

The Middle Kingdom at Center Stage

China's Past and Future Growth Strategy



KENT H. HUGHES



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Preface

Robert Daly

OVER THE PAST 40 years, no issue has been covered by the global press more avidly than China's economy. Only Middle East tensions and the march of technology have garnered as much attention. "The Chinese Economy" lies at the center of a galaxy of phrases and arguments familiar even to casual consumers of media: *Over 800 million lifted out of poverty, reform and openness, special economic zones, world's second-largest economy, corruption, pollution, intellectual property theft, nontariff barriers, stealing our jobs*. The topic inspires exaggeration by triumphalists and catastrophists alike. Amidst their torrent of purple prose, it is easy to forget that "The Chinese Economy" refers primarily to the efforts of one-fifth of the world's people to improve their lives, step by step, day by day, often with spectacular success.

In recent years, the nature of China's economy, and the challenges it presents to American prosperity and the global system constructed after the Second World War, has become the subject of fierce debate—a debate that will rage for decades even if "deals" are made along the way. The time is therefore right for an overview of Chinese policy that steps back from the headlines and asks why China has ordered its economic life as it has since 1978. Kent Hughes reminds readers that China's economic policy is founded in the needs of the Chinese people as discerned by the Chinese Communist Party; it has never sacrificed those needs to the service of an international system or the principles of a foreign country. There is no reason to expect that it should.

The Kissinger Institute on China and the United States presents Kent Hughes' work to the public, online and in print, in hopes of fostering a

more informed, less alarmist discussion of China's rise. His volume is an excellent introduction or review for students, policymakers, journalists, and businesspeople who sense the weight of China's economy in their work and communities, but cannot follow every twist in China's quest for "modernization." Hughes' analysis reflects five decades of experience as an economist on Capitol Hill and in think tanks. His approach is empathetic and dispassionate. He aims at understanding, not at placing blame.

We hope that his readers will do the same.

Robert Daly

Director

Kissinger Institute on China and the United States

The Wilson Center

Overview

THE RISE OF CHINA has been the most important geopolitical and geo-economic development of the late 20th and early 21st century. From its precarious position as a poor, unstable, peasant-dominated country following the victory of the Chinese Communist Party (CCP) in 1949, the People's Republic of China has emerged as the world's second-largest economy and become the leading rival of the United States.¹ Almost every edition of every newspaper contains one or more articles on or about China. The financial pages regularly report on China's accelerating pace of investment and acquisitions of technology businesses around the world, even as they consider the question of rising Chinese debt.

The following essay is not designed for scholars on China. Nor does it pretend to uncover elements of China that will break new ground for those scholars. My own professional interests revolve around foreign economic policy, innovation, globalization, and American competitiveness. Whether thinking about international trade or global innovation, I find myself reading about China. This essay seeks to provide similar professionals with an introduction to China's current economic strategy, grounded in an understanding of the fundamentals of China's political, social, and cultural developments in recent decades.

There are many existing introductions to China. Almost everyone recommends Henry Kissinger's *On China*, published in 2011.² Another useful brief overview that covers China's history, politics, and culture is Jeffrey N. Wasserstrom and Maura Elizabeth Cunningham's *China in the 21st Century* (2013), now in its third edition (2013).³ Another useful introduction is Wayne Morrison's "China-U.S. Trade Issues," a publication of the Congressional Research Service.⁴ The *New York Times* has recently published an excellent five-part series on China, and the *Economist* periodically has useful summaries of different aspects of the Chinese economy.⁵

A recent book by Elizabeth C. Economy focuses on the emergence of Xi Jinping.⁶ However, it is far more difficult to locate a concise introduction to China's economic growth strategy, its evolution since 1949, and its portents for the future.

This essay has four main parts. The first focuses on the elements of the growth strategy of the People's Republic of China from its founding to the present day. Over the years, the strategy has developed three main components: the state-owned enterprises (SOEs) from its Soviet heritage, elements of the East Asian Miracle pioneered by Japan following the end of World War II, and aspects of market economies. In particular, it has been adroit in using its large domestic market as a lever to acquire sophisticated technologies from America and other advanced industrial economies. The second part explores China's efforts to become an active part of the global economy. Following the Japanese example, China focused on exports—often low-value-added exports to Europe, the United States, and other countries. China's relative lack of domestic resources drove it to invest overseas to secure access to energy sources and key raw materials. In recent years, China has added two new interests that it considers especially important for its future prosperity: securing a greater investment return on its equivalent of \$3 trillion in hard currency reserves, and acquiring large and small companies that offer new technologies.

The third section examines China's future options. The country faces serious challenges. Though China now has more billionaires than the United States, it also has millions of poor people. President Xi Jinping, who as the current CCP general secretary holds the most power in China, has set a goal of eliminating poverty by 2035—a tall order, considering that as of 2018 some 27 percent of China's population lives below the World Bank's upper-middle-income poverty line.⁷ In yet another highly ambitious goal, the "Made in China 2025" initiative seeks to ensure that China will become a leader in 10 key technologies that will define the economic future of the industrial world. Yet China's future is not all challenges. It has enormous opportunities, and its drive to become an innovative country is well underway. Every year, China increases its rate of investment in research and development. The aggressive drive to acquire technology also includes

recruiting science and technology talent from around the world. The Belt and Road Initiative (BRI), a massive international development and investment strategy spanning Asia, the Middle East, Africa, and Europe, promises to provide markets for China's steel, cement, and other basic industries that will also spread China's geopolitical influence.

Finally, there is a more speculative assessment of what China's rise means for the United States—an expression known as the “China Dream.” At first glance, it might sound similar to the American Dream, which appears in the speeches of virtually every American politician—a dream of individual success, of steady advancement, of children having a better life than their parents. The China Dream, however, is something different: it is about China itself. In his 2010 book *The China Dream (Zhōngguó Mèng)*, retired People's Liberation Army (PLA) colonel Liu Mingfu argues that the age of hegemons is over—a message intended for the United States. But, Colonel Liu continues, China will be number one. Today's Chinese leadership believes that the CCP is the essential guide to China's future. The legitimacy of their rule derives from the ability to continue to spread prosperity and to restore China to the greatness it enjoyed in the centuries before Europeans made inroads into Asia. In this China Dream, growth is central to both goals.

Over the course of the 20th century, the United States responded to many challenges. The Great Depression tested America's political and economic systems. The rise of fascism, Nazism, and Japanese militarism brought America into World War II. The Cold War saw America lead a coalition of countries to contain the Soviet Union and the spread of communist ideology. When the Soviets launched the *Sputnik* satellite into space in 1957, America viewed it as a threat to national security and a blow to national pride, and responded with new institutions and a resolve to lead in science and master the world's languages. In the 1970s and 1980s, the rise of Japan forced America to respond to a new kind of challenge. In place of a reliance on free markets, the Japanese government set national economic priorities, worked closely with Japanese businesses, protected key industries, subsidized exports, deliberately kept the yen undervalued to ensure that Japanese products would be cheaper than those of

its international competitors, and acquired intellectual property by many means. The United States not only encountered stiff international competition from Japan and other rising economies, but faced a challenge to its own approach to the economy. Again, America and American industry responded and rose to the challenge. The question, of course, is how and when America will respond to the China challenge.

