradually started to resemble their counterparts in developing economies. Evidence of this includes a rise in the per capita GDP of service industry workers, which has increased from 316,000 baht in 1990 to 516,000 baht in 2000 and 565,000 baht in 2007. The 2007 figure is higher than that for the industrial sector (529,000 baht).

III. Issues Affecting the Sustainable Development of Major Cities

1. The Loss of the Demographic Dividend with Rapid Birthrate Decline and Population Ageing

In Part III we will look at some of the issues affecting the sustainable development of major cities. A variety of factors are needed to ensure the continuing development of major cities, including

infrastructure development, capital market development, and the improvement of educational levels and levels of science and technology[12]. The following analysis, focuses on the perspective of population dynamics. Because East Asia, including China and Southeast Asia, is being affected by an accelerating birthrate decline and population ageing. For example, the total fertility rate has fallen below 1.5 in Japan and the NIEs (South Korea, Taiwan, Hong Kong, Singapore) and China and Thailand is around 1.6. This factor will accelerate population ageing in the future.

This rapid decline in East Asian birthrates has promoted economic growth by creating a population structure conducive to growth through the reduction of the percentage of dependent children (0-14) in the population and increasing the percentage in the productive age population (15-64). Known as the "demographic dividend," this phenomenon has attracted much interest in recent years. (See Appendix II for a discussion of the demographic dividend.) However, because birthrates have remained low for so long, it is likely that East Asia will soon lose this demographic dividend. This is especially true of the NIEs, China and Thailand.

Demographic dividend period is defined as the period from the time when the growth rate of the productive age population exceeds that of the general population to the time when it falls below the growth rate of the general population. Periods based on this definition are shown in Table 7. On this basis, Japan's demographic dividend period has already ended, while those of the NIEs, including South Korea and Taiwan, and China and Thailand will end around 2015. This means that China and the ASEAN economies will still be at the low-income stage when they emerge from their demographic dividend periods. When the demographic dividend period ends, an economy starts to show the effects of population ageing. What are the development implications of a falling birthrate and population ageing?

Table 7 Periods of Demographic Dividend

	Periods of demographic Dividend (Years)	
	Start	End
Japan	1930-35	1990-95
NIEs		
South Korea	1965-70	2010-15
Taiwan	1960-65	2010-15
Hong Kong	1965-70	2010-15
Singapore	1965-70	2010-15
China	1965-70	2010-15
ASEAN 5		
Thailand	1965-70	2010-15
Malaysia	1965-70	2035-40
Indonesia	1970-75	2025-30
Philippines	1965-70	2040-45
Vietnam	1970-75	2020-25
India	1970-75	2035-40

Source: Oizumi (2007)

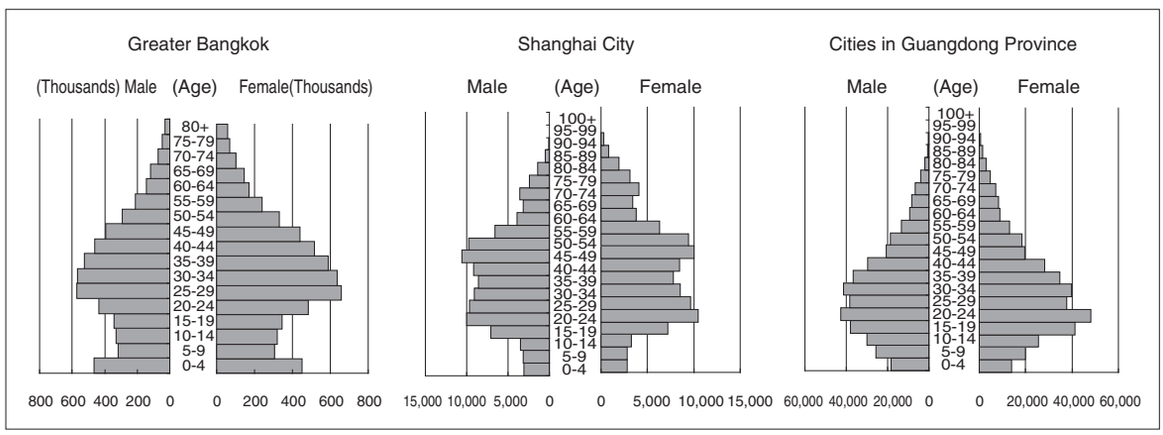
2. Limitations on Labor Inputs in Major Cities

