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The Tale of the Two New Asian Tigers: Comparative Development of Selected Provinces of China and India since 1980 in **Emerging Giants and Lessons for Development: China, India, and Their Different Paths to Progress**

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EMERGING GIANTS
AND LESSONS FOR DEVELOPMENT

China, India, and Their Different Paths to Progress

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Wei-Chiao Huang
EDITORS

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Cover design by Erika D. Jones.

This book is dedicated to the memory of David Dollar, who passed away last fall. David was a great economist, a highly esteemed scholar on China, and host of the *Dollar and Sense* podcast at the Brookings Institution, where he was a senior fellow. Our condolences go out to his wife, Paige, and his children, Evan and Isabel.

6
The Tale of the Two New Asian Tigers

Comparative Development of Selected Provinces of China and India since 1980

Dilip Mookherjee
Boston University

The fast rates of economic growth of China and India over the past four decades are among the highest recorded in history. They were accompanied by increasing urbanization and industrialization, sharp reductions in poverty and illiteracy, and improvements in many indicators of human development. These achievements were broadly comparable (at least in a statistical sense), despite the two countries' marked differences in history, culture, and political systems. Compared to India, China has a long history of being a centralized and authoritarian state, and of having relatively low ethnic and religious fragmentation. Chinese society and politics continue to be dominated by the Chinese Communist Party (CCP), while control of the Indian government at the central and regional level is divided and frequently contested among rival political parties. However, the transition to fast growth in both countries was accompanied by a move toward a free-market economy progressively integrated with the rest of the world through flows of trade and investment.

Cross-country comparisons of development are rendered hazardous by problems with the accuracy and comparability of statistical data commonly used (Deaton 2005; Pinkovskiy and Sala-i-Martin 2016). Nevertheless, I provide an overview of the main facts here in the first part of this chapter. Given the vast heterogeneity within the two countries, I shall restrict my attention to specific provinces in the two countries that were broadly comparable in the 1970s in terms of population

size, cropping patterns, occupational structure, and standard of living. Further details are provided at the beginning of the next section.

Growth rates of gross domestic product (GDP) per capita between 1980 and 2014 do not vary much between the two sets of provinces, while growth rates of nighttime lights, consumption expenditure per capita, and the fall in poverty were markedly higher in the Chinese provinces. Moreover, the latter exhibited faster structural transformation, marked by greater increases in urbanization, industrialization, and manufacturing wages. On the other hand, inequality of consumption expenditure, which was lower in the Chinese provinces during the mid-1970s, also grew faster. Consumption inequality declined in India; by 2004, it was substantially lower than in the Chinese provinces. While there are many possible explanations for these contrasting outcomes based on differences in economic fundamentals, history, or culture, I will focus on differences in the role played by their respective states in the development process, which in turn stem from differences in underlying governance institutions.

In India, I focus on the eastern state of West Bengal (Figure 6.1), and in China on three provinces: Anhui, Hunan, and Jiangxi (Figure 6.2). West Bengal occupies a middle rank among Indian states in per capita income, with levels and changes in economic indicators close to the Indian average.[1] The Chinese provinces were chosen for their similarity to West Bengal in population, cropping patterns, and per capita income in the late 1970s; besides, their growth experience was representative of China's growth as a whole.

There are also some similarities in political contexts: for much of the period since the late 1970s, the state government of West Bengal was controlled by the Left Front, a coalition of parties on the left led by the Marxist wing of the Communist Party of India (CPI-M), whose ideology was the closest among major Indian political parties to that of the CCP in China. The Left Front was elected to power in the 1977 West Bengal state elections, at roughly the same time that Deng Xiaoping emerged as the leader of the CCP. In both contexts, these changes in political control were accompanied by a large land reform, a program of devolution of authority over economic decision-making to local governments, and the initiation of a market-based strategy for industrial growth. The Left Front held an absolute majority in the state legislature all the way from 1977 until 2011 and was dominated by the CPI-M,

Figure 6.1 West Bengal, the Selected Province in India

SOURCE: Author's adaptation from Wikimedia Commons.

which was a relatively disciplined party with a top-down hierarchy within the state. Of course, there was an important difference in the political context: the Left Front was exposed to political competition and ultimately lost the 2011 election to the All India Trinamool Congress (TMC)—an issue we shall return to later.

Figure 6.2 Hunan, Jiangxi, and Anhui, the Selected Provinces in China

SOURCE: Author's adaptation from Wikimedia Commons.

The second section, "Comparative Development: The Key Facts," presents indices of income, consumption, nighttime lights, poverty, inequality, and various human development indicators in the selected provinces from the 1970s until 2015. This is followed in the third section, "Agricultural Performance," by developments in the agricultural sector, as significant land reforms boosted smallholder agriculture and increases in rice yields in the 1980s in both countries. The data also reveal a striking difference in rice yields sustained throughout the entire period. The fourth section, "Structural Transformation: Urbanization and Industrialization," reviews the structural transformation of the two economies and their successes in industrial growth. The Chinese provinces achieved higher growth in urbanization, industrial production, and manufacturing wages, particularly after 2000.

There are potentially many explanations for the two countries' comparative performance, including those conventionally considered in the cross-country growth literature, such as savings, demographics and initial conditions, and differences in comparative advantage in low-skill-intensive manufacturing. However, I shall focus on the role of three areas of state policy that are likely to have played an important role: 1) research and development in hybrid rice, 2) land acquisition, and 3) urban governance. The fifth section, "Role of Specific Government Policies," provides further details of each of these areas, based on available facts and the respective institutional environments in which these policies were formulated and implemented. This discussion suggests that the distinctive political institutions of the two countries had substantive implications for these policy differences. Our review of related research literature in these areas indicates a number of significant gaps in current knowledge, thus suggesting interesting directions for future research. The sixth section concludes with a summary and a discussion of some of these broader implications.

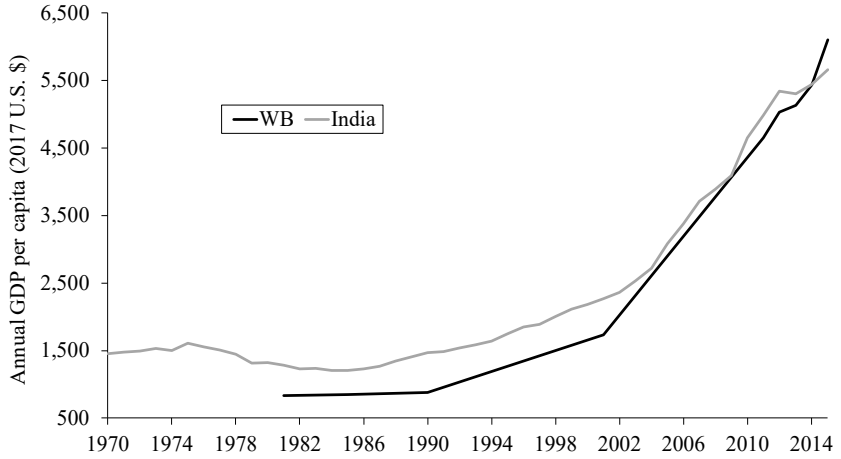
COMPARATIVE DEVELOPMENT: THE KEY FACTS

Choice of Provinces

West Bengal occupies the middle rank among Indian states on most measures of development. Its growth experience is also representative of the overall performance in the whole of the country. Figure 6.3 plots per capita GDP in West Bengal and India between 1980 and 2014. West Bengal's income starts below the average for all of India but catches up by 2005, after which the two figures remain very close. Both West Bengal and India show a marked acceleration in growth after 2005.

Moreover, urban and rural per capita consumer expenditures were remarkably similar between West Bengal and India, both in levels and changes (Figure 6.4). Figure 6.5 plots poverty headcount ratios (with thresholds based on household nutrition standards) and the Gini coefficient of household consumption distribution. West Bengal started with higher poverty (70 percent) than the all-India rate (55 percent) during the mid-1970s but declined faster, enabling West Bengal poverty to

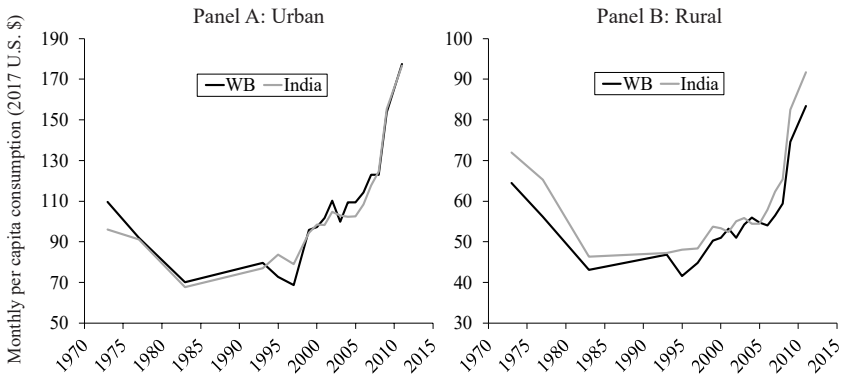
Figure 6.3 Per Capita GDP: India and West Bengal (WB)



NOTE: This figure shows the time series of GDP per capita in 2017 U.S. dollars after PPP adjustment.

SOURCE: Data for West Bengal are taken from the Bureau of Applied Economics and Statistics, Government of West Bengal; data for India are taken from the World Bank. Purchasing power parity (PPP) adjustment index data are from the Penn World Table.

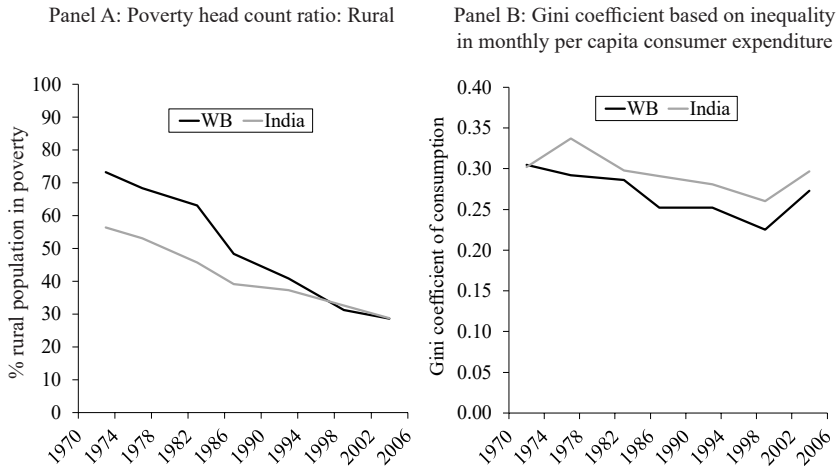
Figure 6.4 Per Capita Consumption: India and West Bengal (WB)



NOTE: These figures show the time series of urban and rural consumer expenditure per capita per 30 days in 2017 U.S. dollars after PPP adjustment.

SOURCE: Data are taken from various reports of the National Sample Survey Office (NSSO) on the Consumer Expenditure and Planning Commission. PPP adjustment index data are from the Penn World Table.