Isolated in exile on the remote South Atlantic island of St. Helena, Napoleon Bonaparte is supposed to have said: “China is a sleeping giant. Let her lie and sleep, for when she awakens she will astonish the world.” Regardless of who actually first said it, the quote is now attacked as an over-used cliché.⁸ Cliché or not, it still has a prophetic quality: China has risen and is rising still. When Xi Jinping refers to the BRI, he speaks in terms of world peace and prosperity. He talks in terms of a global message that will remind Americans of far-sighted presidents like Woodrow Wilson, Franklin D. Roosevelt, or John F. Kennedy. To respond to the challenge that China poses for 21st century, America must thoroughly understand China’s goals, China’s past, and China’s economic strategy for the future. The essay is an introduction to that strategy for students of the global economy.

Growth Under Mao

CHINA: GROWTH SINCE THE REVOLUTION

In late October 2017, CCP general secretary Xi Jinping secured his expected second five-year term as president of the People's Republic of China. Previous presidents of China have adhered to a two-term limit on their leadership, choosing to select and groom a successor in their second term, but Xi elected not to do so. However, to committed China-watchers, this decision was not entirely a surprise—and Xi's markedly different approach to power took a new dimension in March 2018, when the National People's Congress eliminated the two-term limit and effectively solidified Xi's hold on power. When the political theory of "Xi Jinping Thought" entered the CCP and National Constitutions around the same time, it indicated another ideological shift: not since Mao Zedong had a leader's "thought" been enshrined in China's constitutions. Even before Xi secured his second term, the *Economist* magazine had placed him on its cover, describing him as the most powerful man in the world.⁹

What can we expect from this most powerful man? From early in his first term, Xi has talked about the importance of the China Dream of restored Chinese greatness. He has been pursuing a Made in China 2025 initiative that is dedicated to making China a global power in 10 key high-tech industries.¹⁰ In mid-May 2017, Xi hosted a Silk Road Summit, with delegations from more than a hundred countries, to promote the BRI.¹¹ The goal of the BRI is to create land and naval links spanning China, Africa, and Europe—as far as a rail link to London—and Xi speaks in terms of trillions of dollars in infrastructure spending in the pursuit, as he puts it, of peace and prosperity. Further highlighting his sweeping ambitions, on October 18, 2017, Xi delivered a three-and-a-half-hour report to the 19th Party Congress in which he described how he saw China as moving to center stage in world affairs.

Can Xi do it? Can he build his new Silk Road and reach his China Dream? Many countries will welcome the BRI, even if much of the Chinese investment comes in the form of loans rather than grants or direct investment. Current observers are skeptical that China can become a leader or even a co-equal of current leaders in all 10 high-tech industries, and yet even if China achieved half of its goals, it would change the complexion of world trade and innovation. Semiconductors are a particular focus. In 2015, McKinsey & Company reported that Chinese government aspirations for spending on semiconductors alone was between \$100 and \$150 billion.¹² China's intent is to be a leader in an industry that is critical for future innovation and national security, but at the same time this pursuit of military and economic prominence poses a growing challenge for other emerging economies as well the industrialized world.

Xi is building his plans on a Chinese economy that has undergone considerable transformation over almost four decades of growth. Yet the Chinese economy and Chinese politics are still influenced by the structures and practices of the past, and the old ways of thinking often are slow to change. Domestically, China faces slowing productivity growth, increasing dependence on domestic demand, the need to move up the value chain in terms of exports, and the uphill effort to become a leading innovative power. Internationally, China has benefitted from what has been a passive international response to its theft of intellectual property, currency manipulation, export subsidies, and selective protectionism. Over the past two years, however, China is beginning to encounter greater opposition to its practices in the United States and more recently in Europe. President Donald Trump has marked a sharp contrast in terms of opposing everything from China's acquisition of intellectual property to its persistent trade surpluses with the United States.

China's ambitious plans are likely to have significant geopolitical implications. Those who are interested in the future of the global economy, the direction of future innovation, and the challenge to today's international economic structure must study China's strengths, weaknesses, and global ambitions—encompassing its past, its present, and its future.

China's Rise: A Personal Perspective

I first arrived in the city of Guangzhou, then known as Canton, in 1978. It was the most distinctive place I had ever visited. Mao jackets were the preferred dress style—in fact, virtually the only dress style. To the people of the city, our small group of Americans were items of popular curiosity. When I returned to Guangzhou in 1989, little more than a decade later, I could not recognize the city. It had been transformed by a surge of construction and new buildings. Not only had the physical infrastructure been changed, but the thinking of the people had evolved as well. New businesses meant new opportunities and new careers. During a later trip in the mid-1990s, our trade mission was briefed on the increase in how much the average family had in terms of appliances and electronic goods, a far cry from the heavy industrial focus common to Soviet-style planned economies. On yet another trip in the 2010s, China still seemed to be forging ahead. There seemed to be one true “great leap” after another.

Now, China is responding to new global and domestic challenges by shifting to a new growth strategy. In place of lower-value-added exports, investment in infrastructure, and the major role of SOEs, it is depending more on domestic demand, becoming an innovative economy, and making foreign direct investments that complement its search for technological leadership. In moving in a new direction, China must build on an economic system that has significantly changed since Mao's victory over the Nationalist forces in 1949.

China started with a Soviet model of central planning and heavy industry, lived through the turmoil of the Great Leap Forward and the Cultural Revolution in the 1960s, and following Mao's death in 1976 and the advent of Deng Xiaoping in 1978, it entered a reform period. The reform movement embraced the use of market forces, first in agriculture and rural industry and then throughout much of the economy. As China grew, it often struggled with its heritage of backward and inefficient SOEs and different variants of central planning. Drawing on many of the elements of the East Asian Miracle approach pioneered by Japan, China set clear industrial priorities, protected key industries, and kept its currency, the renminbi, undervalued to drive exports. To acquire advanced technologies, China relied on reverse engineering, forced foreign investors to share their technology,

and turned to industrial espionage and even outright theft. Although it is far from a traditional market economy, China continues to develop major elements of a market economy and, unlike Japan, welcomed foreign direct investment as a source of new technologies and economic growth.

Starting in the early 1980s, China's economy grew at a rate of about 10 percent a year for more than 30 years.¹³ During this period of record growth, China's hard currency reserves reached nearly \$4 trillion by 2014. The wonder years of 10 percent growth have slowed to less than 7 percent, and where earlier reports paid relatively little attention to the quality of Chinese statistics, skeptics now suggest that actual Chinese growth may have fallen even further. By 2015, loosening credit controls, expansive overseas investments, and efforts to stabilize the value of the renminbi pushed reserves down to \$3.4 trillion, and in August 2016 China's hard currency reserves dropped to \$3.22 trillion and actually slipped below \$3 trillion before pushing back above the \$3 trillion mark.¹⁴ Throughout 2016, financial reporting from China swung from focusing on a range of economic challenges to warnings about how China's problems would affect the world economy.