To understand the effects of falling birthrates and population ageing on the development of major cities, we first need to look at the population pyramids of major cities. Fig. 12 shows the pyramids for the Greater Bangkok area, Shanghai and cities in Guangdong Province. In all three pyramids, the percentages of dependent children are low, and there are large productive age populations centering on the younger age groups. The productive age population ratios are high, at 74.7% for Greater Bangkok, 79.2% for Shanghai and 76.2% for cities in Guangdong Province. Provided that there are sufficient employment opportunities, this demographic structure can be expected to bring high growth.

A population pyramid containing a large productive age population results from failing urban birthrates and population inflows from rural areas. Both Bangkok and Shanghai have total fertility rates below 1.0. In Thailand, 1.2 million people moved into the Greater Bangkok area between 1995 and 2000, while in China, 3.02 million moved into Shanghai and 12 million into Guangdong Province between 2000 and 2005.

Birthrates in these cities are now as low as those in developed economies, and birthrates in provincial and rural areas are also falling. In the medium- to long-term future, these factors will make it

Fig. 12 Urban Population Pyramids (2005)



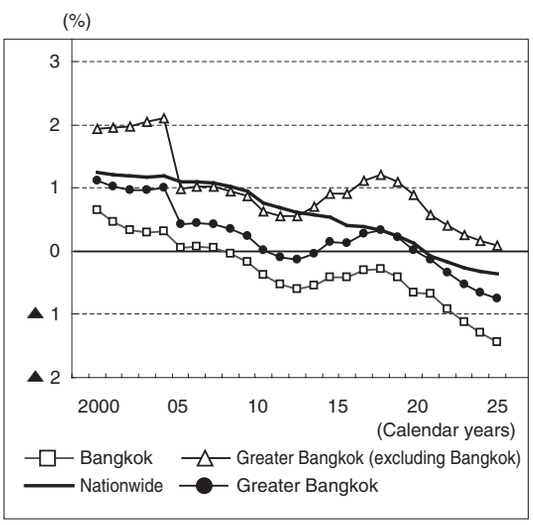
Notes: The figures for China are based on the 1% Population Survey.
Source: Greater Bangkok: NESB (2008), China: *2005 1% Population Survey Data Assemblies*

difficult to maintain demographic structures conducive to growth.

Fig. 13 traces the growth rate of Thailand's productive age population, using population prospects by Thailand's National Economic and Social Development Board (NESDB). The growth rate of the productive age population for the whole of Thailand is already in decline, and by 2020 the productive age population will have started to shrink in absolute terms. Bangkok's productive age population has been falling since 2007 because of factors that include a falling birthrate, migration into surrounding areas, and the return of people to rural areas. Migrants from rural areas are still flowing into parts of the greater Bangkok area other than Bangkok itself, and the productive age population will continue to expand until 2025. However, the growth rate of the productive age population of greater Bangkok, including Bangkok proper, is now below the national average.

Of course, even if the growth rate of the productive age population moves into negative figures, the ratio will remain high at over 70% of the total population. This population structure can be expected to generate high savings. The shift to service-based urban economies and the high concentration of human capital in cities are also likely to maintain growth over a relatively long period, even if there is a decline in the productive age population. However, instead of targeting production expansion based on the use of migrant populations as low-cost labor, it will be necessary to move toward industrial structures that take full advantage of the productivity of cities. This is also true of major Chinese cities, such as Shanghai and Shenzhen[13].

Fig. 13 Growth Rate of Productive-Age Population



Source: NESDB (2008)

3. The Increasing Cost of Income Disparity Affecting Provincial Cities and Rural Areas

Cities are the engines of growth and help to shoulder the burden of less developed regions. There are conspicuous income gaps between cities and provincial and rural areas, especially in China and Southeast Asia. Of particular concern is the existence, as noted in the previous section, of a strong tendency for economic development in major Chinese and Southeast Asian cities to spread across wider areas without rippling out to more remote provincial cities.

