THE CHINESE ECONOMY
Transitions and Growth

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Chapter 1
Geographical Setting

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China is the most populous nation, and it is also one of the largest countries, with the third-biggest landmass, after Russia and Canada. Its land area is 2% greater than that of the United States, which it resembles geographically. The two countries cover similar latitudes and a similar range of climatic conditions, and these similarities lead to numerous parallels between regions in the eastern half of both countries. The climate of Guangzhou (Canton) is like that of Miami, and the climate of the Northeast (Manchuria) is similar to that of Minnesota. The great difference between China and the United States is that China is far more rugged and more of the land is inhospitable. Most of China consists of hills, mountains, and high plateaus, broken by river valleys and a few plains and basins. In the west, China borders on the vast deserts of inner Asia. Mount Everest, the highest mountain in the world, is on the China–Nepal border, while the Turfan depression in Xinjiang, 155 meters below sea level, is the third-lowest place on earth. Only 25% of China is less than 500 meters (1,640 feet) above sea level, compared to 60% of North America and 80% of Europe. Although China historically was a nation of farmers, only a small proportion of the land is arable. The largest plains in China cover only a fraction of the area of the vast central plain of the American Midwest. China is big, rugged, and diverse.

China has only a single seacoast. Moreover, China’s eastern seaboard is not particularly accessible. Most of the southern part of the coast is rugged and hilly, so that the occasional good harbors tend to be cut off from the inland regions. In the north, especially between the Yangtze and the Shandong Peninsula, the coast is low and swampy with few good harbors. Reflecting these geographic conditions, China’s traditional economy was inwardly oriented. There were outward-oriented, seafaring subcultures, but these tended to be fenced off in the southeast coast, which was economically peripheral. China thus contrasts sharply with northern Europe and with Japan, Taiwan, and Korea, with their strong seagoing and commercial traditions. The lack of a coastal
The Geographical Setting

In the fifth century BC, the Chinese produced a geographical treatise, which included a map of China. The physical features of China are well suited to the organization of a large agricultural economy. While China's agricultural economy is large and diverse, it is not so large or diverse as its population.

1.1 LANDFORMS

The entire Chinese landmass is essentially a large upland region, rising from the west to east. The Himalayas, the highest mountains in the world, rise to the west of China. The Great Wall of China and the Yangtze River divide the country into two parts: the north and the south. The north is dominated by the Yellow River and the south by the Yangtze River.

The population distribution in China is highly concentrated, with the majority of the population living in the lowland areas around the Yangtze River. The population density is much lower in the mountainous areas of the northwest.

The most important rivers in China are the Yangtze (Changjiang) and the Huanghe (Hwang) rivers. The Yangtze is the world's third longest river and flows through a large part of China. The Huanghe is the second longest river in China and flows through the Shaanxi and Gansu provinces.

The eastern part of China is characterized by the coastal plains, while the western part is dominated by the high plateaus and the Tibetan Plateau.

The climate in China is distinctively continental, with hot summers and cold winters. The precipitation varies greatly from region to region, with the eastern part receiving more rainfall than the western part.

The Chinese economy is heavily dependent on agriculture, with rice being the most important crop. However, the rapid urbanization and industrialization have led to a significant shift in the economy, with manufacturing and service industries becoming increasingly important.

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China's hilly and complex terrain means that relatively little of the land is suitable for cultivation. The good agricultural land lies in the fertile plains and valleys of the major river systems, separated from one another by hills and mountains. Only 15 percent of China is arable (Table 1.1), and there is very little land potentially suited for cultivation not already exploited. The United States has more arable land than China but less than one-fourth the population. Per capita arable land in China is only one-tenth of a hectare, or one-quarter of an acre. This is the size of a modest suburban home lot in the United States. Over the centuries China has adapted to land scarcity with a labor-intensive agriculture that wrests more total food grain from the soil than any other country.