Hard figures are only one indicator of the concerns that China faces. Population control policies, primarily the one-child policy adopted from 1979 until 2016, have left China with a falling number of new workers. Additionally, rising wages led some Chinese firms to shift production to India, Vietnam, and other lower-wage countries. In the wake of China's building boom, some reports speak of "ghost cities" where entire apartment buildings are either empty or left uncompleted. These challenges are real, and at times China's future seems to have more challenges than opportunities. Yet my own impressions are still colored by a series of first-hand experiences witnessing China's transformation. If the reader feels a tinge of optimism in this account, it surely dates back to my memories of many successful leaps forward.

China's Rise, Stumble, and Extraordinary Resurgence

The story of modern China properly begins in the early 19th century. In 1820, China was the world's largest economy, accounting for about one-

third of the world's gross domestic product (GDP). By 1950, however, China's rank had fallen to only 5 percent of world GDP.¹⁵ What happened? At first, China's decline began with the European industrial revolution. China had been too successful for too long and developed a strong sense of superiority and security. When in 1793 and 1794, British peer and official envoy George Macartney presented the Qianlong Emperor with examples of British manufactures, the emperor treated them as mere curiosities brought as tribute to the Dragon Throne, as so many other kingdoms and empires had brought tribute in centuries past.¹⁶

China should have paid closer attention to Lord Macartney's offerings. A Europe divided among competing nations and adopting a scientific approach to change was about to race ahead of the rest of the world in terms of industry, transportation, and weaponry. After Macartney's departure, the British continued to pressure China for opportunities to trade. A British trade deficit and continued Chinese resistance led to the Opium Wars of 1839–42 and 1856–60. The wars went badly for China and led to further British demands, up to and including the annexation of Hong Kong in 1841. Soon the British were joined by the demands of other European powers, the United States and Japan, for access to Chinese markets and additional political and economic concessions.

Through the 19th century, China sought to deal with the "barbarians" by encouraging them to fight one another. The new barbarians, however, were not easily deterred. Tsarist Russia had already secured a series of territorial concessions. It was soon joined by the Japanese, who occupied first the island of Taiwan and then the Korean Peninsula following the First Sino-Japanese War (1894–95), and took over much of Manchuria in 1931, creating the dependent state of Manchukuo in 1932. Japan had even grander plans for Asian expansion and conquest, and invaded China in 1937. Japan continued to occupy major parts of China until the end of the Second World War in 1945.

The Nationalist Heritage

China has a unique economic and institutional heritage. One scholar has observed three forces at work in China's present-day political economy: "the organizational structures inherited from the republican and imperial past,

administrative experience gained in the [communist controlled] 'old liberated areas' since 1931 and the example of the Soviet Union."¹⁷

The evolution of the Nationalist Government of the Republic of China, which held power from 1925 to 1948, led to greater economic centralization. After consolidating power, the Nationalists (Guomindang) under Chiang Kai-shek took a number of steps to consolidate the Chinese economy. At the 3rd National Congress in 1929, the Nationalists adopted an Economic Construction Implementation Plan that emphasized transportation, infrastructure, fundamental industries, effective water use, and rules on immigration. They also sought to reform China's finances by eliminating tariff privileges for foreign countries (a concession granted following the Opium Wars of the previous century) and replacing a business tax with a commodity tax. However, the government's reliance on tariffs, a salt tax, and a commodity tax to support its financing left it with persistent deficits, reaching 44 percent of government spending in 1936.

During the 1930s, the government's focus on industry continued to evolve as it sought to consolidate the Chinese economy. In 1931, the Ministry of Industry and Commerce convened a group of experts to establish a Basic Factory Design Committee, and the ministry adopted a four-year plan to create factories for machinery, steel and iron, alcohol, paper, and vegetable oil.¹⁸ In 1936, a newly established Defense Design Committee adopted the Five-Year Heavy Industry Construction Plan to build China's lagging industrial base. In the latter half of the decade, following the onset of the Second Sino-Japanese War in July 1937, the Chinese government moved to control strategic nonferrous metals and established 23 national industries. The Japanese invasion of China also caused major physical and structural upheavals in Chinese industry, as Japanese troops occupied major industrial and commercial cities like Shanghai and Nanjing. In response, the Nationalists created the National Resources Commission, a planning body to oversee the resource and industrial bases that remained within Chinese control.¹⁹ According to economist Barry Naughton, by the early 1940s, state-run firms accounted for 70 percent of China's capital and 32 percent of its labor force. Planning efforts continued throughout the harsh conditions of the wartime years:

in 1944, the National Resources Commission oversaw more than a hundred electrical, manufacturing, and mining concerns, and nearly 70 percent of the total capital of Chinese public and private enterprises was held by state-run operations.²⁰ In occupied Shanghai, as elsewhere in its occupied territories throughout Asia, Japan restructured the local industry to serve its war aims. Japan confiscated factories and forced some Chinese capitalists to collaborate.²¹

At the end of the war in 1945, the Japanese-created industrial base returned to Nationalist hands, and China benefitted from what remained of the investment and infrastructure that the Japanese had built in the past eight years of fighting. By 1947, the Nationalist government controlled 90 percent of China's iron and steel output, two-thirds of its electrical power generation, and 45 percent of its cement output.²² But as the battle between the Nationalists and the communists tipped in the latter's favor, the industries and companies created by the National Resources Commission and the Japanese occupiers would create an economic foundation for the victors. The CCP would leave the Nationalist government's planning apparatus in place, and many skilled officials from the National Resources Commission did not flee the mainland, but stayed to become part of the economic resources of the new People's Republic of China.²³

The Mao Zedong Era

When Mao Zedong's CCP prevailed over Chiang Kai-shek's Nationalist forces in 1949, China had been at war for nearly a century and a half. Great Britain had demonstrated its superiority to Chinese forces in the first Opium War, and subsequent invasions by the British and the French humiliated China's ruling Qing dynasty and led to treaties favoring the Western powers. The Japanese invasion in 1937 and the violent civil war between Nationalist and Communist forces left additional scars on the national psyche. The resentment over the humiliation of successive foreign invasions is not far from Chinese minds, and two specific incidents stand out in my own mind as evidence of this fact. On my previously mentioned 1978 trip to China, one of our guides told me about a Western enclave, located on an island in the river by Guangzhou, that had a sign that read "no dogs or Chinese." Far more recently, a young intern from China who read

an earlier draft of this primer informed me in no uncertain terms that my starting assessment of China's economic history had ignored the "century of humiliation."

Mao took this historical legacy to heart, and when he prevailed and unified the country he set China on a course of economic and political experiments that continue to influence China today. Initially, he used the Soviet model of central planning, complete with massive SOEs, and drove for industrialization with an emphasis on heavy industry. The heritage of SOEs continues to affect the structure of today's Chinese economy.