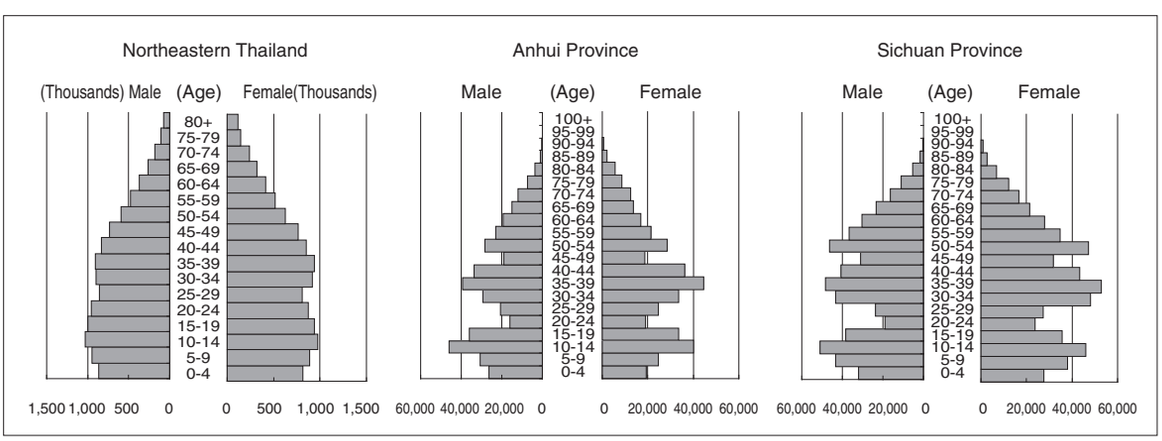
Of course, economic development in major cities brings indirect benefits to provincial cities and the rural sector, including remittances from migrant workers and the transfer of technology through various channels. However, the population pyramids of provincial cities and rural areas have been distorted by population outflows to major cities, and there is a possibility of labor shortages.

Fig. 14 shows the population pyramids for northeastern Thailand, Anhui Province and Sichuan Province in China, which are the sources of population inflows into Bangkok, Shanghai and Guangdong Province. While patterns vary according to the region, in general the percentage of people in the younger productive age groups (15-29) tends to be low compared with the percentage of dependent children (0-14). This is obviously the result of population outflows. Between 2000 and 2005, there were population outflows of 3.84 million from Anhui Province and 3.94 million from Sichuan Province.

In terms of the demographic dividend, population movement is relocating latent growth potential from provincial cities and rural areas into major cities. This means that provincial cities and rural areas could face labor shortages. As noted above, we also need to be aware that the tendency for human capital to move from provincial cities and rural areas and become concentrated in major cities is creating a human resource gap between major cities and provincial cities and rural areas. For example, Thailand is already experiencing labor shortages, and the number of migrant workers coming into Thailand from Myanmar to fill this gap is thought to have reached about 2 million. These people are employed near the Thai-Myanmar border, either as laborers in light industries or in agricultural occupations, such as work on rubber plantations.

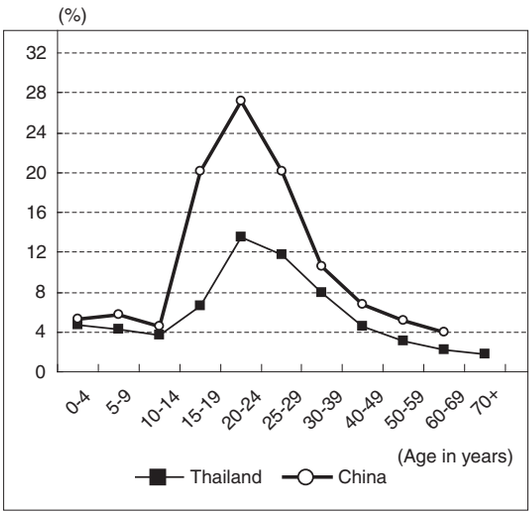
Fig. 15 shows the population movement schedule, which indicates the percentage of the population relocating in each age group, for Thailand and China. Although the levels of movement differ, both show the biggest movements in the younger age groups, with the percentage peaking in the