Figure 6.5 Poverty and Inequality: India and West Bengal (WB)



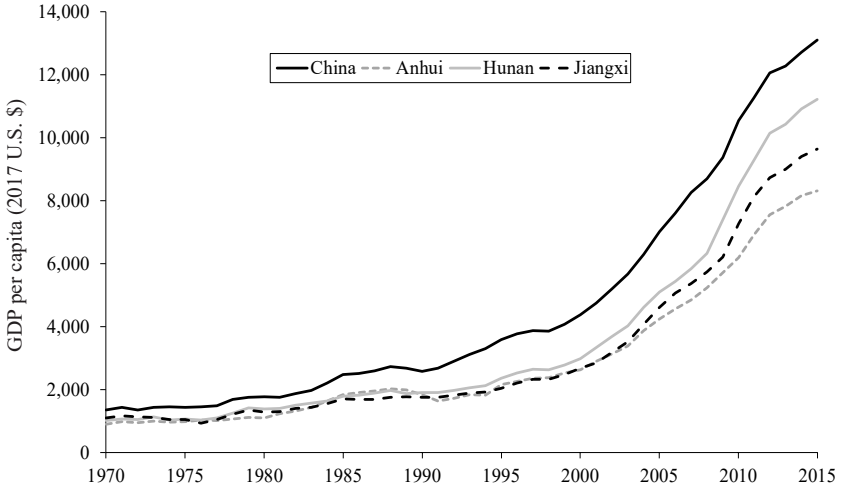
SOURCE: Poverty head count ratio data for India are taken from Himansu (2007) and More and Singh (2014). The ratio of West Bengal is taken from Chakraborty (2017). Gini coefficients of both West Bengal and India are taken from the National Sample Survey (NSS).

converge to the all-India average rate of slightly under 30 percent by 1998. Consumption inequality in West Bengal was the same as in India in 1972, with a similarly slight downward trend thereafter. Overall, both West Bengal and India experienced a marked acceleration in GDP per capita, a large drop in poverty, and a slight decline in inequality.

The three provinces of China were chosen on the basis of two criteria: 1) representativeness of China's growth experience and 2) similarity to West Bengal with regard to population and crop patterns in the early 1980s. With regard to the former criterion, Figure 6.6 shows that these provinces occupied a below-median rank within China with regard to 1981 GDP per capita, and in this respect they were closer to West Bengal, compared with the median Chinese province. Figure 6.7 shows that they were similar to the rest of China in levels of rural consumption, while lagging behind in urban consumption. With regard to growth rates of both GDP per capita and consumption, the experiences of these provinces were representative of China as a whole.

Turning to the second criterion, Table 6.1 shows that rice was the dominant crop in West Bengal, Hunan, and Jiangxi, accounting for

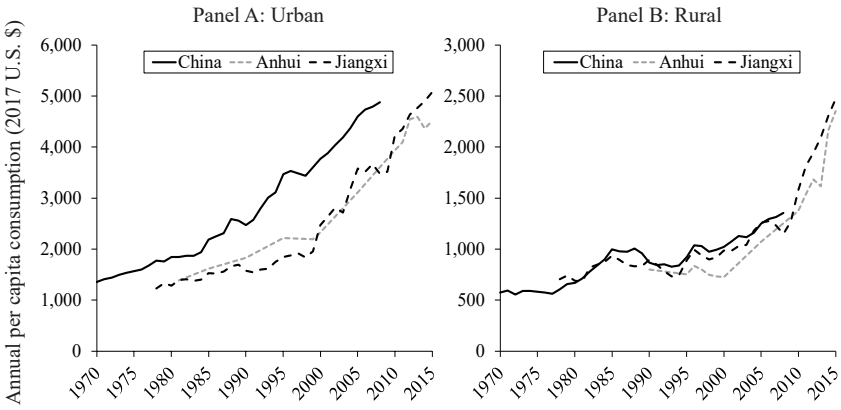
Figure 6.6 Per Capita GDP: China and Selected Provinces



NOTE: This figure shows the time series of gross domestic product (GDP) per capita in 2017 U.S. dollars after PPP adjustment.

SOURCE: Data are taken from the National Bureau of Statistics, provincial yearbooks, and the *China Compendium of Statistics 1949–2008*. PPP adjustment index data are from the Penn World Table.

Figure 6.7 Per Capita Consumption: China and Selected Provinces



NOTE: These figures show the time series of urban and rural consumer expenditure per capita in 2017 U.S. dollars after PPP adjustment.

SOURCE: Data are taken from provincial yearbooks and the *China Compendium of Statistics 1949–2008*. PPP adjustment index data are from the Penn World Table.

Table 6.1 West Bengal and Chinese Provinces: Comparison in 1981, 1985

	Year	West Bengal	Anhui	Hunan	Jiangxi
GDP per capita	1981	832	1,225	1,395	1,306
National rank (in GDP per capita)	1981	7/15	26/31	21/31	22/31
Population	1981	55	50	53	33
Share of rice in cropped area	1985	63	26	58	60

NOTE: Gross Domestic Product (GDP) per capita in 2017 U.S. dollars after purchasing power parity (PPP) adjustment. Population is in millions.

SOURCE: For West Bengal, GDP per capita is taken from the West Bengal government's Bureau of Applied Economics and Statistics (2015), GDP per capita rank is taken from the Central Statistics Office (CSO), population and population density are taken from the census, and rice share from the Directorate of Agriculture. For Anhui, Hunan, and Jiangxi provinces, GDP per capita comes from the *China Compendium of Statistics 1949–2012*, the population from provincial yearbooks (Anhui Provincial Bureau of Statistics, Hunan Provincial Bureau of Statistics, and Jiangxi Provincial Bureau of Statistics, all for various years), and rice share from the Ministry of Agriculture of the People's Republic of China (2009).

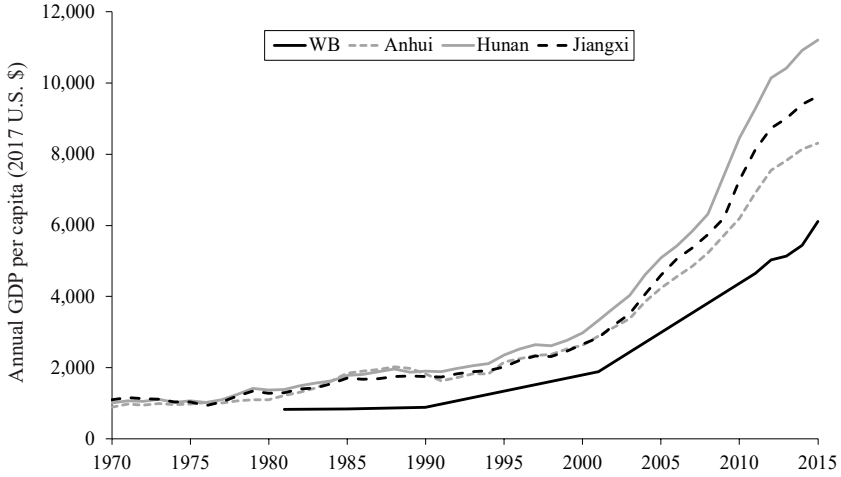
approximately 60 percent of the area in crops, whereas wheat was the main crop in Anhui. Anhui, Hunan, and West Bengal all had populations near or slightly above 50 million in 1981, while Jiangxi's population was 33 million.

Trends in Living Standards, Inequality, and Human Development

I start by comparing trends in key indicators of development. Figure 6.8 shows that levels of GDP per capita were approximately 50 percent higher in the Chinese provinces throughout the entire period. Table 6.2 shows that their per capita GDP growth experiences were similar: the annual growth rate of 6.42 percent in West Bengal over 1981–2015 was actually slightly higher than the rates achieved in Hunan (6.27 percent) and Jiangxi (6.07 percent), and considerably higher than in Anhui (5.43 percent). In both countries, growth rates nearly doubled after 2001.

Consumption per capita, however, shows a different picture. Figure 6.9 presents corresponding comparisons of per capita consumption expenditure between West Bengal and the two Chinese provinces for which we have data (for Hunan the data are missing for all but the past few years). It is remarkable that levels of consumption were almost the same in West Bengal and the Chinese provinces in 1978. Thereafter,

Figure 6.8 GDP per Capita: West Bengal and Chinese Provinces



NOTE: This figure shows the time series of GDP per capita in 2017 U.S. dollars after PPP adjustment.

SOURCE: Data of West Bengal are taken from the Bureau of Applied Economics and Statistics, Government of West Bengal. Data of Anhui, Hunan, and Jiangxi are taken from the *China Compendium of Statistics 1949–2008* and provincial statistical yearbooks. PPP adjustment index data are from the Penn World Table.

consumption grew faster in the Chinese provinces, resulting in a significant divergence: by 2012, living standards were more than twice as high in China. This is partly accounted for by a relative stagnation in West Bengal until the late 1990s. In both countries, we see an acceleration in growth from 2000 onward. After 1999, Table 6.2 shows that both rural and urban consumption grew considerably faster in the rice-growing province of Jiangxi than in West Bengal.

The discrepancy in the growth comparisons between output and consumption per capita is striking and somewhat puzzling. Data on GDP are collected in a different way from household expenditure surveys: each is subject to a host of distinctive biases, thereby generating a controversy regarding which is more reliable (e.g., Deaton 2005; Pinkovskiy and Sala-i-Martin 2016). Note, however, that there is an additional potential source of divergence corresponding to the gap between income and consumption, which translates to savings and

Table 6.2 Growth Rate Comparisons between West Bengal and Three Chinese Provinces

Panel A: GDP per capita

	1981–2015	1981–2000	2000–2015
West Bengal	6.42	4.26	8.34
Anhui	5.43	2.99	8.03
Hunan	6.27	3.47	9.31
Jiangxi	6.07	3.12	9.14

Panel B: Urban consumption expenditure per capita

	1981–2011	1981–2000	2000–2011
West Bengal	3.32	1.56	4.85
Anhui	3.50	2.63	5.12
Jiangxi	3.95	2.20	4.78

Panel C: Rural consumption expenditure per capita

	1981–2011	1981–2000	2000–2011
West Bengal	2.11	0.82	3.86
Anhui	3.57	–0.90	6.51
Jiangxi	2.03	0.71	4.59

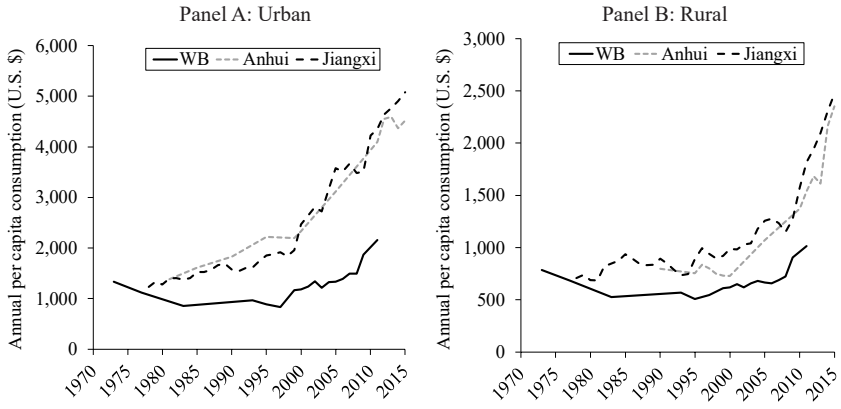
NOTE: GDP per capita and urban and rural expenditure per capita are in 2017 U.S. purchasing power parity (PPP) adjusted dollars, with PPP from the World Bank International Comparison Program (ICP). Because of data limitations, Hunan is not included in Panels B and C; moreover, West Bengal's growth rate is calculated for 1981–2001 and 2001–2015 in the last two columns of Panel A, and for 1983–2011 and 1983–2000 in the first two columns of Panels B and C. Anhui's growth rate is calculated for 1990–2011 and 1990–2000 in the first two columns of Panel C.

SOURCE: For West Bengal, the source for GDP per capita is the government's Bureau of Applied Economics and Statistics (2015), and for consumption it is the National Sample Survey Office (NSSO) Planning Commission. The data source for the Chinese provinces is the *China Compendium of Statistics 1949–2008* provincial statistical yearbooks.

depends on income distribution as well. However, it is not clear how this may account for the observed discrepancy.[4]

Given the discrepancy between growth of GDP and consumption per capita, we examine a third indicator of average well-being: nighttime light intensity based on satellite images. This indicator is less subject to potential noncomparability of official data across different

Figure 6.9 Consumption per Capita: West Bengal and Chinese Provinces



NOTE: These figures show the time series of urban and rural consumer expenditure in 2017 U.S. dollars after PPP adjustment.