In his design of the Chinese political economy, Mao took as his model several examples from Russia, not merely from the Soviet period but also from the years immediately before the Russian revolutions. In late tsarist Russia, Prime Minister Peter Stolypin embraced a set of reforms that proposed to create a conservative, land-owning class, known as *kulaks*, that would control larger farms, increase agricultural output, and free labor for industrialization. Stolypin's intent was to serve the goal of economic growth while creating a set of wealthy rural farmers who were not part of the Russian nobility but who would be loyal to the tsar. Following the revolution, the kulaks soon were labeled enemies of the peasants and the workers, and Joseph Stalin eventually would turn Soviet agricultural policy in a vastly different direction. In the 1930s, Stalin's policy of forced collectivization of agriculture eliminated the kulaks—a designation that before long came to include any peasant who resisted collectivization—and created massive state-run collective farm enterprises to ensure Soviet control of the countryside, increase agricultural production, and free up labor for the industrialization of the Soviet economy.

Two decades later, Mao followed the same path with regard to Chinese agriculture. First, he killed off China's landowning class, much as Stalin had eliminated the kulaks. Mao's next step was to grant land to millions of peasants, but soon thereafter he modified his course by creating cooperatives and then a series of collective farms similar in size and mission to the collective farms of the Soviet Union. To develop both rural industry and food production, he then moved to create communes that would include at least 5,000 peasant families. This commune system went beyond the Soviet

model, and it has been regarded as Mao's own approach to meeting the Marxist ideals of communal ownership and production.²⁴

At around the same time as Mao was pushing Soviet-style collectivization and industrial development on rural China, however, the system that produced it came under attack from within. On February 25, 1956, Nikita Khrushchev, the general secretary of the Communist Party of the Soviet Union, gave an earth-shaking speech to a closed-door session of the 20th Party Congress that denounced the recently deceased Stalin and Stalin's cult of personality. Khrushchev did not condemn the Soviet Union's agricultural and industrial policies in themselves, but he railed against Stalin's willful ignorance of the problems in the countryside and in the cities, particularly his failure to listen to the workers and the peasants and address their concerns. Although Khrushchev's speech laid bare the difficulties that the Soviet system had faced under Stalin's stranglehold, Mao regarded his Soviet counterpart's words as "a personal attack on his own authority. He was, after all, China's Stalin."²⁵ In April, Mao responded to Khrushchev's "secret speech" by calling for open criticism of the Chinese communist system—in the saying of the day, "let a hundred flowers bloom, let a hundred schools contend"—ostensibly to uncover and address the people's concerns in ways that Stalin never had. However, there was more criticism than Mao expected, including some that focused too closely on the CCP and the revolution itself. By June 8, such criticism was no longer welcome, and Mao launched an Anti-Rightist Campaign in which hundreds of thousands of intellectuals tainted by the slightest hint of unorthodoxy were investigated, demoted, fired, or imprisoned.²⁶

As the Chinese leadership struggled against real or imagined political opposition, it continued to establish communes as part of a more ambitious plan that would ignite the economic campaign known as the Great Leap Forward (1958–62) and thrust China's steel production toward parity with the West. The government set implausible quotas for steel production, and in desperation Chinese peasants melted down anything and everything to hand that contained steel, from pots and pans to farm implements, to fulfill the quotas and avoid punishment. Perhaps unsurprisingly, the Great Leap Forward failed to meet its exceedingly ambitious production targets.

Mao, undeterred, took a new tactic. Having seen an opportunity in the farming cycle, which left many people idle for part of the year once the harvesting was complete, he hoped to combine what he saw as essentially free farm labor with China's abundant raw materials to produce steel. But even though a first year of favorable weather helped make a good harvest, later harvests faltered as cold spells hurt farm yields. Some farm labor may have been idle (and thus, in a sense, free), but Mao ignored the costs of converting coal and iron into steel, and focused far more on the quantity of steel produced than on the quality of the final product. Scrambling to meet Party-set goals, Chinese communes diverted labor from harvesting, which contributed to a growing famine and created additional challenges for the regime. Mao also failed to reckon with the less-developed state of Chinese agriculture on the whole, which generated a much smaller surplus that could be used for industrialization than did its Soviet counterpart.²⁷ The disasters of the Great Leap Forward presented economic lessons for future leaders: plan carefully, think of systems, and think again about how to harvest the potential of rural labor.²⁸

In the wake of the Great Leap Forward, the Chinese leadership split with the Soviet Union over interpretations of Marxism-Leninism and differing national interests. Karl Marx had foreseen the development of capitalism and then a revolution led by the industrial proletariat. But where the Russian revolution had taken place in a country that had barely embraced the industrial revolution, Mao's successful peasant revolution had not waited for either the rise of capitalism or a workers' rebellion. The break-neck pace of change in China did not falter; after the Great Leap Forward, only a few years passed before the country was enveloped in the political and cultural turmoil of the Cultural Revolution in 1966. Designed to purify the party and break with the historic past, the Cultural Revolution also brought a change in economic policy.

The long-term economic costs of the Cultural Revolution were high. Intellectuals were again subject to persecution no matter how loyal they had been to the Party in the past. In an anti-intellectualist drive, many academics and other urban intellectuals were "sent down" to communes to "learn from the people," which in many cases amounted to a form of internal exile.

Traditional learning was ignored or even denigrated, and universities and secondary schools were disrupted or closed as young people were forced out of the cities and into the countryside. In the chaos, nearly an entire generation lost their opportunity for education, which had been a key element in the rapid development of Japan and the Asian economic tigers (Hong Kong, Singapore, South Korea, and Taiwan). In terms of building the educated workforce needed to compete in an increasingly global economy, China's policies in this time period were nothing short of self-destructive.

According to Linda Yueh, Mao's emphasis in this period on self-reliance, or *zili gengsheng* (regeneration through one's own efforts), translated into a form of import substitution industrialization (ISI), in which the state turned inward to replace foreign imports with domestic production from nationalized, subsidized, and highly protected industries.²⁹ China was by no means the only country to embrace ISI in the middle decades of the 20th century. Several Latin American countries also practiced ISI during the same time period. Brazil, for instance, had found some success in using ISI to stimulate domestic industry.³⁰ However, the logic of developing self-sufficiency at all points of a supply chain ran into the limits of producing key parts without the advantages of economies of scale. Additionally, by not engaging the global market, ISI countries were unable to match the pace of global innovation. China was no exception to this rule.

In his 2012 book *Demystifying the Chinese Economy*, Justin Lin, a leading Chinese economist and former chief economist of the World Bank, articulated his view of what China's early economic growth strategy should have been in order for the CCP to maximize the country's economic potential. To prove his point, Lin emphasizes the difference between a Comparative Advantage Defying (CAD) strategy and a Comparative Advantage Following (CAF) strategy. (In a CAF strategy, countries embrace the industries and fields in which they have an existing comparative advantage, whereas in a CAD strategy they deviate from these advantages to pursue industries or fields of their choice.) In the 1950s, Lin argues, the Chinese comparative advantage was in labor-intensive industries, but after adopting its first five-year plan in 1953, China determinedly adopted the CAD approach. Inspired by the Soviet example, concerned about national security,

and ambitious to close the gap between its struggling economy and those of the advanced industrial nations, China chose to develop heavy industry. For this national security strategy based on heavy-industrial development, Mao and the CCP needed to allocate large investments of scarce capital to meet the costs of steel mills. The emphasis on heavy industry was further challenged by the limited supply of foreign currency needed to purchase advanced equipment.