Fig. 14 Regional Population Pyramids (2005)



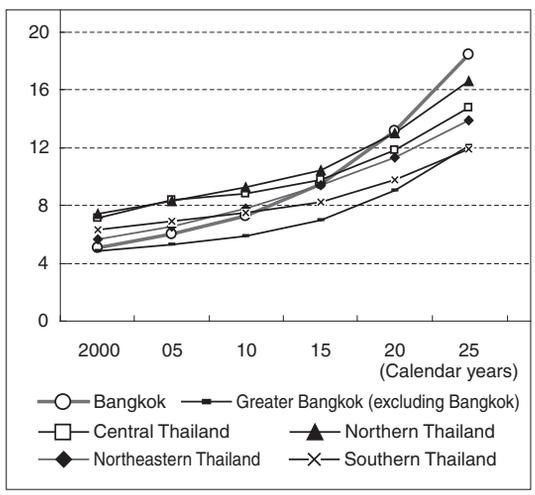
Notes: The figures for China are based on the 1% Population Survey.
Source: Greater Bangkok: NESDB (2008), China: *2005 1% Population Survey Data Assemblies*

Fig. 15 Population Movement Schedules



Notes: Population movement ratio = Relocated population/ population
Source: Compiled using State Council Population Census Office et al. (2002), *China 2000 Census Data*, National Statistics Office Thailand, *The 2000 Population and Housing Census*

Fig. 16 Ageing Ratios by Regions



Source: NESDB (2008)

20-24 age group and declining rapidly thereafter. When this pattern is considered in light of the preceding analysis about population pyramids, it becomes apparent that the generation immediately above the younger generation is also the generation in which there is a rapid decline in the percentage of people relocating.

This means that provincial areas could be affected not only by falling birthrates and an exodus of younger workers, but also by accelerating population ageing resulting from a population build-up in the baby boom generation. According to NESDB population estimates, Bangkok will have the highest population ageing ratio in 2025 because of its low birthrate. However, the estimates also indicate that there will be accelerated ageing in provincial regions, including northern and northeastern Thailand (Fig. 16).

Population ageing in Thailand should be considered in the context of ageing problems in developing countries. However, population ageing in low-income rural areas needs to be viewed with particular concern. The correction of income gaps between major cities and provincial cities and rural areas is not something that can be achieved solely through the efforts of regional governments, and ultimately the burden will fall on major cities like Shanghai and Shenzhen. This is certain to have an indirect impact on the continuing development of major cities.

IV. Conclusions

In this article we have examined the evolution of major cities, such as Shanghai, Shenzhen and Bangkok, into environments resembling conditions in developed economies. The case study of Bangkok showed that the development of these major cities has been sustained by the availability of labor inputs due to population inflows, by the rapid accumulation of capital stocks resulting from foreign investment, and by high concentrations of human capital. Instead of being distributed to other regions, benefits from the growth of these major cities have instead expanded into the areas around major cities through the formation of urban regions, with the result that income disparity between cities remains wide.

At the same time, these major cities are being affected by falling birthrates and will no longer

be able to maintain structures that depend on labor inputs. The development of more advanced industrial structures is now an urgent priority. Provincial and rural areas are meanwhile experiencing labor shortages caused by the migration of population to the cities, and if the exodus of young workers continues, they will also face accelerating population ageing. These factors will frustrate efforts to correct income gaps. Although the economic development of cities in China and Southeast Asia has been remarkable, there are also many issues that will need to be overcome.

End Notes

1. The data can be downloaded from World Urbanization Prospects: The 2007 Revision Population Database (http://esa.un.org/unup/).

2. According to the United Nations definitions, the term "developed" is applied to all countries in Europe, North America (the United States and Canada), Australia, New Zealand and Japan.

3. For the purposes of this paper, "East Asia" consists of Japan, China, the NIEs (South Korea, Taiwan, Hong Kong, Singapore), and the ASEAN 5 (Thailand, Malaysia, Indonesia, the Philippines, Vietnam).