SOURCE: Data on West Bengal are taken from various reports of the NSSO on the Consumer Expenditure and Plannning Commission; data on Anhui and Jiangxi are taken from the *China Compendium of Statistics 1949–2008* and provincial statistical yearbooks. (Anhui Provincial Bureau of Statistics and Jiangxi Provincial Bureau of Statistics, various years). Hunan is not included because of the lack of data. PPP adjustment index data are from the Penn World Table.

countries, though it is subject to a different set of potential measurement errors. Nighttime lights have been found to be significantly correlated with various measures of economic activity as well as human development across different locations and countries (Bruederle and Hodler 2018; Gibson et al. 2021; Kulkarni et al. 2011). However, these measurements are prone to errors that are likely to be more pronounced in rural settings with low population density, and where the data used come from the Defense Meteorological Satellite Program (DMSP) rather than the more recent Visible Infrared Imaging Radiometer Suite (VIIRS) (Gibson et al. 2021; Li et al. 2020). The VIIRS data are more accurate and intertemporally comparable, but are available only for more recent years. We rely on data provided by Li et al. (2020), based on DMSP data for 1992–2011 and VIIRS data for 2012–2013. Growth rates for the period 1990–2013 are provided for nighttime lights per 1,000 people in the four provinces in Table 6.3, while a plot of the data is shown in Figure 6.10.

Table 6.3 Growth Rate Comparisons

Panel A: GDP per capita

	1990–2013	1990–2000	2000–2013
West Bengal	7.92	6.92	8.64
Anhui	7.06	4.76	8.51
Hunan	7.93	4.81	9.90
Jiangxi	7.77	4.32	9.76

Panel B: Urban consumption expenditure per capita

	1993–2011	1993–2000	2000–2011
West Bengal	4.48	3.59	4.85
Anhui	3.95	2.10	5.12
Jiangxi	5.68	4.21	4.78

Panel C: Rural consumption expenditure per capita

	1993–2011	1993–2000	2000–2011
West Bengal	2.96	1.92	3.86
Anhui	3.57	–0.90	6.51
Jiangxi	3.80	3.69	4.59

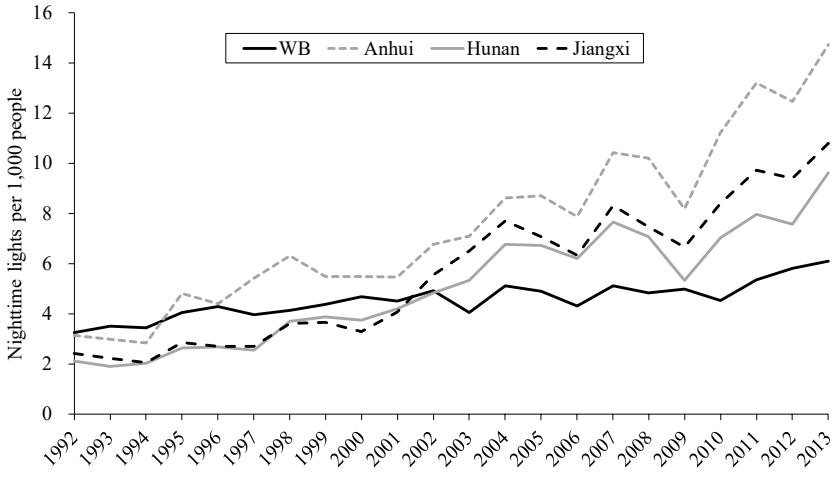
Panel D: Nighttime lights per 1,000 people

	1992–2013	1992–2000	2000–2013
West Bengal	2.16	4.10	1.71
Anhui	7.02	9.66	6.96
Hunan	7.38	9.33	5.36
Jiangxi	7.99	6.34	6.87

NOTE: GDP per capita and urban and rural expenditure per capita are in 2017 U.S. purchasing power parity (PPP) adjusted dollars. Because of data limitations, West Bengal's growth rate is calculated for 1990–2001 and 2001–2013 in the last two columns of Panel A. Anhui's growth rate is calculated for 1990–2011 and 1990–2000 in the first two columns of Panels B and C.

SOURCE: For West Bengal, the source for GDP per capita is the government's Bureau of Applied Economics and Statistics (2015), and the source for consumption is the National Sample Survey Office (NSSO) Planning Commission. The data source for the Chinese provinces is the *China Compendium of Statistics 1949–2008* provincial statistical yearbooks. The data source for nighttime lights is Li et al. (2020).

Figure 6.10 Nighttime Lights: West Bengal and Chinese Provinces

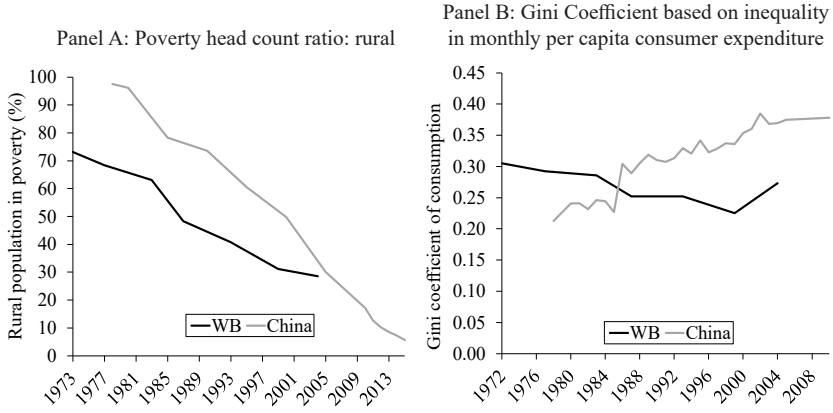


SOURCE: Generated by the author using data from Li, Zhao, and Zhao (2020).

The nighttime light data provide a pattern similar to the official data on consumption per capita: in 1992, the nighttime light intensity level was higher in West Bengal compared to the three Chinese provinces, but was soon overtaken by the latter and grew more slowly thereafter. By 2013, the lights were twice as bright in Anhui, and more than 50 percent higher in Hunan and Jiangxi. For 1992–2013, the growth rate of luminosity was more than three times higher (above 7 percent yearly) in the Chinese provinces compared to West Bengal (2.16 percent). In contrast to the growth rates of GDP and consumption per capita, nighttime lights grew more slowly after 2000 in all provinces except Jiangxi.

Next, trends in poverty and inequality are compared in Figure 6.11. Data on these variables are not available at the provincial level within China, so we compare West Bengal with China as a whole. The poverty line in China was 2,300 yuan per year at 2010 prices, which translates into $2.12 per day in 2015 prices after PPP adjustment. In India, the PPP equivalent threshold declined from $2.26 in 1973 to $1.51 in 2004. These differences make it difficult to compare poverty across the two countries. The lowering of the poverty line over time in India implies that trend comparisons are also difficult to make. Based on their respec-

Figure 6.11 Poverty and Inequality Trends: West Bengal and Chinese Provinces



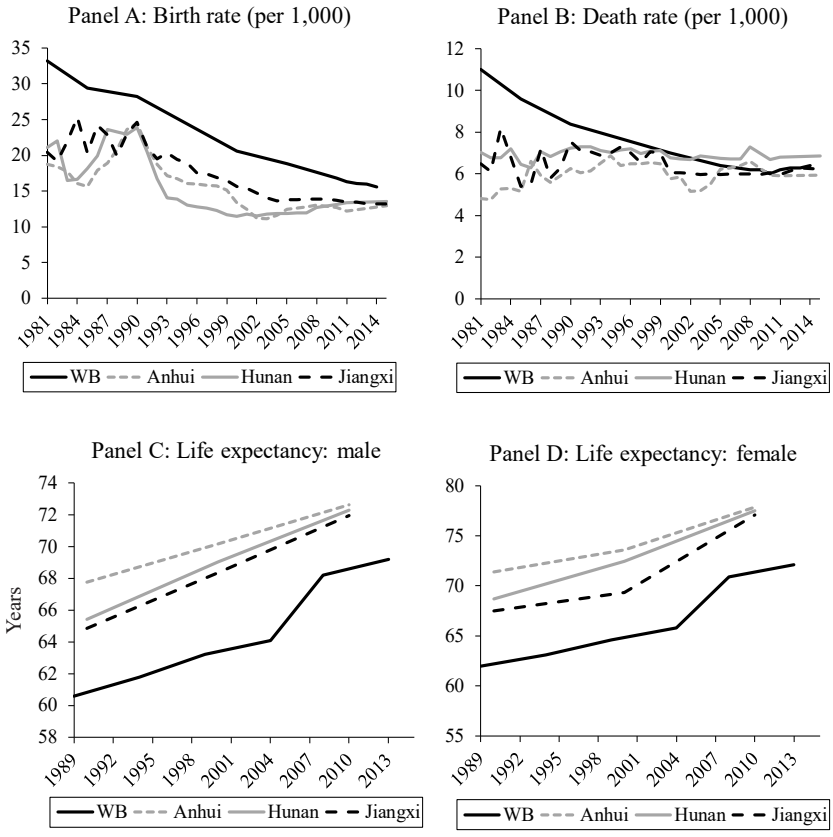
SOURCE: Poverty head count ratio data for West Bengal are taken from Chakraborty (2017); Gini data for India and West Bengal are taken from the NSSO; data for China are taken from the *China Yearbook of Rural Household Survey*.

tive poverty lines, poverty declined faster in China, although India also achieved a substantial reduction. The falling poverty line, however, implies that the downward trend in India is larger than it would have been with a stationary poverty line. Hence, the evidence suggests a more significant reduction in poverty in China.

On the other hand, inequality of consumption nearly doubled in China, while it declined slightly in both West Bengal and India. In 1978, the Gini coefficient in China was slightly above 0.2, compared to nearly 0.3 in West Bengal. By 2004, the ordering was reversed: the Chinese Gini was above 0.30, while the West Bengal Gini was 0.22.

In terms of human development indicators, the Chinese provinces consistently outperformed West Bengal (Figure 6.12). West Bengal had substantially higher birth and death rates at the beginning, but these had declined to Chinese levels by 2014. Life expectancy rose in both countries, but it rose faster in West Bengal, which helped narrow the gap with China. Infant mortality and illiteracy in both countries fell markedly; however, the gaps between the two countries in these categories did not narrow.

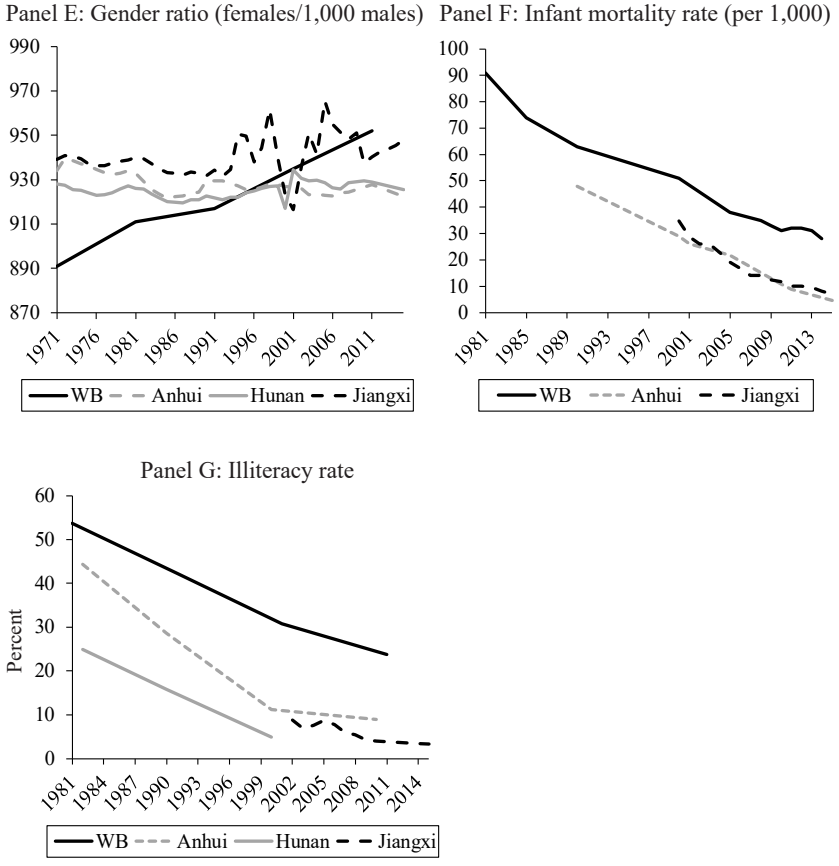
Figure 6.12 Human Development Comparisons: West Bengal and Chinese Provinces



NOTE: For West Bengal, illiteracy rate = illiterate population age 7 and above / population age 7 and above × 100%. For Anhui and Hunan, illiteracy rate = illiterate population age 15 and above / population age 7 and above × 100%. Birth rate, death rate, gender ratio, and infant mortality rate data for Jiangxi were based on hukou before 1982 and based on long-term residence since 1983.