In spite of these disadvantages, the reforms under Mao did yield some impressive industrial gains from 1949 to 1976. According to Linda Yueh, China “created a machine-building industry, launched satellites, became a nuclear power, built large ships, and even synthesized insulin.”³¹ In addition to industrial developments, social improvements in China in this time included a sharp drop in infant mortality and a dramatic increase in life expectancy, though living standards did not advance at the same pace, and population growth kept per capita grain production levels relatively moribund.³² Even with the economically destructive Great Leap Forward in the late 1950s and the decade of the Cultural Revolution, some signs of Party flexibility seemed to favor economic growth. In the period between the Great Leap Forward and the Cultural Revolution, the CCP modified the commune system. Individual families were allowed to create private plots to grow their own products, rural markets were reintroduced, and most of the highly inefficient backyard steel furnaces (created in the Great Leap Forward era) were abandoned.³³ The land may have been owned by the state, but the revenue rights were private.³⁴ Chinese industrial outputs continued to grow, according to Linda Yueh, by an average rate of 9 to 10 percent per year in the 1960s, and by the late 1970s China had become the world’s sixth-largest industrial economy. Yet even with these economic advances, China’s continued population growth kept living standards about where they had been in 1950.³⁵

The Post-Mao Era

1978: THE AGE OF THE BLACK CATS AND WHITE CATS

Mao Zedong died in 1976, and following nearly two years of political turmoil Deng Xiaoping, an early reformer who had been purged and reinstated twice during the Cultural Revolution, assumed control of the CCP and the country. Once his position was secure, Deng initiated a series of reforms that have affected the pace and direction of Chinese growth into the present day. He became famous for his pragmatic approach to policy, epitomized in his often-quoted mantra: “Whether a cat is black or white makes no difference. As long as it catches mice, it is a good cat.” He endorsed an experimental approach to economic development, noting that China was “crossing the river by feeling the stones”—and his results have been stunning.³⁶ From 1979 to 2008, China grew at an average of about 10 percent a year. Japan, Korea, and Taiwan also had levels of sustained growth, but the sheer size of the Chinese economy made its achievement all the more notable. No country had ever matched China’s performance.³⁷ Yet the underlying structure of the economy was not totally transformed. In that sense, change has been gradual. Linda Yueh sees China “as a transition economy that is also a developing economy...it has phased market forces into an administered economy, but without a fundamental transformation into a privately-owned economy.”³⁸

In 1978, China was still heavily influenced by the Soviet heritage of SOEs and Mao’s focus on large-scale rural communes. Deng began his economic experiments with rural reform. The communes had already developed Township and Village Enterprises, then called Commune and Brigade Enterprises, to engage in activities beyond agriculture.³⁹ Before economic reforms, these enterprises had no independent existence outside

public ownership, but during the reforms they gradually came under independent (as opposed to private) ownership. Deng took several other steps that gradually introduced market-oriented reforms. There was no sudden “shock therapy” economic shift from state to market, as there was in the nations of the former Soviet Union or newly liberated Eastern Europe in the 1990s. Deng’s approach seemed to be designed to make sure that his cats, whatever their color, actually were catching mice.

The Household Responsibility System and the Move to Financial Incentives

Even after Mao’s death, China remained committed to central economic planning, but Deng Xiaoping began to introduce changes that would affect the Chinese economy on a sweeping scale. In 1979, the adoption of the Household Responsibility System gave individual farmers rights to some return on their effort: though the land remained communally owned, farmers were allowed to sell any produce that exceeded the state-required quotas at free market prices.⁴⁰ Deng also partially opened China to foreign direct investment by creating special economic zones, which combined favorable tax and business policies and reduced central government controls to attract overseas investors. Then, in 1984, Deng extended his reform program to China’s SOEs through the Contract Responsibility System.⁴¹ The SOEs were charged a set contract fee for their government-supported enterprises, and any additional profit that they managed to earn would be divided between the enterprise and the state.⁴² Wage reforms introduced a performance element into pay. Deng’s dual-track system pursued a gradual transition from a planned economy to a blended market economy, with step-by-step price adjustments to foster a more rational approach to allocating resources.⁴³ Following the success of the special economic zones, in the 1990s China added free trade zones and high-technology development zones—the latter designed to promote technology-based investment and research and development.⁴⁴

To appease the new entrepreneurial class that sprang up under Deng’s reforms while still maintaining the appearance of political orthodoxy, certain fictions had to be created. Under Marxist doctrine, growing businesses that crossed the threshold of employing a certain number of workers risked being

subjected to additional government controls. As Chinese firms grew, they avoided that risk by turning themselves into cooperatives, a process known as “putting on the red hat.” By 1992, according to conservative estimates, 20 to 30 percent of China’s supposedly collective or state-owned enterprises were actually in private hands.⁴⁵ In the meantime, the CCP recruited these entrepreneurs. By 1993, around 13 percent of private entrepreneurs were Party members; by 2006, the number had grown to around 32 percent.⁴⁶

The introduction of market and financial incentives had gone from farm to factory and from country to city. However, in 1989, prodemocracy demonstrations in Beijing and other Chinese cities led some party leaders to question the pace and direction of economic change and to crack down on dissent. In addition to calls for greater democracy, economic factors played an important role in fostering the demonstrations. Scarcely a year earlier, in 1988, China had experienced the worst levels of inflation in its modern (post-1949) history.⁴⁷ Farmers had been hit by fluctuating grain prices, workers were experiencing previously unheard of layoffs, and the low (but secure and subsidized) wages of urban workers were giving way to a more lucrative but risky contract-based system.⁴⁸ Yet even with the levels of discontent plaguing the country in the late 1980s, China’s economic reformers had some history on their side, and could look to earlier Soviet precedents on adopting market reforms.

In the Soviet Union of the 1920s, Vladimir Lenin had experimented with a New Economic Policy that involved a significant turn to the market, in which the government controlled foreign trade, the banking system, and major industries but allowed individuals to own small private businesses. He encountered serious opposition from the Bolshevik left, including particularly vocal disagreement from Leon Trotsky. Trotsky’s concerns had an international dimension—he feared that Lenin’s more moderate economic approach would prevent the communist revolution from spreading to the larger proletariat base of more industrialized countries, like Germany—but from a domestic perspective, he and his fellow left-wing critics felt that Lenin was betraying the revolution by allowing capitalists and inequality to return to Soviet Union. Lenin responded by assuring dissenters that the Party would maintain control over the “commanding heights” of the economy. Several

decades later, Nikita Khrushchev introduced some market-oriented reforms in the 1950s, and also faced resistance from more conservative, traditionally Marxist elements. In the case of China, the extent of reforms troubled those who saw the changes as weakening the commitment to Marxist-Leninist-Maoist goals of equality and a socialist society. Some reports have suggested that of the 48 million CCP members at the close of the 1980s, 1 in 10 was investigated, jailed, fired, or forced to write self-criticisms. With this “brutal reassessment of the free-wheeling 1980s,” the reform movement slowed.⁴⁹

Even as China reeled from the protests and the crackdown, Deng Xiaoping continued to play a decisive role in the evolution of the national economy. With a symbolic visit to the southern business-oriented city of Shenzhen in 1992, he reinforced his approach to economic policy. Shenzhen had been little more than a fishing village when China initiated the pragmatic periods of rapid growth. Deng had made it one of his first special economic zones, both symbol and substance of the Deng-inspired reforms. His 1992 visit reaffirmed the need to move forward with further reforms.