4. Thailand's per capita GNI is $3,050, but this increases to $7,440 on a purchasing power parity basis. Similarly, China's per capita GNI increases from $2,000 to $4,660 (World Bank, *Development Indicators 2008*).

5. Akira Suehiro (1989) provides a detailed history of Bangkok up to 1980.

6. A "migrant" is defined as a person born in a location other than Bangkok.

7. In the population census, persons who have relocated from other provinces within the past five years are included in the population inflow.

8. In a survey conducted by the Japan Bank for International Cooperation (JBIC), 38.7% of the companies that saw Thailand as a promising investment target cited the availability of low-cost labor as their reason (JBIC [2008]).

9. In the case of Thailand, the Thaksin administration implemented measures to develop industry, including the creation of industrial clusters to attract foreign investment. As a result, Thailand became one of the world's biggest centers for automobile manufacturing.

10. See Masahiko Hosokawa (2008) for a discussion of mega-regions.

11. These definitions are quoted from the analytical framework used in Toshio Watanabe (1986).

12. In 2008, these issues confronting developing economies were discussed in detail in two Asian Development Bank reports: *City Cluster Development* and *Managing Asian Cities.*

13. People aged around 40 make up large percentages of the populations of Greater Bangkok and Shanghai. This indicates that the ageing of the labor force will be a problem in the future.

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Appendix I : Urbanization and Population Movement in East Asia

Changes in the population of a city are basically influenced by natural population change within the city, and by migration from other regions (social growth)[14]. In developing economies, the factors affecting urban population growth vary according to the country or region concerned, but in East Asia migration generally plays a major role[15]. This can be confirmed using the concept of a "social growth index."

The social growth index of a city is calculated by dividing the population growth rate resulting from migration (social growth rate) by the natural population growth rate. An index higher than 1 indicates that social growth resulting from migration is playing a major role in the growth of the city's population. If the index is smaller than 1, the effect of natural growth is greater (Fig. 17).

However, because of the limited availability of data relating to the natural increase and social increase in urban populations, for the sake of convenience the national population growth rate is commonly used as a substitute for the natural growth rate of urban populations, while a figure obtained by subtracting the national population growth rate from the urban population growth rate is used to represent the social growth rate (Hayase [2000]).

Table 8 lists social growth indices calculated using United Nations population prospects. Since 1980, only East Asian countries have had social growth indices in excess of 1. This indicates that

Fig. 17 Social Growth Index

$$\text{Social growth index} = \frac{\text{Social growth rate of urban population}}{\text{Natural growth rate of cities}}$$

$$\fallingdotseq \frac{\text{Urban population growth rate} - \text{National population growth rate}}{\text{National population growth rate}}$$

Table 8 Comparison of Social Growth Indices

	1950-60	60-70	70-80	80-90	90-2000	2000-05
East Asia	**1.1**	**0.5**	**0.7**	**1.7**	**2.0**	**2.5**
Japan	1.8	2.1	1.0	1.0	1.2	1.7
South Korea	0.9	1.6	1.9	2.3	0.9	0.6
China	1.2	0.4	0.7	2.4	2.7	3.7
Hong Kong	▲ 0.0	0.1	0.2	0.7	0.0	0.0
Singapore	0.0	0.0	0.0	0.0	0.0	0.0
Thailand	0.6	0.2	1.1	0.6	0.5	1.0
Malaysia	1.0	0.8	1.0	0.6	0.9	0.9
Indonesia	0.9	0.7	1.2	1.7	2.2	2.1
Philippines	0.4	0.3	0.5	1.1	0.9	0.7
Vietnam	1.2	0.9	0.2	0.2	1.0	1.2
World	0.7	0.5	0.5	0.5	0.6	0.7
Developed economies	0.9	1.0	0.9	0.6	0.7	0.7
Developing economies	0.9	0.7	0.7	0.8	0.8	0.9
Africa	1.1	0.9	0.6	0.5	0.5	0.5
Asia	0.5	0.4	0.4	0.5	0.5	0.5
Europe	1.1	1.2	1.5	0.9	1.3	2.0
South America	0.6	0.6	0.6	0.4	0.4	0.4
North America	0.5	0.4	0.0	0.2	0.5	0.4
Oceania	0.3	0.3	0.0	▲ 0.1	▲ 0.0	0.0

Source: Calculated using United Nations, *World Urbanization Prospects: The 2007 Revision Population Database*

the contribution of population movements to the growth of urban populations in East Asia is high even by world standards.