### Table 1.1
Land and population, 2002

<table>
<thead>
<tr>
<th>Country</th>
<th>Land area (1) (million hectares)</th>
<th>Arable land (2) (million hectares)</th>
<th>Arable percent (2)/(1) × 100</th>
<th>Population (million)</th>
<th>Arable per capita (hectare)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>933</td>
<td>143</td>
<td>15.3</td>
<td>1,280</td>
<td>0.11</td>
</tr>
<tr>
<td>India</td>
<td>297</td>
<td>162</td>
<td>54.4</td>
<td>1,099</td>
<td>0.15</td>
</tr>
<tr>
<td>United States</td>
<td>916</td>
<td>176</td>
<td>19.2</td>
<td>288</td>
<td>0.61</td>
</tr>
<tr>
<td>Russia</td>
<td>1,689</td>
<td>123</td>
<td>7.3</td>
<td>144</td>
<td>0.86</td>
</tr>
</tbody>
</table>

A hectare is a square 100 meters on each side, equal to about 2.5 acres.

### 1.2 CLIMATE AND WATER

The climate of China is dominated by the southeast monsoon, which sets the distinctive pattern of wet summers and dry winters. In winter there is little rain or snow anywhere in China. A high-pressure zone is established over central Asia, creating a steady flow of cold, dry air over all of eastern China. But in the summer, heating of the entire Asian landmass creates a low-pressure area over central Asia that draws tropical maritime air, saturated with moisture, into southeastern China. As this air encounters mountain ridges and cooler air masses, rain falls abundantly on southern China. As a result, the coast stays relatively cool while the inland basins become very hot, particularly in the "four furnaces" of central China (Chongqing, Wuhan, Changsha, and Nanjing) and in the western deserts.

As the summer monsoon moves northwest, it loses strength and delivers less rain (Figure 1.2). Overall the north is dry while the south is lush and drained by numerous waterways. The difference is reflected in an ancient saying about traditional means of transport: "South, boat; North, horse." Usually, the monsoons push over the belt of mountains between the Yangtze and Yellow River basins, providing modest summer rains in northern China. In bad years, however, the monsoons are too weak to cross over to the Yellow River valley and become stuck over the central mountain belt. In those years, north China is struck by drought, while the rains hover over southern China, flooding the countryside. This central mountain range, then, creates another fundamental dividing line between South China, with abundant water and north China, which is chronically short of water.

In fact, China is an arid country overall. In the Northwest, the margin of human habitation is defined by a continual tug of war with the desert, which threatens to advance, rolling over farmlands. The Aihui–Tengchong line marks this frontier between adequate and insufficient water. In the north, the Yellow River flows almost entirely through arid and semiarid country. The vast population of northern China creates enormous demands on Yellow River water. One of the great rivers of the world, 4,800 kilometers long, but of only moderate total volume, the Yellow River literally runs dry in many years, as
withdrawals take all the available water. A record was reached in 1997, when there was no water in the downstream stretches of the Yellow River for 226 days (Liu 1998, 899). Furthermore, the Yellow River carries a heavy load of dissolved mud and sand. 1.6 billion tons every year, and drops one-fourth of it on the riverbed. This raises the river bed about 10 cm each year, so that today the river—held between a line of dikes on either side—flows along an elevated path, always threatening to flood the surrounding, lower countryside when water does come. By contrast, in lush southern China, the Yangtze is only a little bit longer than the Yellow River but carries 20 times as much water. The Yangtze flows abundantly year-round, carrying one-third as much total sediment as the Yellow River. Even the Pearl River system carries six times as much water as the Yellow River. All the rivers rise and fall in rhythm with the monsoon. Reaching their lowest point around February, the rivers rise steadily until August or September, at which point they flow mightily, barely held within their dikes and covering vast floodplains.

In relation to its enormous population, China is short of arable land, forests, and water, ensuring that China’s environmental problems will be extremely severe. When account is taken of the highly uneven distribution of resources and population—especially the scarcity of water in the north and west—it is clear that enormous problems of environmental degradation challenge China. Indeed, China will inevitably be in a kind of permanent environmental crisis for the next 50 years or so, as economic growth pushes up against the limits of what the land can support (Chapter 21).