Events overseas also affected Chinese thinking. Between 1989 and 1991, China and its leadership were shocked by the collapse of socialism in Eastern Europe and in the Soviet Union itself. The initial tendency was to blame Mikhail Gorbachev, the Soviet general secretary, for the downfall of the system upon which the People’s Republic of China had based its own political economy. But as the CCP leadership studied more, they found fundamental flaws in the Soviet economy. In the end, the Party decided to continue its emphasis on economic growth, but with only a limited degree of the domestic political opening that Gorbachev had pursued as he sought to restructure the Soviet economy.⁵⁰ China, in essence, was determined to reap the benefits of *perestroika* without the drawbacks of *glasnost*—and to do so, it would turn to models beyond that of the faltering Soviet behemoth. For one such model, it looked to the neighboring islands of Japan.

Deng’s Strategic Embrace of the East Asian Miracle

Before the spectacular rise of the Chinese economy, Japan had surprised the world by its rapid rate of recovery after the devastation of World War II. The speed of Japan’s rise and its success in building advanced industries,

particularly electronics, was something of an inspiration to China. At the time of the Japanese surrender in August 1945, Allied bombing raids had reduced Tokyo to rubble and crippled most of Japan's major industrial and trade centers (including the cities of Hiroshima and Nagasaki), and with the loss of its former colonial and occupied territories from Manchukuo to Korea to Taiwan it lost all of the industrial development it had poured into its possessions overseas. The U.S. occupation from 1945 to 1951 helped create some new political and social institutions, but also provided an era of economic stability that helped foster Japan's industrial recovery.

In the post-World War II era, Japan drew on its history of prewar industrialization as a foundation for rebuilding, and converted much of the bureaucracy that had sustained the war into the bureaucracy of the peacetime economy. The postwar government weakened the old conservative rural landowning class by purchasing rural land with government bonds, which fell in value with inflation and virtually eliminated the large landowners' influence in politics and their impact on the economy. This land reform created a much more substantial group of smaller landowners and business owners who, thanks to their overrepresentation in the Japanese Diet, provided a stable electoral base for the growth-focused Liberal Democratic Party.⁵¹

The prewar *zaibatsu*—family-owned conglomerates that had flourished in Imperial Japan, and included such household names as Mitsubishi and Nissan—became *keiretsu*, private companies owned by shareholders but with considerable cross-ownership among companies.⁵² Hostile takeovers were essentially impossible. The keiretsu had their own banks and retained the zaibatsu conglomerate structure. As a result, Japan started its second drive for industrialization on the basis of an existing bureaucratic foundation, an economy that was more flexible than the ossified zaibatsu structure, and a determination to become a leading economic power. The American occupation also mattered. The American-written constitution, enacted in 1947, limited Japan's military role to a purely self-defensive one, thereby freeing domestic funds that could be used to invest in industry rather than support the military. America's own wars in the Pacific, first in Korea in the 1950s and then in Vietnam in the 1960s and early 1970s, had the unintended benefit of sharply increasing the demand for Japanese goods.

Just as notable as Japan's rate of progress was its distinctive approach to growth, which became known as the East Asian Miracle.⁵³ While Western economists generally prescribed open trade and limited government intervention in the economy, Japan took a decidedly different tack. The Japanese government worked closely with industry, at times setting ambitious goals for business to take on new industrial challenges. Instead of a free trade approach, Japan severely limited competitive imports, subsidized key exports, and manipulated its currency to give it an added edge in global competition. Japan did not neglect the fundamentals, combining its industrial policy with high personal savings rates, a commitment to education, and investments in infrastructure. Contrary to standard economic predictions, Japan not only recorded rapid rates of growth, but emerged as the leader in one industry after another. Guided by Japan's example, South Korea, Taiwan, and Singapore followed, and their collective success led them to be known as the Asian Tiger economies. The Japanese approach still influences the economic policies of other East and Southeast Asian countries—and China, under Deng was no exception.

Over time, Deng blended the successful formula of the East Asian Miracle with a gradual modification of an economy that was still influenced by a Soviet-like structure and official views that still sought justification in a version of Marxism-Leninism-Maoism. He dealt with Maoist-inspired resistance to such changes by quoting from Mao himself, including his instructions that China “seek truth from facts” and his notion that “practice is the sole criterion of truth.”⁵⁴ Under Deng and his successors, China followed elements of the East Asian Miracle approach by investing in infrastructure, research and development, and all levels of education. Like the East Asian Miracle countries, China coordinated policies with industry (which was in some ways easier with so many SOEs), controlled imports, subsidized exports, kept its currency competitive, and “acquired” intellectual property through industrial espionage and theft, reverse engineering, and pressure on high-tech companies that had invested in China. Like Japan and the Asian Tigers, China drew on very high rates of domestic saving coupled with limited opportunities for individual Chinese to invest in the economy.

In Japan's drive to develop advanced industries, it kept foreign direct investment to a minimum. One rare exception was IBM, but even that exception had limits: Japan did allow IBM to reenter early on during its recovery from World War II, but only on the condition that IBM would share its technology with Japanese firms. The Japanese practice was to focus on restoring and developing its domestic economic base. In contrast, China drew heavily on foreign direct investment to acquire added production and new technology. This was hardly a new approach, as the sheer potential of the Chinese market had long occupied the thinking of industrialists. In 19th-century England, for instance, it was said that adding a single inch to the shirt tail of every Chinese would keep the mills of Manchester spinning forever. China adroitly conditioned access to its market by requiring foreign investors to share technology with a joint venture partner.

Jiang Zemin and the Start of the Post-Deng Era

When Deng Xiaoping died in 1997, Jiang Zemin, then the CCP general secretary and head of the Central Military Commission, became the new leader of China. He would play an important role in pursuing and extending Deng's reforms. Jiang was aided by a prominent economic reformer, Zhu Rongji, who became premier in 1998 but in Deng's time had already been playing a key role in setting economic policy. The timing was fortuitous, as the 1997 Asian financial crisis (sparked by the collapse of the Thai baht) was destabilizing China as well as its neighbors. By 1998, more than half the loans of the Industrial & Commercial Bank of China, the country's largest bank, were considered unrecoverable. The crisis gave Zhu the opportunity to recentralize the banking system, with key managers to be appointed by the Party.⁵⁵

Under Zhu, China took two other major financial steps. Like Deng, Zhu was an active advocate for opening up to the global economy and encouraging Chinese firms to invest overseas. He also was active in bringing China into the World Trade Organization (WTO). To attract investment and secure the protection of the more predictable rules of the WTO, China sought full membership.⁵⁶ Yet this vital step, which would place China on a more even trade footing with other countries around the world, faced resistance from some existing WTO members, including the United States. Some U.S.

industries feared added Chinese competition, even as others saw the enormous opportunity of the large and growing Chinese market. U.S. domestic legislation had placed another hurdle in China's way: the Jackson-Vanik Amendment to the 1974 Trade Act. Under the terms of the amendment, the United States would not trade fully and freely with countries that restricted freedom of emigration and carried out other human rights abuses. Although the amendment had been adopted with an eye to Jewish immigration from the Soviet Union, its language applied to any communist regime, and to trade with China the U.S. Congress had to adopt waivers of the amendment every year.⁵⁷ Not until December 2001, when China succeeded in securing full WTO membership, could the United States trade fully and freely with China. As a result, China reduced its tariffs with the expected result of added competition from international firms. In the United States, some legislators held out a hope that by involving China in the global institutions it would evolve toward a more open, more democratic society.