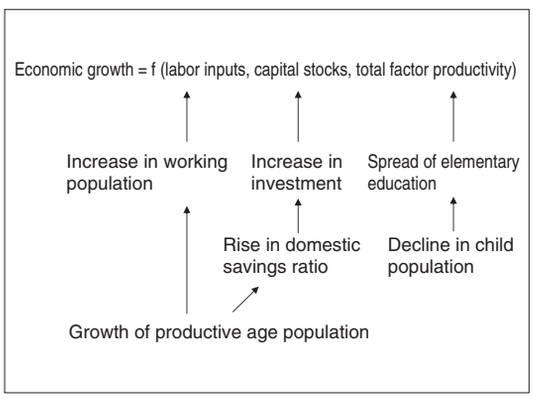
Of course, a more detailed analysis reveals that the trend has varied according to the country and the period. Of particular interest is the fact that China's social growth index is especially high. Other countries with high indices include Indonesia and Japan, while countries where indices have shown an upward trend in recent years include Thailand and Vietnam. The social growth index for Thailand, which has been the main focus of this article, was over 1 at 1.1 between 1970 and 1980, but the index subsequently fell back below 1 at 0.5 in 1980-90 and 0.6 in 1990-2000. Yet the fact that Bangkok's total fertility rate is significantly lower than the national rate suggests that a social growth index based on United Nations estimates may result in an underestimation of the actual impact of migration.

Appendix II: Economic Development and the Demographic Dividend in East Asia

Economic growth is generally explained in terms of three factors: labor inputs, capital stocks, such as machinery and facilities, and total factor productivity, which includes technology and human capital. The demographic dividend concept states that a falling birthrate can accelerate economic growth by exerting a positive influence on each of these three factors, as outlined below (Fig. 18).

First, there is the effect on labor inputs. Even though the birthrate may be in decline, the productive age population will continue to expand for some time because the number of people entering the productive age population will be greater than the number leaving. At the national level, the work force expands dramatically when a baby boom generation entered the labor market, while at the city level, migration from provincial and rural areas helps to expand the work force. If suitable employment opportunities can be provided, there will be growth in labor inputs at both the national and the city levels. Of course, the full benefits cannot be realized unless there is a labor market capable of absorbing the work force. In cities, it is necessary to overcome the problem of surplus labor.

Fig. 18 Falling Birthrates and the Acceleration of Economic Growth (Demographic Dividend)



Source: Oizumi (2007)

Second, a falling birthrate also affects capital stocks, such as facilities and machinery. The growth of capital stocks through increased investment basically depends on domestic savings. As the productive age population rises as a percentage of the total population, the domestic savings ratio can also be expected to rise, provided that a suitable employment environment can be provided. Similarly, if the percentage of people in the working age population rises and there is a good employment environment, the resulting rise in the saving ratio will provide funds that can be used for investment in urban industries and infrastructure development. A falling birthrate is also likely to give households and society increased capacity to expand their savings because of the consequent reduction in childcare costs.

Third, a falling birthrate can affect total factor productivity, including technology and human capital, by reducing the child population ratio and thereby increasing the amount of educational and medical services that can be provided per child. Other factors contributing to the improvement of productivity include the tendency of universities and other higher educational institutions to be concentrated in cities, and the increased capacity of urban residents to afford educational expendi-

ture as a result of rising incomes.

However, the demographic dividend is indicative of the latent economic growth potential that can be released by demographic changes. We need to be aware that the benefits cannot be realized without suitable conditions and appropriate policies.

End Notes

14. Changes in administrative areas can also have an effect.

15. In developing economies in regions other than Asia, natural growth plays a larger role in the growth of urban populations. According to a United Nations report published in 1996, natural growth accounted for about 60% of urban population growth in developing economies between 1960 and 1980 (Hayase [2000]).