1.3 PROVINCES AND REGIONS

The most familiar way to divide China’s vast space is into provinces. China currently has 31 province-level administrative units. Some Chinese provinces have more people than most countries. Henan, the most populous, hit 97 million in 2004, while Tibet has the smallest population, with only 2.7 million. China maintains an official distinction between provinces (22), municipalities under national supervision (4), and autonomous regions of ethnic minorities (5). These all have province-level “rank” in the national administrative system, and we will use the term “province” to refer to all of them. Some provinces have identities that trace back more than two millennia; two of them, however, are recent creations: Hainan Island was carved out of Guangdong Province in 1988; and Chongqing Municipality was separated from Sichuan Province in 1997. In addition, there are now two special autonomous regions (SARs) of China, Hong Kong (since 1997) and Macau (since 1999). These are never treated as provinces. Figure 1.3 shows the provinces of the People’s Republic of China.

Provinces are not always the most natural way to divide up China’s economic space. Another approach, following anthropologist William Skinner, is to divide Chinese territory into “macrorregions” defined by the rugged topography. Each macrorregion spreads over more than one province and consists of a densely settled core area and a less densely settled and often hilly periphery. Although it is possible to divide all of China into macrorregions, not all macrorregions are equal: we will look at several of the most important (Figure 1.4). The most important macrorregion is North China. The North China Plain is by far the largest flat land area in China, and it contains a little over one-quarter of China’s total farm land as well as slightly over one-quarter of the total population (in Figure 1.4 densely populated core areas show up as dark
The national capital, Beijing, serves as the urban center of North China, and along with its sister city, Tianjin, has a total population of around 20 million. Size, location, and the national capital make North China the most important region of China. In spite of the importance of the Beijing–Tianjin metropolis, the Plain as a whole is predominantly rural, with large villages spread thickly and fairly evenly over the entire expanse. Many areas in the plain are not irrigated; as a result, they are dependent on unreliable rains and subject to periodic droughts and floods. The primary staple crop is wheat, although some areas do well producing economic crops such as cotton and peanuts. While sheer size gives North China a predominant importance among China's regions, it is rather average in terms of development levels. The 27% of total national population that lives there produces 30% of the industrial output and 31% of the crop output of the entire nation.

The most developed part of China is the Lower Yangtze macrorregion. At the center of the region is the metropolis of Shanghai, economically the most important city in China. Ten percent of China's population lives in the Lower Yangtze, but the region produced 21% of China's GDP in 2003. Incomes are higher and urbanization rates significantly greater than in any other area of China. Indeed, in recent years industrial production has spread so rapidly into the countryside that many areas classified as rural are more realistically thought of as urbanized countryside. For centuries, this was the richest part of China, and during the last decade its growth has been well above the national average, so the Lower Yangtze is regaining its predominant role in the Chinese economy. The Yangtze River Delta, covering 50,000 square kilometers, is one of the great river deltas of the world. Wet rice cultivation is dominant, and typically two or more crops are harvested per year. The country is lush and green, with water everywhere. The intensely cultivated countryside, comprising 7% of China's arable land, produces 10% of crop output.

Adjacent to the North China Plain, and tied to it by numerous economic links, is the region of the Northeast, or Manchuria. The Northeast is a region of abundant natural resources: 9% of China's population here cultivates 17% of the arable land, and rich reserves of iron ore, coal, and petroleum have made the Northeast the center of China's heavy industry. Since the beginning of the twentieth century, Chinese settlers have been braving the harsh winters to reclaim farmland from the northern forests of this region. The relative abundance of land has encouraged relatively high levels of agricultural mechanization and made the region an exporter of food grains and soybeans to the rest of China. The industrial center is at Shenyang, in Liaoning, which is surrounded by a ring of eight medium-sized industrial cities, including Anshan, site of China's oldest steel mill. But over the past two decades, the Northeast
has struggled: the number of factory jobs in state-run industry has shrunk; the region has lost the important role it played in the national planned economy; and growth has lagged. From being a richer part of China, the Northeast has become average, 9% of the people producing 10% of GDP in 2003.

The economies of the North, Northeast, and Lower Yangtze macroregions have had very different trajectories in recent years. Historically, the link between the North China Plain and the Lower Yangtze made China into a single economic entity: the Grand Canal was built to ship the food grain surpluses of the lower Yangtze to the national capital region in the northern plain. Today, the Beijing–Shanghai link still defines the central axis of the economy. For a period in the mid-twentieth century, the mineral and land resources of the Northeast, along with the creation of its heavy industrial base, led it to be highly integrated into socialist, industrializing China. But in the past 20 years, the Northeast has become somewhat marginalized, losing its centrality to the Lower Yangtze. These three interacting regions make up the bulk of the Chinese economy; together they contain 46% of China’s population and 51% of its farmland, and together they produced 55% of GDP in 2003.