In the Chinese domestic economy, Zhu also took the lead in making major reforms to the SOE sector, guided by the expression “grasping the large and releasing the small.” On this principle, smaller state-owned firms were allowed to sink or swim, and many sank, with the total number of national SOEs falling from 127,000 in 1996 to 61,300 in 1999.⁵⁸ The consolidation of the SOEs led to major reductions in employment. In the 10-year period from 1993 to 2003, the government laid off 50 million workers and redeployed another 18 million into jobs with fewer benefits than their old ones. Zhu had managed to break decisively with the “three irons” of the Chinese economy: guaranteed employment, a lifelong job, and a secure pension. The era of the “iron rice bowl” had come to an end. During the same period, larger national SOEs took on a more corporate form; they even issued publicly traded shares, though the government retained ultimate control.⁶⁰

Continuing to Build the Commanding Heights of the Economy

When Lenin flirted with the market in his New Economic Policy, he assured his comrades that the Communist Party and the state would maintain control of the commanding heights of the economy: sectors that were

deemed critical for the economy and for national security. From March 2003 to March 2013, during the administrations of Hu Jintao and Wen Jiabao, economic reform took a new tack. China continued to move away from the central planning model created by the Soviet Union, but at the same time it gave central direction to key industries and added prominence to the SOEs. The State Planning Commission, the Chinese government's central economic planning agency, was renamed the National Development and Reform Commission (NDRC) in 2003. In March of that same year, the State Council (the heads of the Chinese government's cabinet-level executive departments) created the State-Owned Assets Supervision and Administration Commission (SASAC), which was charged with turning SOEs into "national champions" that would be able to compete on an international level.⁶¹ Over time, and continuing into the Xi Jinping administration, the SASAC reduced the number of SOEs through consolidation, often to improve their competitive standing. In one instance, reports from May 2017 suggested that the expected merger of two chemical SOEs, ChemChina and Sinochem, would help ChemChina finance the acquisition of Swiss agrochemicals firm Syngenta.⁶² As the Chinese government's approach to SOEs took on a more market-oriented perspective, the CCP itself seemed to seek to attract the capitalists it once had shunned. Jiang Zemin's policy known as the "Three Represents," established in a speech in February 2000, was widely interpreted as inviting the business and managerial classes into the Party.⁶³

As part of his efforts to open up the Chinese economy, Deng Xiaoping welcomed foreign investment as an important element in China's growth strategy. Hu Jintao continued that approach and saw foreign direct investment by Chinese firms as yielding dividends as well. One of the first Chinese companies to venture into a high-technology field was the computer company Lenovo, which had been founded in Beijing in the mid-1980s. In May 1, 2005, Lenovo bought IBM's personal computer business. Over the next 10 years, Lenovo would become the number-one player in the personal computer world, according to a *PC Magazine* assessment.⁶⁴ In 2014, Lenovo took further steps by acquiring portions of IBM's server business and the Motorola smartphone business from Google.⁶⁵

Building the innovative, high-productivity society that would be needed to make China competitive on a global scale included emphasizing certain strategic industries. In 2006, the Chinese State Council adopted the National Medium- and Long-Term Plan for the Development of Science and Technology, which would guide China's scientific and research planning through 2020. In addition to strengthening the country's activities in basic research, the plan called for reducing dependence on foreign technology. The 2006 plan was followed in October 2010 by a Strategic and Emerging Industries initiative.⁶⁶ One press report suggests, however, that the NDRC has lost some its authority as a result of Xi Jinping's drive for greater central control.⁶⁷

The Hu Jintao and Wen Jiabao administrations faced more than their share of physical catastrophes, such as the devastating 2008 Sichuan earthquake, as well as the economic challenge of the 2008 global financial crisis and the Great Recession. In response, China introduced a 4 trillion yuan stimulus package for 2009 and 2010—amounting to 14 percent of Chinese GDP, it was the largest stimulus package in the world relative to the size of its economy.⁶⁸ Large investments concentrated in infrastructure and housing kept the Chinese economy on a rapid growth path. Hu and Wen also had to face pressures on China's low-wage production and lower-value-added exports model. The Great Recession slowed demand from Europe and the United States, China's two main export markets. At the same time, wages in China were rising in response to a gradually shrinking workforce. Businesses that had become dependent on virtually endless supplies of low-wage labor started to depart for Vietnam, India, or other countries where workers were paid even less. Around this time, Hu and Wen supported investments in science and technology, education, and strategic industries that allowed China to shift its economic approach toward higher-value-added products. The emphasis on advanced manufacturing could pay dividends as companies turn to robots and other labor-saving innovations, but this transition to more advanced products and processes will not take place overnight. Currently, the ratio of robots to workers in China remains quite low by international standards.⁶⁹

Under Xi Jinping, the economy has taken yet another turn toward an innovative future. His previously mentioned "Made in China 2025" strategy,

released in 2015, has the ambitious goal of developing advanced industries, upgrading traditional manufacturing industries, and extending the economic reforms to the services industry as well.⁷⁰

China's Market-Oriented Turn

In emulating the Soviet model, China followed the path of central planning. It also borrowed some of the Soviet tools by developing material balances—balancing the supply and demand of key commodities—in an attempt to assure that inputs were available to support the planned outputs. According to Barry Naughton, the sheer size and complexity of the Chinese economy forced planners to divide resource blocks among different stakeholders.⁷¹ In the 1980s, five-year plans included a growing degree of flexibility, tolerance for markets, and central guidance rather than commands. By the end of 1993, however, China had abandoned material balance planning altogether.⁷² For several more years, it still followed the practice of setting five-year plans, but with goals that included continued market reforms, an emphasis on industrialization, and steady urbanization of the country. By and large, the five-year plans were successfully fulfilled.

In 2006, the NDRC formally shifted from proposing five-year plans to setting out a program of five-year guidance.⁷³ The commission still faced the challenge of influencing the behavior of individual enterprises that it deemed critical to the achievement of national goals. In 2017, Xi Jinping emphasized the importance of a Party presence and role in governance in foreign firms, as well as SOEs.⁷⁴ One percent of the shares in major Chinese high-tech enterprises would be transferred to the state, giving the CCP the ability to influence all investment decisions.⁷⁵ In doing so, Xi was reminding entrepreneurs of the importance of serving society.