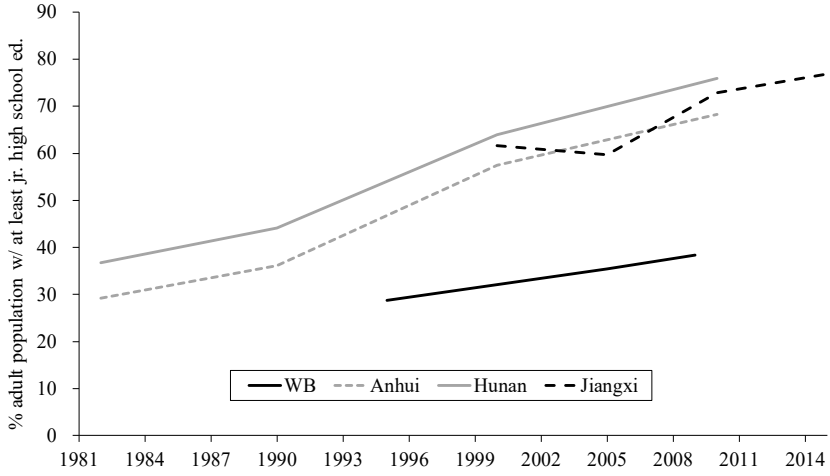
SOURCE: For West Bengal, birth rate, death rate, gender ratio, and illiteracy rate data were taken from the census, and life expectancy data were taken from Office of the Registrar General, Government of India. For Anhui, Hunan, and Jiangxi, birth rate, death rate, and gender ratio data were taken from provincial statistical yearbooks and the China Compendium of Statistics 1949–2008, and infant mortality rate, life expectancy, and illiteracy rate data were taken from provincial statistical yearbooks (Anhui, Hunan, and Jiangxi Provincial Bureau of Statistics, various years).

Figure 6.12 (continued)



Secondary and tertiary education also reveal striking differences. Figure 6.13 shows that the percentage of adults with a junior high school education was 50–100 percent higher in the Chinese provinces compared to West Bengal, and the gaps widened over time. In 2009, 70 percent of the adult population in the Chinese provinces had a high school education, compared with 40 percent in West Bengal. With regard to the percentage of adults with a college education, Figure 6.14 shows that West Bengal was ahead in 1995 (5 percent versus 3 percent), but by the mid-2000s the Chinese provinces had overtaken West Bengal. In 2009, the college education rate in the Chinese provinces was 8–9 percent,

Figure 6.13 Secondary Education Comparisons: West Bengal and Chinese Provinces

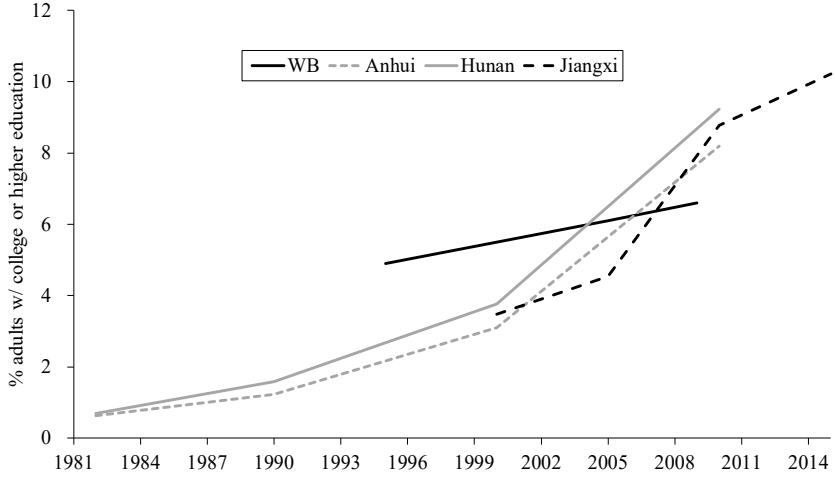


NOTE: These figures show the time series of the percentage of adults with at least a junior high school education. Population ages 0–14 are excluded in calculation.
SOURCE: Data are taken from Indian National Sample Survey (NSS) reports and Chinese provincial statistical yearbooks.

compared to 6.5 percent in West Bengal. With respect to gender equity, on the other hand, West Bengal initially had a substantially lower ratio of female births to male births, but it rose faster than the ratio in the Chinese provinces, eventually surpassing all three of them by 2010.

In summary, the two countries achieved similar growth in output over the entire period 1980–2015, while consumption and nighttime lights grew faster in China. In both countries, growth accelerated markedly after 2000. Standards of living diverged both in rural and urban areas: China achieved a more rapid reduction in poverty but experienced a sharp rise in inequality, unlike West Bengal, where inequality declined. Human development levels were consistently higher in China, while West Bengal achieved greater improvements in some aspects (mortality, fertility, and gender ratio) and similar improvements in others (health and literacy). With respect to education, the Chinese provinces vastly outperformed West Bengal both in levels and growth rates.

Figure 6.14 Tertiary Education Comparisons: West Bengal and Chinese Provinces



NOTE: These figures show the time series of the percentage of adults with college or more education. Population ages 0–14 are excluded from the calculation.

SOURCE: Data are taken from Indian NSS reports and Chinese provincial statistical yearbooks.

AGRICULTURAL PERFORMANCE

Starting in 1978, both West Bengal and China embarked on ambitious programs of land reform and agricultural development. The transformation in China is described by Huang (2018). Prior to 1978, Chinese agriculture was organized in communes, which were characterized by compulsory grain procurement by the government to sustain the industrial sector. This resulted in massive rural poverty. Following 1978, the reform created a new Household Responsibility System, in which land was leased to individual households that were empowered to produce on their own. Mandatory grain procurement by the government decreased, as households were allowed to retain residual output above the required delivery target to the government. Procurement prices were also raised. Agricultural markets came into being, in which households were allowed to sell. These reforms led to significant growth in agricultural output and rural household consumption.

McMillan, Whalley, and Zhu (1989) report a 61 percent increase in output between 1978 and 1984, partly explained by the increased agricultural labor force, capital and other material inputs, and total factor productivity (TFP) growth (which varied between 4 and 10 percent per year). They estimate that 78 percent of the associated gains in productivity could be attributed to the changes in farmer incentives toward giving greater effort (measured by their own share in output, which increased by a factor of three), after controlling for changes in output prices.

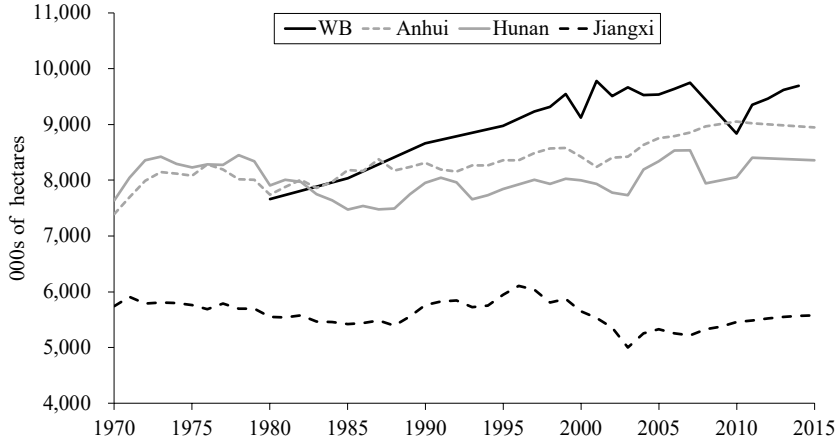
In West Bengal, the new Left Front government also initiated a large program of land reform, combined with assigning implementation of agricultural development to elected local governments (described further in Banerjee, Gertler, and Ghatak [2002] and Bardhan and Mookherjee [2010, 2011]). The land reform consisted of two components: 1) distribution of titles (*pattas*) to small plots of land acquired in the past from households owning more than the mandated land ceilings, and 2) registration of tenant farmers, thus providing them the security of tenure and a minimum crop share (Operation Barga). Between 1978 and 1998, the *patta* distribution program expanded from 1.4 percent to 5.4 percent of cultivable area, with coverage of rural households expanding from 5.0 percent to 15.0. The corresponding coverage of Operation Barga expanded from 2.4 percent to 6.1 percent of cultivable area, and from 3.0 percent to 4.0 percent of rural households. The two programs combined thus affected nearly 10 percent of cultivable area and 20 percent of rural households by the late 1990s. Using a representative sample of farm surveys, Bardhan and Mookherjee (2011, Table 5) estimate that value-added per farm doubled between 1982 and 1995, accounted for by a 70 percent increase in the cropped area and a fivefold increase in value-added per acre in rice cultivation (driven by a tenfold rise in rice area under cultivation of high-yielding varieties, from 6 percent to 67 percent).

As mentioned above, the West Bengal land reform was accompanied by a decentralization reform in the delivery mechanism of agricultural inputs and complementary rural infrastructure. From 1978 onward, a three-tiered system of directly elected local governments was created. The state government shifted responsibility to these elected local officials (and away from state bureaucrats) for selecting beneficiaries of subsidized agricultural "minikits." These minikits contained seeds and fertilizers, subsidized credit, employment programs, and construc-

tion of local infrastructure (roads and irrigation projects). Bardhan and Mookherjee (2011, Table 11) provide evidence that most of the rise in farm value-added per acre between 1982 and 1995 was accounted for by the delivery of minikits and credit from local governments, while the contribution of the land reform program was negligible and restricted to the pre-1985 period. However, the land reforms contributed in other ways: by inducing expansions in the cropped area (Ibid, Table 12) and stimulating private investment in minor and medium irrigation (Bardhan, Mookherjee, and Kumar 2012).