The remaining Chinese macroregions are much less tightly integrated into a single national economic system. The provinces in the middle reach of the Yangtze—Hubei, Hunan, and Jiangxi—entered the reform era at Chinese average levels of development but have lagged behind the rapidly growing coastal regions. These provinces hold 13% of China’s population but produced only 9.5% of 2003 GDP. The land is generally irrigated and intensively cultivated; it contains only 10% of China’s arable land but produces 14% of the crop value. In contrast to the Lower Yangtze, where the agricultural economy is extremely diversified, the Middle Yangtze primarily produces grain. This grain monoculture enables the region to export significant surpluses of grain to other regions of China. The major urban center is Wuhan, which has trade and industrial roles that extend beyond the region.

Following the Yangtze further upstream, one arrives in Sichuan, a huge inland basin entirely surrounded by high mountains that is the core of the Upper Yangtze macrorregion. Fertile and densely populated, there is no similar geographical feature anywhere else in the world. The Sichuan basin is now divided into two provinces, Chongqing municipality and Sichuan Province, which together have a 2004 population of 118 million. There is no natural route into or out of the Sichuan basin, and even the Yangtze River, as it flows out of Sichuan, cuts its way through spectacular and treacherous mountain gorges. This is where the huge and controversial Three Gorges Dam across the Yangtze was built, and the gorges are being inundated by a gradually filling reservoir. Chongqing and Chengdu (the capital of Sichuan Province) divide between them the functions of urban centers for the Upper Yangtze macroregion. Near the Sichuan basin, and linked to it by extensive economic and transport ties, is the Yunnan-Guizhou plateau, labeled the Southwest China macroregion in Figure 1.4. The Chinese government usually lumps the provinces of Yunnan and Guizhou in with Sichuan and Chongqing to form a greater Southwest China region. These four provinces have diverse topographies, but all have a dense population and a common low income. The GDP per capita is only about half the national average: 15.5% of China’s population here produces 8.5% of GDP.

Figure 1.4 shows two macroregions along the southeast coast. Both these macroregions have long been oriented outward toward ocean-borne trade, while most of China was oriented inward. John King Fairbank suggested that “maritime China” was a distinct region and subculture within Chinese civilization. Maritime China is the homeland of most of the Overseas Chinese who left China before 1949. It is cut off from much of the rest of China by the mountain chains that define a narrow coastal strip. There is little hinterland, and communication was traditionally up and down the coast by boat. The one large core area along the coast is the fertile Pearl River Delta, the heart of Guangdong Province. The Pearl River Delta has long supported an extremely rich diversified agriculture and a correspondingly dense population, with both Guangzhou and Hong Kong serving as urban centers.

In recent years the rapid growth of an externally oriented economy in southeast China has transformed this region. Maritime China has always been a complex region, with many dialects and complicated overseas relationships. Over the past 25 years, the different segments of maritime China have grown together, increasingly constituting a single economic powerhouse. Investment from Hong Kong and Taiwan has built factories and new trading relationships. Of course, Taiwan and Hong Kong were traditionally parts of maritime China, but their close cultural, economic, and geographic ties with the other regions of maritime China were temporarily broken under Maoist China after 1949. As a result, those parts of Maritime China within the PRC’s boundaries were surprisingly poor and backward at the end of the 1970s, and one of the first priorities of reformers after 1978 was to reestablish traditional economic links among parts of Maritime China. The early phases of China’s economic opening after 1978 are largely the steps in the reconstitution of these traditional links.