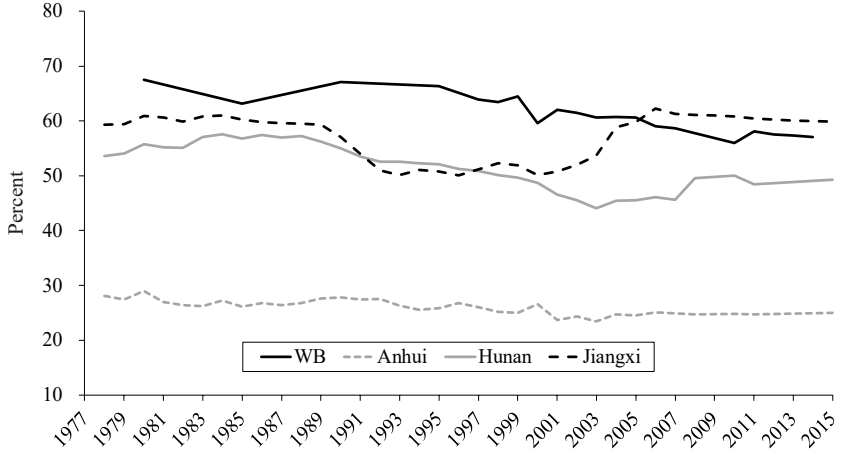
We now examine differences between West Bengal and the selected Chinese provinces with regard to different components of agricultural performance. Figure 6.15 shows the absence of any significant changes in the cropped area in the Chinese provinces, in contrast to an upward trend in West Bengal. Figures 6.16 and 6.17 show no change in cropping patterns in either country. Figure 6.18 shows a very marked difference in rice yields, which are at least two times as high in China. Both countries display some growth in rice yields, but the trends are parallel. This indicates a consistently superior level of productivity in

Figure 6.15 Cropped Areas: West Bengal and Chinese Provinces



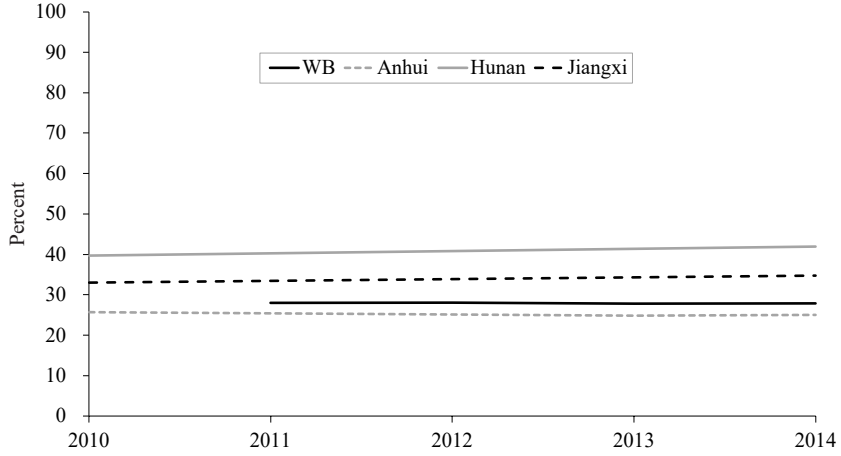
SOURCE: Data for West Bengal are taken from the Directorate of Agriculture, Evaluation Wing, Government of West Bengal. Data of Anhui, Hunan, and Jiangxi are taken from the *China Compendium of Statistics 1949–2008* and provincial statistical yearbooks.

Figure 6.16 Share of Rice in Cropped Area: West Bengal and Chinese Provinces



SOURCE: Data for West Bengal are taken from the Directorate of Agriculture, Evaluation Wing, Government of West Bengal. Data for Anhui, Hunan, and Jiangxi are taken from the Ministry of Agriculture of the People's Republic of China (PRC) (2009) and provincial statistical yearbooks.

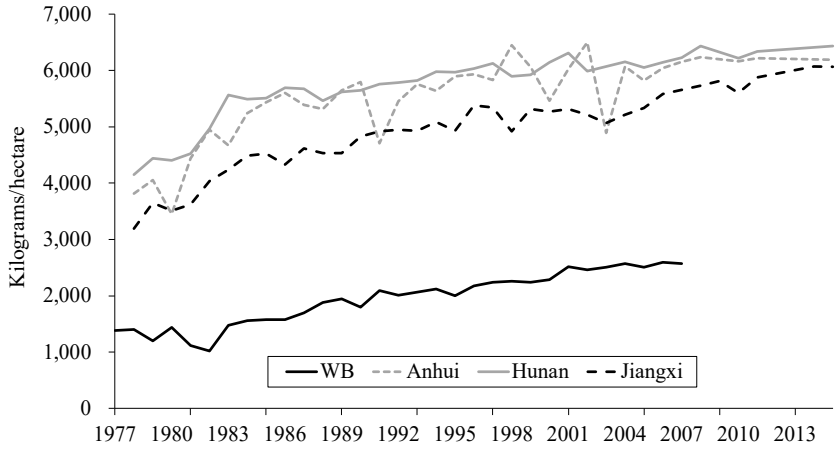
Figure 6.17 Share of Cash Crops in Cropped Area: West Bengal and Chinese Provinces



NOTE: The eight cash crops are: oilseeds, jute, fruits, vegetables, tea, sugarcane, tobacco, and cotton.

SOURCE: Data for West Bengal are taken from Directorate of Agriculture, Government of West Bengal. Data on Anhui, Hunan, and Jiangxi are taken from the Ministry of Agriculture of the PRC (2009) and provincial statistical yearbooks.

Figure 6.18 Rice Yield: West Bengal and Chinese Provinces



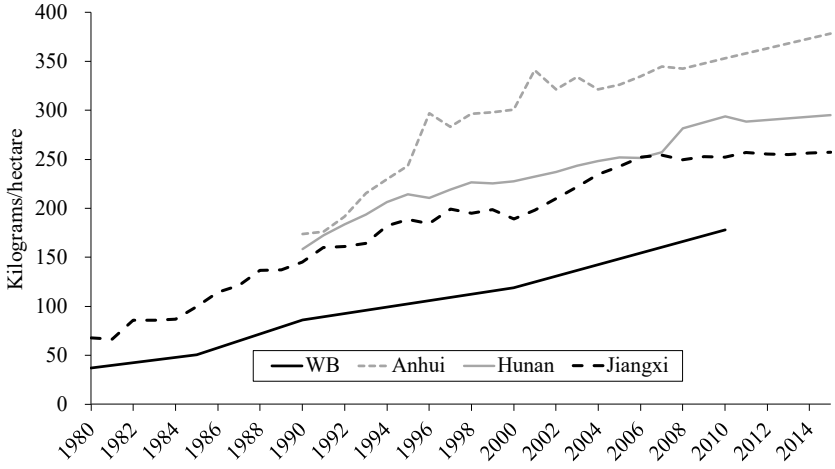
SOURCE: Data for West Bengal are taken from the Directorate of Agriculture, Evaluation Wing, Government of West Bengal. Data of Anhui, Hunan, and Jiangxi are taken from the Ministry of Agriculture of the PRC (2009) and provincial statistical yearbooks.

Chinese agriculture. To probe possible underlying causes, Figures 6.19 and 6.20 compare fertilizer and irrigation inputs. Fertilizer application was lower in West Bengal throughout the entire period, and grew at the same rate as in the Chinese provinces, while irrigation grew faster in West Bengal. Hence, differences in fertilizer may account for some of the difference in rice yields.

However, research-and-design investments made by the Chinese government played a more important role. We saw the large difference in rice yields between the two countries, and part of this difference could possibly be accounted for by the higher application of fertilizers in China.

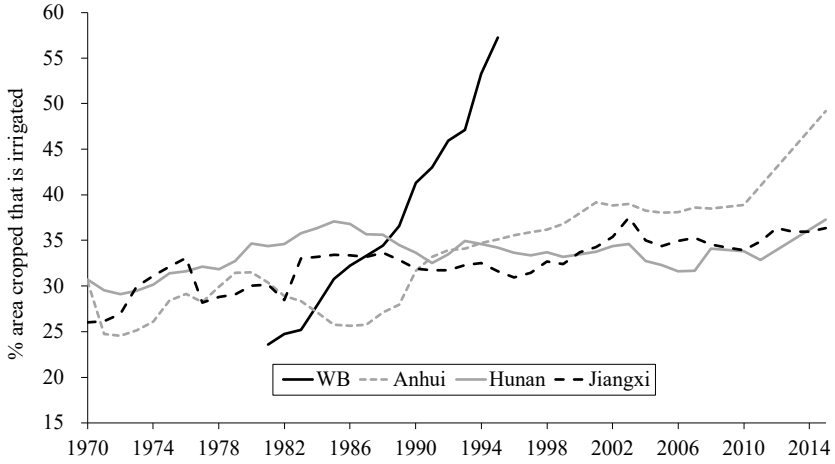
Another important cause was the faster progress made by China in developing new hybrid varieties of rice. Yu, Huang, and Zhang (2012) estimate that 74 percent of the rise in rice yields between 1980 and 2009 was accounted for by the adoption of superior rice varieties, while changes in climate and in the application of nitrogen fertilizers accounted for 4.4 percent and 9.3 percent, respectively. Song et al. (2014) estimate the role of improved rice varieties to have been 62 percent, which is lower than Yu's estimate but still accounts for the bulk of the rise in yields.

Figure 6.19 Fertilizer Application: West Bengal and Chinese Provinces



SOURCE: Data for West Bengal are taken from the Directorate of Agriculture, Evaluation Wing, Government of West Bengal. Data of Anhui, Hunan, and Jiangxi are taken from the Ministry of Agriculture of the PRC (2009) and provincial statistical yearbooks.

Figure 6.20 Irrigation: West Bengal and Chinese Provinces



SOURCE: Data of West Bengal are calculated based on Bardhan, Mookherjee, and Kumar (2012). Data of Anhui, Hunan, and Jiangxi are taken from the *China Compendium of Statistics 1949–2008* and provincial statistical yearbooks.

Hybrid rice varieties owe their origin to scientific discoveries made in China during the mid-1960s, particularly by Yuan Longping—widely recognized as the "father of hybrid rice"—who continued to be active in research and development for the next 40 years. In contrast to "in-bred" high-yielding variety (HYV) rice, which was being adopted in India and many other Asian countries during the Green Revolution, hybrid rice results from "heterosis," or cross-breeding of two different varieties, involving the genetic transfer of male sterility genes from wild rice to create a male sterile line for cross-pollination. Though it involves some genetic manipulation, hybrid rice differs from GMO rice because it relies on a natural pollination process rather than being created in a laboratory through gene splicing. In the first phase, the research advances led to 43 different varieties of hybrid rice in China, which began to be planted from the mid-1970s onwards, and spread rapidly throughout rice-growing regions, accounting for 50 percent of the total area planted by 2009 (Khush 2013). These varieties were associated with a yield advantage varying between 10 and 35 percent over traditional inbred rice (Cheng, Cao, et al. 2007; Huang et al. 2016; Khush 2013; Peng et al. 2008; Wang et al. 2014; Xie et al. 2013). A subsequent "super-hybrid" rice project was initiated in 1996. Between 1998 and 2005, 34 commercially released super-hybrid rice varieties were grown on a total area of 13.5 million hectares and produced an additional 6.7 million tons of rice in China (Cheng, Zhuang, et al. 2007). These hybrid varieties produced a grain yield of 12 tons per hectare in on-farm demonstration fields, 8 to 15 percent higher than the hybrid check varieties (Peng et al. 2008).

The hybrid rice program was launched in India in 1989, releasing 65 hybrid varieties by 2013. However, the area devoted to hybrid rice in India was only 4 percent (Singh et al. 2015), and most of this occurred in states outside West Bengal (Prasad et al. 2012). Low adoption in India has been attributed to higher seed costs (as every year new seeds have to be purchased instead of being recycled from the previous crop), fertilizer requirements, greater susceptibility to disease and pests, and low market price owing to problems with cooking quality (Nirmala et al. 2012; Siddiq and Prasad 2012; Singh et al. 2015; Viraktamath et al. 2012). Not much is known about how these problems were overcome in China.

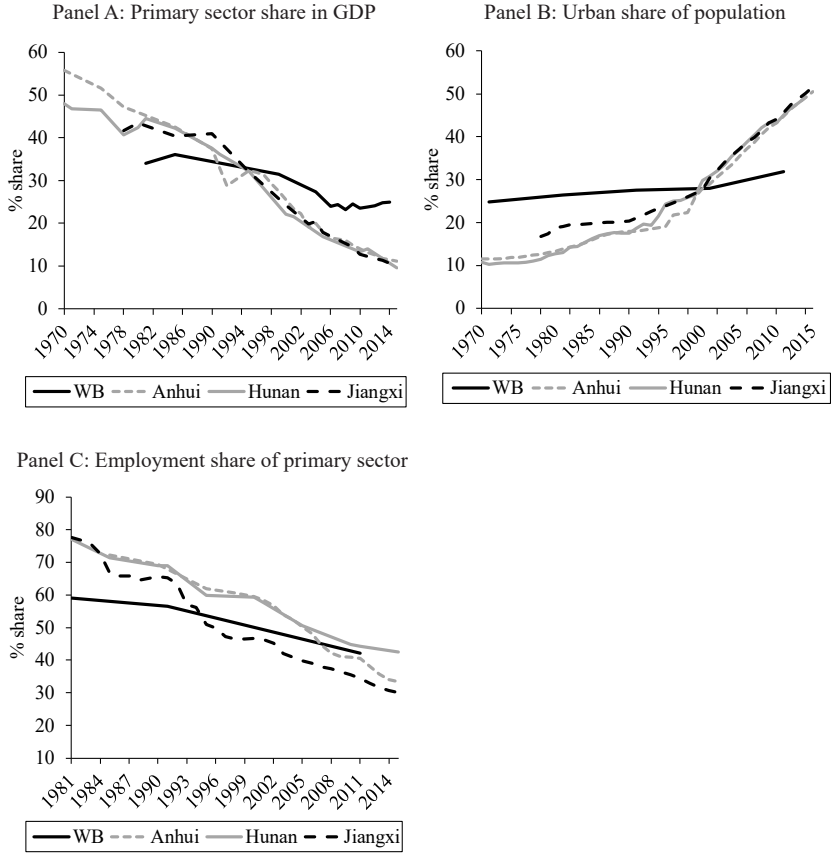
The public sector played a more important role in research-and-development efforts for hybrid rice in China. Thirty-two of the 43 varieties released in China were developed by the public sector (including state-owned enterprises, universities, and state research centers), while another five involved joint public-private ventures. In contrast, 40 out of the 65 hybrid varieties in India were developed by private companies. Viraktamath et al. (2012) describe how some of the problems associated with slow development in India were related to inadequate public-sector investment in research, diffusion of technology, and seed production (90 percent of which is produced by private seed corporations). Karunakaran (2013) estimates 2008 total spending on agricultural research and development to be $3.4 billion (0.5 percent of GDP) in China and $2.3 billion (0.4 percent of GDP) in India, as compared to an average of 0.56 percent of GDP across all developing countries, 1.8 percent in Brazil, 3.6 percent in Australia, and 4.7 percent in Japan.

STRUCTURAL TRANSFORMATION: URBANIZATION AND INDUSTRIALIZATION

In this section, we compare trends in structural transformation and industrial growth. Figure 6.21 shows a faster drop in the share of the primary sector, both in GDP and employment in the Chinese provinces, compared with West Bengal. The difference in growth in urbanization is particularly striking: in the former, the urban share of the population rose from 10 percent to 50 percent between 1970 and 2014, compared to an increase from 25 percent to 31 percent in West Bengal. Urbanization rates are not comparable across the two countries owing to different definitions: India uses a more restrictive definition that excludes a large number of "census towns," which are classified as urban in the census but not recognized by the state government. However, trends in urbanization are likely to be more comparable across the two countries.[3]

Given the large differences in productivity and consumption standards between rural and urban areas, an increase in urbanization tends to raise per capita output and consumption. This is why growth in urbanization plays an important role in driving growth in developing countries. Indeed, given the striking difference in the growth of urbanization

Figure 6.21 Structural Transformation and Urbanization: West Bengal and Chinese Provinces



NOTE: For primary sector share in GDP, data for West Bengal include mining, but data for the Chinese provinces do not include mining. Data between 2002 and 2012 include agricultural service for the Chinese provinces. For employment share, data for West Bengal include mining, but data for Anhui only include mining after 1995, data for Hunan only include mining after 2005, and data for Jiangxi never include mining.

SOURCE: For West Bengal, primary sector share in GDP is taken from the Bureau of Applied Economics and Statistics, Government of West Bengal, and data on urban share and employment share are taken from the census. For Anhui, Hunan, and Jiangxi, data were all taken from the *China Compendium of Statistics 1949–2008* and provincial statistical yearbooks.

between the two countries, one may have expected China to achieve a substantially higher aggregate growth rate than India. Part of the puzzle of why it did not may perhaps be explained by the underestimation of the growth of urbanization in India on account of ignoring the growth of "census towns." It is also possible that the gap between rural and urban productivity in India is larger than in China, as is consistent with evidence on rural-urban wage gaps: 47 percent in India in 2007 versus 10 percent in China in 2006 (Munshi and Rosenzweig 2016).

Urbanization tends to be driven by industrial growth associated with a rise in manufacturing and services. Figure 6.22 shows trends in the number of industrial enterprises. Panel A pertains to registered factories in West Bengal and above-scale industrial enterprises in China as a whole and in the three provinces, while Panel B presents data for all industrial enterprises, both registered and unregistered (from the economic censuses) in West Bengal and China, respectively. In both panels, we see a faster increase in the number of enterprises in China, particularly after the late 1990s. Figure 6.23 presents data on employment in registered or above-scale factories after 1999, which show a similar pattern. And Figure 6.24 shows that earnings of factory workers in China and in Anhui grew faster than in West Bengal after the 1990s. In all these respects, the industrial sector was considerably more dynamic in China. Admittedly, the choice of West Bengal understates industrial progress compared to the rest of India, as shown in Amirapu and Subramanium (2015).[4] However, there is little doubt that China achieved much greater structural transformation and growth in manufacturing than India.

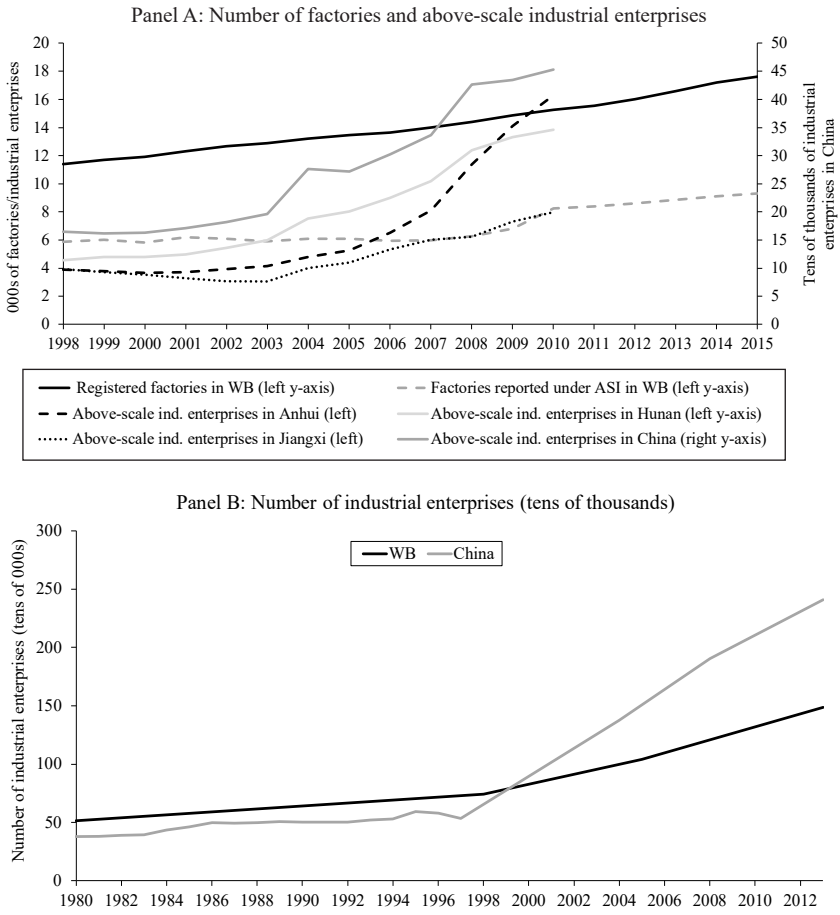
ROLE OF SPECIFIC GOVERNMENT POLICIES

In this section, we describe specific government policies that are likely to have played an important role in explaining the differences in outcomes reviewed in previous sections.

Hybrid Rice Development

We have already described the role of research-and-development investments by the respective governments of the two countries in allowing China to attain an initial lead in rice yields during the 1970s

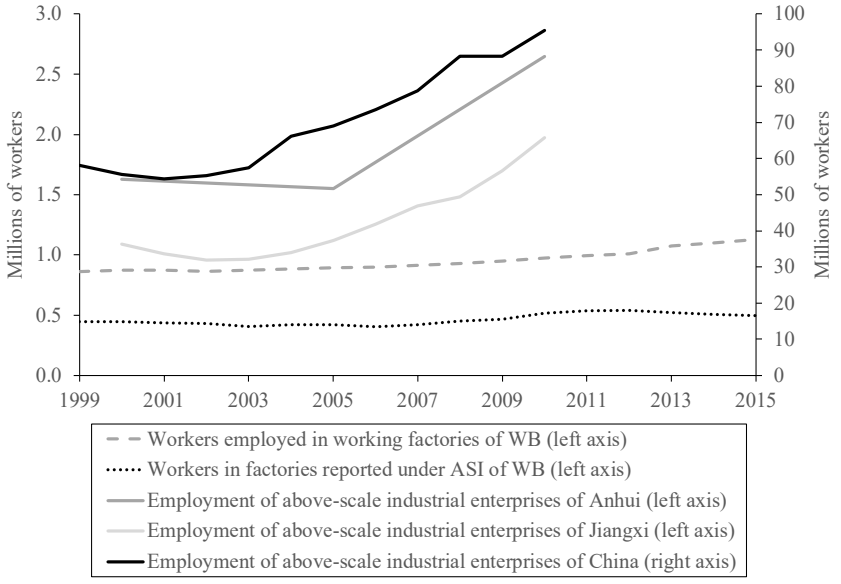
Figure 6.22 Number of Industrial Enterprises: West Bengal and Chinese Provinces



NOTE: The right y-axis is for the number in China; others use the left y-axis. For China, Hunan, and Anhui, the definitions for "above scale" in 1998–2006 and 2007–2010 are slightly different. The definitions of "industrial enterprises" are different between India and China, so the values are not comparable. But the trends are comparable.

SOURCE: The number of registered factories of WB is drawn from the chief inspector of factories, Government of WB. The number of factories reported under the Annual Survey of Industries (ASI) of WB is drawn from ASI summary results. The numbers in Anhui, Jiangxi, and Hunan are drawn from the China National Bureau of Statistics and the provincial statistical yearbooks. The numbers in China are drawn from the *China Industrial Economic Statistical Yearbook*. The number of enterprises in WB is from the economic census; the numbers for China are from the *Industrial Economic Statistical Yearbook* and the *China Economic Census Yearbook*.

Figure 6.23 Factory Employment: West Bengal and Chinese Provinces



NOTE: Right y-axis is for the number in China with unit 10,000; others use the left y-axis.