Four special economic zones (SEZs) were set up in 1979–1980 to attract investors to China. Each SEZ strategically targeted a particular group of
maritime Chinese as its primary source of investment. The largest SEZ, Shenzhen, was set up adjacent to Hong Kong to attract spillover investment from what was then still a British colony. The gradual dismantling of the barriers that separated Hong Kong from the rest of the Pearl River Delta has meant that multiple urban areas are progressively growing together, transforming the entire eastern delta into a single integrated economic region. Meanwhile, the Zhuhai SEZ was set up across the Pearl River, next door to the Portuguese colony of Macau. Up the coast, the Shantou SEZ was established near the Chaozhou (Teochiu) ethnic homeland to attract investment from this group, which is especially important economically in Southeast Asia. Finally, the Xiamen SEZ was designed to revive overseas links among the southern Fujian (Minnan) people. People in Taiwan speak the same variety of Minnan that is spoken around Xiamen, from where most of them emigrated after the 1600s. The Minnan have long been an oceangoing, trading people, and the distinctive Minnan dialect of Chinese is spoken also in extensive commercial networks throughout southeast Asia, as well as in Taiwan and Fujian itself. As China opened up, investment from Taiwan increased dramatically, and Taiwan has begun to serve as one of the economic centers of the whole southeast region. Thus Taiwan and the Pearl River delta today serve as the dual cores of Maritime China.

The remainder of China's population is spread across the relatively arid regions of the north and northwest. A northern plateau region—consisting of Shanxi, Shaanxi, Inner Mongolia, Gansu, and Ningxia—contains almost all of these people, amounting to 10% of China's population. These people farm 18% of China's arable land, but the land is arid and of poor quality. This region accounts for 8% of the crop output and only 6% of industry. The population in the plateau region is concentrated in a few fertile river valleys—the Wei River in Shaanxi around Xi’an, and the Fen Valley in Shanxi around Taiyuan. To the west of this plateau country, people live primarily in oases or isolated fertile valleys in the northwest or are nomadic herdsmen. As one ascends to the high plateau of Tibet and Qinghai, one finds vast stretches of virtually uninhabited land.

1.4 MINERAL RESOURCES

Overall, China is a land-scarce and labor-abundant economy. With 20% of the world's population, China occupies 7% of the world's land area. China's share of world mineral wealth is roughly proportional to its share of land area, such that mineral reserves per capita are typically half or less of world averages.

Even reserves of coal, which China mines and burns in abundance, amount to only 11% of total verified world reserves. China has developed the world's fifth-largest petroleum industry, but verified reserves of petroleum and natural gas amount to 2.3% and 0.8% of the world total. There are, however, rich deposits of nonferrous minerals such as tin and copper, and especially tungsten and rare earth.

The distribution of mineral and energy resources in China is extremely uneven. Fossil fuels are predominantly in the north, which has 90% of the oil and 80% of the coal reserves. Hydroelectric potential is substantial, where there is water (the south) and relief (the west): 68% of the hydropower potential is in the Southwest macroregion. The rapidly growing southern coastal regions have virtually no energy resources. Geographic constraints, therefore, dictate that China must develop in a labor-intensive and, ultimately, knowledge-intensive path. Moreover, unrelenting environmental problems will make economic trade-offs more difficult and complex for the foreseeable future.

1.5 CONCLUSION: REGIONAL DIFFERENTIATION

Since the beginning of China's market transition, economic growth has been much more robust in the coastal provinces than in inland provinces. To some extent this difference reflects catch-up growth on the part of the coastal regions. Arguably, all three of the Far South, Southeast Coast, and Lower Yangtze macroregions were held back during the planned economy period. These macroregions entered the reform era significantly underperforming their potential, and it is not surprising that they have since grown faster than the national averages. But after 25 years of rapid growth, these southern coastal regions are now both richer and faster growing than the rest of the country. Not surprisingly, the coast-inland gap has been widely recognized as a fundamental feature of the Chinese economy. In 1999 the Chinese government officially launched the Western Development Program to give preference to western and inland provinces in investment projects and other economic development policies.

By itself, however, the idea of a coast-inland gap is too simple to capture the complexities of China's economic geography. In the first place, there is a north–south gap in growth rates that is just as significant as the east–west gap: the south is growing much faster. Indeed, the Chinese government implicitly recognized the north–south gap when it rolled out the Northeast Revitalization Program in 2003, designed to help the Northeast restructure heavy
industries facing resource depletion, loss of customers, and the need for downsizing. More fundamentally, it is inevitable that the coastal regions will emerge as the dynamic center of China's economy. This observation is especially true given China's dramatic reengagement with world trade and the high degree of openness China has achieved (see Chapters 16 and 17). Ironically, during 2005 the Chinese government even began to extend preferential policies early in the reform era, from 1979 through 1999, today every region except the coast is the beneficiary of preferential policies. Each of these preferential policies is different, to be sure. But even put together, these regional development programs will not alter the fundamental shift that is occurring from China's traditional inward orientation to its new globalized and outward-looking economy. After all, the coastal provinces are not just a "strip" on the edge of China: 41% of the population lives in the coastal provinces. In a broader accounting, the five macroregions adjacent to the coast contain 59% of China's total population. It is reasonable to hope that the effects of economic growth along the coast will naturally diffuse to areas within a single macroregion.