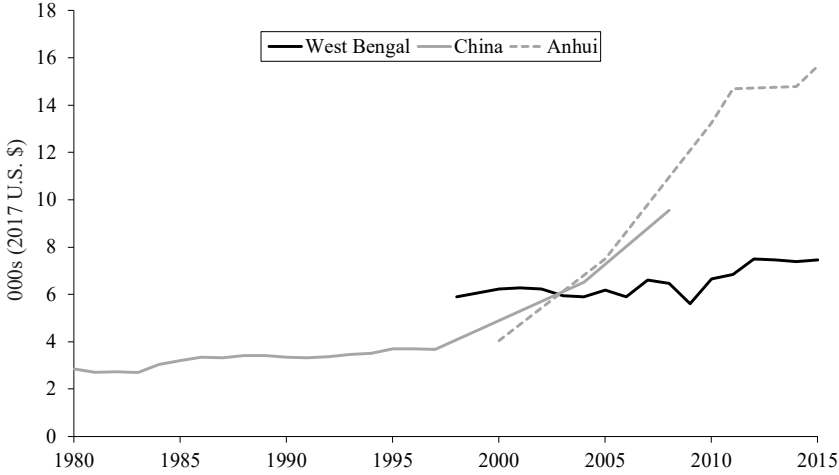
SOURCE: The number of workers employed in working factories of West Bengal is drawn from the Chief Inspector of Factories, Government of West Bengal. The number of workers in factories reported under the Annual Survey of Industries (ASI) of West Bengal are drawn from the ASI summary results. Employment in Anhui and Jiangxi provinces is drawn from China's National Bureau of Statistics and the provincial statistical yearbooks. Employment in China is drawn from the *China Industrial Economic Statistical Yearbook*.

and sustain it thereafter. Moreover, higher agricultural productivity indirectly helped generate faster structural transformation by lowering the amount of labor and land needed to produce growing food requirements, owing to a lower income elasticity of demand for food compared to nonfood items produced outside the primary sector.[5]

Land Acquisition Policies

The process of urbanization and industrialization requires a reallocation of key factors out of the agricultural sector and into the

Figure 6.24 Earnings of Factory Workers: West Bengal and Chinese Provinces



NOTE: This figure shows the time series of earnings of ASI factory workers in West Bengal, average wages of workers in industrial enterprises in China, and wages of workers in above-scale industrial enterprises in Anhui. The earnings are in 2017 U.S. dollars after PPP adjustment.

SOURCE: Data for West Bengal are taken from the ASI reports; data for China are from the *China Economic Census Yearbook*; data for Anhui are from the Anhui statistical yearbook (Anhui Provincial Bureau of Statistics, various years). PPP adjustment index data are from the Penn World Table.

industrial and service sectors. In practice, one of the most difficult reallocations concerns land that is converted from agricultural use to factories, roads, office buildings, and homes for urban dwellers. In countries like China and India, dominated by smallholder agriculture, building even a single factory requires acquiring land from thousands of small farmers. Under a laissez-faire approach, a prospective factory builder would have to negotiate simultaneously with all these farmers, which is a forbidding exercise in coordination and provides individual farmers with the option of holding up the entire project by asking for a sale price that greatly exceeds their land's true reservation value. The problem is akin to the free-rider problem associated with any public project. Even in market societies, therefore, this market failure creates a rationale for the rule of eminent domain, which empowers the government to appro-

priate private property from multiple owners for the sake of building (or allowing the building of) public projects whose aggregate social benefits outweigh the costs.

Such powers of eminent domain, wherever exercised, require expropriated farmers to be compensated. But it is very hard to design acquisition systems that adequately compensate all farmers, owing to the free-rider problem. Usually, acquisition laws require farmers to be compensated at least at the market value of the property (though compensating at the market value would still be inadequate for those farmers for whom the personal valuation of their land exceeds its market value). But in practice, these laws are often not followed, partly owing to the difficulty in assessing the true market value of land (because of "thinness" in land markets and problems assessing land quality). Or the government may intentionally pay less compensation compared to the market value—effectively imposing a tax on owners of acquired lands that helps finance the process of urbanization, besides raising the scope of corruption. Either way, it is common to observe growing farmer distress leading to adverse inequality impacts and political protests.

Both China and India have been subject to these problems in recent decades. Between 1998 and 2005, the constructed area of Chinese cities grew from 214 square kilometers to 325 square kilometers. Cao et al. (2008) estimate that this process caused 2.5–3.0 million farmers to be dispossessed every year, constituting the largest single source of farmer protests (involving approximately 385,000 farmers in 2006 alone). Liu, Fang, and Li (2014) estimate that a total of 40 million farmers had been dispossessed by 2006 and estimated this number would grow to 100 million by 2020. Cao, Feng, and Tao (2008) explain that the protests were triggered by compensations paid by local governments that were below market value by a huge margin: they were 7 to 10 times lower than the prices charged to private developers, with the difference being retained by the local governments. This bolstered the finances of the local governments, and thereby their capacity to finance large urban infrastructure projects (besides also possibly generating opportunities for corruption). Effectively, this meant that the farmers (rather than the developers) ended up financing urban infrastructure (despite not being the actual beneficiaries of the infrastructure).

As we explain in the next section, the problem was compounded by competition from different city officials to attract private investment,

induced by policies of the central government by which local mayors' and provincial governors' prospects for promotion depended on how well they fared in boosting growth in their city relative to growth in other parts of China. As it was more sensitive to farmer distress, the central government sought various ways to limit undercompensation by local government officials by passing suitable laws governing compensation. However, Cao, Feng, and Tao (2008) report, based on a 16-city survey, that 50 percent of the land acquired violated these laws. Farmers' perceptions of unfairness were compounded by the lack of any systematic procedure for determining actual compensations that was based on negotiations and the discretion of local government officials. Ding (2003) argues that the process resulted in possible overinvestment in manufacturing, manifested by 30 percent of real estate consisting of industrial properties, as compared to less than 10 percent in Hong Kong, Seoul, and Paris.

Serious political problems also arose in West Bengal, owing to land acquired by the Left Front government through eminent domain in an effort to stimulate industrial investment. There were two prominent cases of such acquisition in 2006 and 2007, in Singur and Nandigram, respectively, in which the government acquired land from a large number of farmers under the aegis of the 1894 Land Acquisition Act, in order to allow prominent industrial groups from outside West Bengal to invest in an automobile factory and a chemical plant, respectively. These acquisitions led to a large number of farmer protests, eventually creating a law-and-order problem resulting in police violence against the protesters. News of these incidents was widely circulated by the media, generating widespread criticism of the Left Front government from civil society groups, the intelligentsia, and activists. The protests led to the cancellation of both projects. The opposition party, TMC, capitalized on these events in its electoral campaign to unseat the Left Front: it succeeded in defeating the Left Front and wresting a majority from that party in the 2011 state legislative elections. While these events were not the only cause of the Left Front losing power after 35 consecutive years of incumbency, they likely contributed to it (Bardhan et al. 2014).

Interestingly, compared to the Chinese experience, the problem in West Bengal was not related to systematic or intentional undercompensation of farmers whose lands were acquired. Ghatak et al. (2013), in

their detailed study of lands acquired in Singur, show that, on average, the actual compensation paid by the government was slightly *above* the legally required compensation of 130 percent of market value (even when the market values used in their estimates were self-reported by the farmers). The problem instead lay elsewhere: in the dispersion of actual compensations around the average. Owing to outdated land records, the government misclassified land quality, resulting in overcompensation of some farmers and undercompensation of others. It was the latter group that constituted the bulk of the protesters. For these farmers, detailed survey evidence of their earnings from different sources shows that they were indeed left worse off. Besides direct losses to the landowners, there were significant indirect costs borne by other groups: tenant farmers who were leasing the land that was acquired were no longer able to cultivate those lands, and landless agricultural workers lost employment opportunities. Neither of these two groups was entitled to any compensation under the 1894 law.

Similar problems of farmers have led to protests arising in other parts of India as well. Misra (2019) provides evidence that approximately 40 percent of proposed special economic zone (SEZ) projects in India between 2006 and 2012 failed to receive approval. States with higher land inequality and religious and social fragmentation had lower approval rates, consistent with a political economy explanation of the cohesiveness of farmer coalitions. As the demise of the Left Front in West Bengal showed, the fact that incumbent governments in Indian states are subject to electoral competition means that the scope for land acquisition is more limited in India compared to China. The West Bengal experience and the protests against SEZs in other states eventually led the Indian Parliament to supersede the antiquated 1894 Land Acquisition Act and pass a new law (the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act of 2013, or LARR) governing land acquisitions, which imposed several lengthy regulatory checks. These contributed to a further slowing of approvals thereafter. It is therefore plausible that the greater political resistance to land acquisition, arising from pressure exerted by farmer groups and related civil society activists, was partly responsible for the slower speed of structural transformation in India, and for avoiding the sharp increase in inequality observed in China.

Urban Governance

I turn now to differences in patterns of urban governance between the two countries. While systematic research on this topic is lacking, a number of different case studies, reports, and examinations of municipal government budgets indicate wide differences in the extent of financial autonomy, responsibilities devolved from the state, and accountability of urban government officials. This implies corresponding differences in the organizational capacity and motivation of urban governments to build infrastructure and attract private investment.

The importance of urban infrastructure for private investment is suggested by Table 6.4, which compares firm owners' responses to questions regarding the most significant obstacle to their doing business in different locations in West Bengal, Hefei in Anhui province, and the average across 25 cities in China.[6] While these indicate the relative importance of different obstacles in different regions, and incorporate a combination of demand and supply factors rather than the latter alone, it is notable that access to finance, informal sector practices, and tax rates seem to be the most important problems in both West Bengal and China. Much less important are problems emphasized in much of the academic literature, such as labor regulations, corruption, and access to land or courts. However, only on one dimension do they differ signifi-

Table 6.4 Firm Survey Responses on Obstacles to Private Investment

Percentage of firms for whom the most significant obstacle was:	WB	China (avg.)	Hefei
Access to finance	24.7	22.4	13.9
Informal sector practices	19.0	19.6	42.5
Tax rates	17.2	15.1	4.2
Electricity	13.4	4.8	0.4
Labor regulations	3.9	1.9	0.0
Corruption	3.3	1.2	0.0
Licensing and permits	3.3	0.2	3.9
Access to land	1.9	5.6	23.9
Courts	0.1	2.0	0.0

SOURCE: World Bank Firm Surveys, West Bengal 2014, China (average of 25 cities), 2012.

cantly: electricity, which was listed far more often in West Bengal (13.4 percent) than in China (4.8 percent) or Hefei (0.4 percent).

Of course, infrastructure involves a larger range of services than just supply of electricity. The 2011 urban infrastructure report, submitted by the High Powered Expert Committee (HPEC 2011) appointed by the Indian government's Ministry of Urban Development, reported severe deficiencies in Indian cities relative to international norms with respect to drinking water, sewage, solid waste management, roads, street lights, and affordable housing. Indian cities have huge slum populations with severely deficient services. For instance, municipal water supply is available to Indian households for an average of between 1 and 6 hours a day, compared to 24 hours in Chinese cities. The improvements most urgently required, as mentioned in the HPEC report, included municipal finances (tax reforms and transfers from upper-level governments), accounting systems, human resources, and land acquisition processes (which in 2008 accounted for 70 percent of delays in infrastructure projects in India). The HPEC report also highlighted deficiencies in organizational structure and accountability systems in municipal governments, an issue we return to below.

The observed differences in infrastructure services are mirrored by differences in spending on infrastructure. Per capita municipal expenditures in India in 2010 were estimated at $50 per year by a McKinsey Report (cited in Ahluwalia et al. 2019), compared with $362 in China, $508 in South Africa, and $1,772 in the United Kingdom. Corresponding capital expenditures were $17 in India, $116 in China, $127 in South Africa, and $391 in the UK. Based on data reported in Ahluwalia et al. (2019), municipal government expenditures in West Bengal constituted 0.8 percent of state GDP in 2013. This contrasts with 4.08 percent in China, 2.87 percent in Anhui, 2.01 percent in Jiangxi, and 2.94 percent in Hunan (based on data from China City Statistics Yearbooks).[7] Song (2013) estimates that urban infrastructure investments in China rose from 0.5 percent of GDP in 1980 to over 3.0 percent in 2003, and from there declined slightly to 2.5 percent in 2008.

Part of the reason for low spending on municipal services in India is the low tax-raising capacity of municipal governments. In 2013, grants from upper-level tiers of government constituted 73 percent of the total income of municipal governments in West Bengal. Property and land taxes accounted for only 13 percent of their revenues, with taxpayers

constituting 6.6 percent of the population and collections amounting to 26 percent of assessed demands, reflecting low collection capacity (Bureau of Applied Economics and Statistics 2016).[10] Clearly, the fiscal autonomy of West Bengal municipal governments is severely restricted. This has been further undermined in recent years with the passage of the new goods and service tax (GST) on an all-India level, which seeks to make consistent taxes throughout the country by eliminating the devolution of octroi and other local taxes to local governments.

In contrast, in China the role of central budget grants in local urban finances fell from 40 percent in 1980 to near zero in 2000 (Song 2013). After 2000, three sources accounted for approximately one-third each of the total spending of urban bodies: 1) domestic loans, 2) the local government budget, and 3) self-financing mechanisms involving extra-budgetary revenues such as land transfer fees. Song also provides detailed econometric evidence of the role of infrastructure (roads and transport) in stimulating the conversion of land to urban development and thereby raising land prices. The resulting increases in land transfer fees then constituted a form of self-financing in China that seems to have no equivalent in West Bengal.

In India, borrowing constitutes a small fraction (between 2 and 3 percent) of municipal budgets. The municipal bond market, which developed in India in the late 1990s (allowing Kolkata municipal bodies to supplement their financing), contracted sharply from 2005 onwards. Banerji et al. (2013) attribute this contraction to growing concerns on the part of bond investors over the creditworthiness of municipal governments regarding three things: 1) their capacity to generate their own revenue, 2) the low productivity of infrastructure investments resulting from low organizational efficiency, and 3) doubts as to whether elected governments would honor repayment commitments.

The allocation of grants to municipal bodies by the West Bengal state government does not appear to follow any transparent process, so it is hard to understand how such allocations are determined, and whether they generate incentives to municipal governments to raise local taxes. Moreover, accounting practices are lax: the 2015 Comptroller and Auditor General report on West Bengal (quoted in Ahluwalia et al. [2019]) mentioned that most urban local bodies failed to present accounts on time and exhibited inadequate internal control mechanisms.

Not much research has been done on the selection or accountability of city mayors in India. In West Bengal they are indirectly elected, in contrast to a number of other states (or to the leaders of rural local governments throughout the country), which have direct elections, thus possibly diluting accountability pressures. On the other hand, there is a large literature on how the selection and incentives of local leaders in China, resulting from a top-down structure within the CCP, generates a system of career mobility through promotion incentives. Maskin et al. (2000) initiated this literature by highlighting a key difference between Soviet-style "U-form" governments based on ministries and Chinese style "M-form" decentralization to local governments, resembling different forms of quasi-corporate organization.

Much of the related literature has dealt with this mechanism as it applied to leaders of provincial governments in China whose prospects of promotion to the Central Politburo depended on competition based on measures of the growth performance of their respective provinces (Jia, Kudamatsu, and Seim 2015; Li and Zhou 2005; Xu 2011). Yao and Zhang (2015) demonstrate that a similar phenomenon also applied to the career mobility patterns of city mayors, using data from leaders of 312 Chinese cities between 1994 and 2010. Chen, Li, and Lu (2018) show that performance evaluation systems for city mayors were modified in 2005 to give greater weight to the reduction in sulphur dioxide emissions, which subsequently resulted in a reduction in emissions as well as local GDP growth rates. Moreover, Landry, Lü, and Duan (2017) provide evidence that performance mattered more at the local level than at the provincial level, after controlling for the role of political connections. Hence, the evidence suggests an explicitly designed top-down incentive mechanism for city mayors to pursue goals set by the CCP. The existence of such disciplinary mechanisms reflects the unique character of the Chinese government owing to its monopolization by the CCP, wherein the internal hierarchy across levels of government mirrors the corresponding political hierarchy within the CCP.

SUMMARY AND CONCLUDING OBSERVATIONS

In summary, West Bengal and comparable Chinese provinces experienced similar growth in GDP per capita between 1980 and 2014, while West Bengal experienced slower growth in nighttime lights, consumption per capita and a substantially slower structural transformation from an agrarian to an urban industrial economy. Living standards were higher in China to start with, and a similar gap in growth rates implies that the absolute gap widened. While data comparability problems make it hard to compare levels of poverty across the two countries, headcount rates of poverty dropped faster in China. On the other hand, consumption inequality rose markedly in China, while falling in West Bengal, resulting in a reversal of their relative ordering between 1978 and 2004. Levels of various human development indicators were higher in the Chinese provinces throughout this period, though on some dimensions the gap narrowed and on others it remained the same. Growth rates in agriculture were similar, while yields in the rice-growing provinces were almost double those of West Bengal. This is most likely explained by greater investments and success in research and development and the diffusion of hybrid rice in China. Urbanization and industrial growth in the Chinese provinces outstripped that of West Bengal by a wide margin.

While there are many possible explanations for the faster structural transformation in China, we discussed two that stemmed from its distinctive political institutions. The first was a faster pace of land acquisition from farmers for purposes of conversion to factories, real estate, and the construction of related urban infrastructure. Expropriated farmers were substantially undercompensated in China relative to market value, unlike in West Bengal. This undercompensation provided a substantial fraction of local governments' financing of urban infrastructure spending. While the process of land acquisition gave rise to farmer protests in both countries, the stronger exposure of incumbent governments in India to electoral competition and pressure from farmer groups, media, and civil society caused many SEZ projects in India to be reversed or denied approval. Democratic institutions in India, therefore, imposed stronger curbs on the structural transformation process.

We also highlighted important differences in institutions of urban governance. There was greater devolution of authority and responsibilities to Chinese city governments, accompanied by the accountability of appointed city mayors to upper echelons of the CCP—an accountability induced by a within-party promotion mechanism. Accordingly, city governments had greater financial resources, autonomy, and incentives to pursue goals of growth by investing in city infrastructure in order to attract private investment. Upper-level governments devolved less authority and finances to municipal governments in India (and in West Bengal in particular), which as a result had low tax collections and fewer instruments of financing. Organizational efficiency was low, as responsibility for infrastructure investment was divided among municipal, state, and central governments, as well as parastatal corporations. Oversight mechanisms were weak. Overall, the Indian state devoted fewer resources to urban infrastructure. In contrast, by enhancing the organizational effectiveness of city governments, the Chinese state played a more positive developmental role in the process of urbanization and industrialization. At the same time, this possibly contributed to the steep rise in inequality within China, a problem that was politically less severe for the incumbent government owing to the lack of electoral competition.

Many other factors may also have contributed to the divergent growth trajectories of the two countries: differences in investments, in educational policies, and in labor unrest. Recall from Figures 6.12, 6.13, and 6.14 the substantially higher levels of literacy and secondary education and the faster growth in tertiary education in China, all of which could have facilitated faster structural transformation and industrial wage growth. Investigating the underlying causes of these differences in human capital is undoubtedly an important task that deserves more attention.

This chapter can be viewed as a comparative case study in positive political economy. I have no wish to draw any broader implications concerning the connection between democracy and development. Nor do I wish to make any normative judgment regarding the contrasting paths of development the two countries have followed. While authoritarian political institutions in China seem to have facilitated the role of its state in generating faster growth and structural transformation, it came at the cost of greater inequality and the suppression of farm-

ers' protests. Bardhan (2013, 2020) argues that the authoritarian, top-down system in China results in insufficient downward (as opposed to upward) accountability, manifested by greater abuses of power and by rewarding the role of political loyalty rather than performance, at higher levels of government. He also argues that the Chinese system is less resilient to shocks in some dimensions, owing to the suppressing of information from below regarding emerging crises.

I also hasten to add that the purpose of this chapter was to suggest some hypotheses concerning the role of the state in explaining the contrasting development patterns of the two countries. I hope it will help trigger more detailed and careful research on the validity of these hypotheses, using quantitative disaggregated data.

In particular, there is much need for research on the comparative patterns of urban governance in the two countries. This may also help throw light on some puzzles in the macro-development literature on structural transformation. This literature focuses on the substantial gaps in labor productivity (Gollin, Lagakos, and Waugh 2014) and wages (Munshi and Rosenzweig 2016) between urban and rural areas that cannot be adequately explained by corresponding human capital differences between the two sectors. This raises the question of the barriers to rural-urban labor migration, which in turn create a hindrance to structural transformation. Part of the answer may lie in policy-induced restrictions on rural-urban migration. However, such restrictions were in place in China in the form of its *hukou* registration system. As there were no such policy-based migration restrictions in India, this channel seems unlikely to account for the larger rural-urban wage gaps in India.

Some recent literature has instead explored the role of differences in informal insurance between rural and urban areas in India (Munshi and Rosenzweig 2016); uncertainty, risk aversion, and borrowing constraints faced by rural households in neighboring Bangladesh (Bryan, Chowdhury, and Mobarak 2014); and the possible role of nonpecuniary differences in urban and rural standards of living (Lagakos, Mobarak, and Waugh 2020). Such nonpecuniary differences may arise from poor amenities in urban slums, the result of low investments in urban infrastructure. This has been shown in the plight of millions of urban migrants who were trapped in Indian cities in the first wave of the COVID-19 pandemic in the summer of 2020. Differences in urban governance between China and India could thus partly explain the slower rate of

labor migration in India by associated variations in "pull" rather than "push" factors, a hypothesis that seems promising for future research. To the extent that such a hypothesis may be valid, it would suggest the importance of strengthening urban governance, improving social protection mechanisms and urban amenities for rural migrants in cities as a strategy for furthering structural transformation.

Notes

This is a revised version of my Werner Sichel lecture at Western Michigan University on October 27, 2021, which has benefited from subsequent discussions with Jahangar Alam, Eskander Alvi, Pranab Bardhan, and Debasri Mukherjee. I am very grateful to Qingyuan Chai for many useful discussions and excellent research assistance.

1. However, relative to the rest of India, West Bengal experienced a slower structural transformation, so the comparison of structural transformation is biased upwards.
2. Since richer households tend to save more, an increase in income inequality tends to raise the average savings rate in the economy, thus lowering the ratio of consumption per capita to income per capita. As inequality rose in China, this should have caused consumption per capita to grow more slowly than income per capita. Moreover, while the average savings rate is higher in China, it grew at approximately the same rate in the two countries (Suri and Hada 2018; Yang et al. 2011). Since income per capita grew somewhat faster in West Bengal than in the Chinese provinces, one would have expected consumption per capita to grow faster, contrary to what we observe. However, this argument is somewhat rough, as it is based on Chinese data concerning savings and inequality at the national rather than the provincial level. It would not apply if savings and inequality in the chosen Chinese provinces were markedly different from those in China as a whole.
3. However, it is possible that these measured trends are an underestimate in India if "census towns" keep growing.
4. See their Figures VI–VIII, which show a decline in output and employment share of registered manufacturing in West Bengal in contrast to a flat profile for India as a whole.
5. It is also possible the reverse mechanism was also at play—i.e., faster structural transformation in China itself contributed to rising rice yields by lowering population pressure in rural areas and generating selection of more able farmers who decided to stay rather than migrate. However, the role of this factor is unclear, as the difference in rice yields between the Chinese provinces and West Bengal seems to have been unchanged throughout the entire period, despite faster structural transformation in the former.
6. The World Bank (2024) surveys are conducted across states in India and cities in China. Hefei is the only city from the selected three provinces in China covered

by the survey. So we compare West Bengal with Hefei and the average across Chinese cities.

7. It could be argued that these estimates are not comparable across China and India because local governments in China bear most of the responsibility for education expenditures, while this is a state government responsibility in India. However, even if we subtract spending on education from the spending estimates in China, we obtain urban fiscal spending measuring 3.58 percent of GDP in China, 2.52 percent in Anhui, 1.79 percent in Jiangxi, and 2.65 percent in Hunan, which is higher than the corresponding proportions in West Bengal by a factor of at least three.
8. Admittedly, West Bengal is an outlier among Indian states in this regard, as the grants constitute 40 percent of municipal income for all Indian municipalities, on average.

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