By contrast, it may take a long time to ignite growth in the macroregions that are distant from the coast. In the far west, the half of the country west of the Aihui–Tengchong line contains only 6% of the total population, and these people are far from the spreading impact of coastal development. In fact, China's greatest development challenges are not in the vast and empty far western regions. Instead, they are in the areas where a dense population pushes up against the limits of water and what the land can provide. The line that defines these limits is precisely the Aihui–Tengchong line, slicing through the middle of the country. In a broad belt, running through Inner Mongolia, Shaanxi, Gansu, Sichuan, Guizhou, and Yunnan, China's most intractable problems of poverty are concentrated. It is in this belt that a huge population struggles to eke out a living from an ungenerous land. This is a belt of environmental degradation, including deforestation and soil erosion, and of especially severe economic challenges: environmental, social, and economic problems all come together in this region. Geographical conditions and the associated environmental challenges will continue to shape China's developmental challenges and possibilities. The geographic endowment provides the foundation upon which economic and social development proceed and certainly cannot be escaped. But at the same time, that environment is continuously being rebuilt through ceaseless economic activity.

**BIBLIOGRAPHY**

**Suggestions for Further Reading**

Van Slyke (1988) is a lively introduction to Chinese geography through the perspective of the Yangtze River. Chi (1963 [1956]) is still an excellent account of different regions. There are several excellent atlases of China now available in English, but perhaps the most beautiful is Institute of Geography (2000).

**Sources for Data and Figures**

Figure 1.1: Based on Sun Jiagui (1988).
Figure 1.2: Based on Looming (1964) and Institute of Geography (2000).
Figure 1.3: Based on Institute of Geography (2000).
Figure 1.4: Based on Fairbank and Goldman (1998).


Data on Chinese landforms in this chapter come primarily from Zhao Ji (1990); with additional material from Zhao Songgao (1944) and Li Ruluan (1984). CIA (1971, 52–53) has interesting maps that explicitly show the analogies between the United States and China. The map reproduced in Figure 1.4 is from Fairbank and Goldman (1998). Statistics on macroregions are drawn from Li Ruluan, updated from SYC.

**References**


The year 1949 appears at first to be a great divide in Chinese history. The government is radically different after 1949, and even more dramatic is the growth performance. Before 1949, China never launched into rapid, modern economic growth; since 1949, China’s economy has always grown rapidly, despite sometimes disastrous policies imposed during Maoist times. For more than a century—from the early nineteenth to the middle of the twentieth century—China’s economic performance was mediocre at best. Moreover, under pressure from the West, China disintegrated politically. The most common interpretation has been that China’s economy failed in the nineteenth and early twentieth centuries and that 1949, therefore, was a real turning point. After all, the differences are so great that something fundamental must have changed.

This traditional view has been challenged by a group of economists who see the Chinese economy in the early twentieth century as having been largely successful (T. Rawski 1989; Brandt 1987, 1990; Myers 1980). Thomas Rawski (1989) presented revised estimates of aggregate output that imply slow but steady growth in per capita output after the late nineteenth century. Perhaps more important is the philosophical basis of this group’s argument. They see the traditional Chinese economy as having been well suited to support economic development. There was indeed some governmental failure during the beginnings of development, but governmental failure was not significant enough to destroy the robust potential of the traditional economy. Moreover, economic development is a long-term process that consists of the accumulation of human and physical capital, together with the evolution of institutions appropriate to a modern economy. Thus this group stresses continuity between the features of the traditional economy and the rapid growth experience that became so obvious after 1949. Implicitly, China would have grown rapidly under any economic system and, lacking a socialist revolution, could have been expected to engage in development along capitalist lines.