Market-oriented economies have encountered their own limitations in terms of guidance or indicative planning. During and after World War II, several countries used indicative planning as a guide to coordinating private sector investments, sometime supported by government investments or incentives. In France, for instance, the French indicative plans encountered the double challenge of an ever more complex economy and the growing

force of globalization.⁷⁶ The NDRC continued to combine flexibility, a degree of experimentation, and attention to the ideas and reactions of local bodies. According to Sebastian Heilmann, China's economic transformation has involved a policy process in which central policymakers encourage local officials to experiment with new ways of problem-solving, and then feed the local experiences back into national policy formulation.⁷⁷ China's large number of national SOEs (local governments have their own SOEs) showcases both the advantages and limitations of state control. Although the potential for state support can offset economic fluctuations, it also can partially isolate large enterprises from the market pressures that would make them more efficient and potentially more innovative. In any case, state control of local SOEs is not always effectively enforced.

Justin Lin has described Chinese development in the post-Mao period as following a dual-track approach.⁷⁸ Significant sectors of the economy were liberalized to rely on market prices and material incentives, whereas others—some four to five thousand SOEs—were still adapting to the market and remained very much subject to state direction. In part, China responded to the 2008 financial crisis by using SOEs as an economic stimulus vehicle by investing in infrastructure and increasing industrial capacity. Active monetary policy, loans to local governments, and private investment in housing were also important. However, some of the infrastructure was not well made, as employment-generating stimulus took precedence over productivity growth.⁷⁹

Since the start of the Deng era, China has become ever more integrated into the world economy. It looks to Europe, America, and Japan as major export markets. European, American, and East Asian companies have also been important investors in China, bringing not only needed capital but technology and managerial experience. As Clyde Prestowitz, a leading student of the global economy puts it; every new foreign factory is like a university for China.⁸⁰ China also is a major importer of virtually all kinds of commodities, including oil, iron, copper, and agricultural products. China's dependence on commodity imports has led it to become a major investor in Africa and, to a lesser degree, Latin America. China's "going out strategy" dates from 2000, and it has continued to broaden its range

of investment targets. As part of moving its investments beyond commodities, China Telecom Corp recently expressed interest in buying Oi, a Brazilian telephone company that serves about 30 percent of Brazilian municipalities.⁸¹ Yet even as China broadens its overseas investments, it continues to attract a great deal of foreign investment and foreign imports. The United States is a prime example. China has run large and persistent trade and current account surpluses with the United States, but it also has been a significant market for a range of American-produced goods and a major source of profit for many American and other foreign-based companies now invested in China.

As China's growth slowed in the early 2010s, its economic faltering had a major contractionary impact on the rest of the world. In August 2015, a sharp correction in the Chinese stock market had ripple effects in financial markets worldwide. In an effort to shift funding of investments from banks to private investors, the Chinese government had touted the promise of purchasing stocks. The result was a bubble that pushed values well above what corporate profitability would support. The correction was inevitable, and it came. The most troubling sign from the correction was not the direct impact on foreign markets (because a quick recovery mitigated these losses) but the possible signal that China's growth rate would continue to fall below the almost 10 percent per year rates that had characterized the past 30 years. It was also an enduring reminder of how interconnected the world economy has become.

The Road Ahead Part 1: Growth Strategy

XI'S THREE-STEP GROWTH STRATEGY AND THE ROAD AHEAD

In recent years, experts on China have described China and the Chinese economy as pursuing three long-term goals: (1) maintain the leadership of the CCP as the necessary guide to the future; (2) continue rapid, inclusive economic growth; and (3) define China as a great nation and a global economic, political, and military power. On the economic front, Xi has a three-step strategy that involves (1) shifting to a greater dependence on domestic demand; (2) investing in an innovative future; and (3) pursuing a more complex approach to the global economy. Long-term political and military goals will create an important part of the context of China's economic future.

China will need to reduce its dependence on infrastructure and housing and shift toward greater reliance on other sources of domestic demand. To drive future growth, it will have to invest in productivity-raising plant and equipment, steadily increase its funding for research and development, and maintain an ongoing commitment to advanced education. With low-wage competition creating challenges for many Chinese exporters, China will need to focus on becoming an ever more innovative economy; in corporate parlance, it will need to move up the value chain. Finally, China will need to continue to build its overseas presence in terms of investment, including acquisitions, that will support its drive for an innovative future.

In practice, China is already working on all three fronts. Domestic demand is growing but not rapidly enough to fully replace the role of low-cost exports or infrastructure investment. In terms of building an innovative society, every

year China puts a growing percentage of an ever-larger economy into research and development. It has made similar commitments to education, including efforts to add an element of creativity throughout the traditionally inflexible Chinese education system from the nine years of compulsory education to postsecondary study. And as part of its broader approach to the global economy with such initiatives as the BRI (formerly the One Belt and One Road Initiative), China is continuing to invest overseas. Going beyond investments in energy and raw materials, China has been using foreign direct investment to obtain technology and to secure higher returns. For instance, in 2013, the Chinese firm Shuanghui International bought the U.S. meat processing company Smithfield Foods, and is now owner of one in four pigs in the United States. In 2016, the Midea Group, another Chinese firm, acquired German robotics firm Kuka, an important part of Germany's auto manufacturing sector. As noted above, in 2017, ChemChina purchased Syngenta, a Swiss-based company that specializes in seeds, agricultural chemicals, and pesticides.

Even with this hard-driving push to build a modern, innovative economy, Xi's drive to limit criticism, control the flow of information, and eradicate Western economic and political ideas from Chinese textbooks may eventually run counter to the goal of fostering entrepreneurship in China. To date, however, he has been supportive of an entrepreneurial economy.⁸² In his attempt to revitalize the Party's compulsory instruction in Marxism, Leninism, and Mao Zedong Thought, Xi has to some extent relied on Marxist ideas that were originally imported from the West. Xi Jinping Thought is now in the constitution, and it is sure to be added to Chinese textbooks sooner rather than later.

As China looks beyond the second decade of the 21st century, it will be building on a significantly modified heritage of its Soviet-inspired early days, its adaptation of the East Asian Miracle, and its significant integration into the global economy and the world of markets. Despite economic, domestic, and international hurdles, China is already pursuing the three steps that will transform its economy: increasing domestic consumption as a driver of long-term growth, joining the ranks of major innovative economies, and increasing its global standing and presence.

Increasing Domestic Demand

China has one of the highest domestic savings rates among major economic powers. Despite years of record growth, figures from 2015 show that the gross savings rate in China is still a high 48 percent; in contrast, the U.S. gross saving rate is 19.27 percent.⁸³ China's high savings rate has helped fuel high rates of investment in everything from education to infrastructure, but it will have to change if China is to succeed in shifting from export/investment-driven growth to a dependence on domestic consumption. Several factors influence the high savings rate in China: a limited safety net, including concerns regarding the stability of pensions and the costs of health care; a low return on savings; and the high cost of educating children or securing urban housing. In responding to the 2008 financial crisis, the large Chinese stimulus program included provisions to improve the safety net by increasing access to health care.⁸⁴ Continued improvements in health care, pensions, and other elements of the safety net should lead to an increase in domestic consumption. Additional venues for investing may also help individuals who have been penalized by China's low interest rates. For much of the high-growth period, individual savers essentially received a negative return. The creation of stock markets in Shanghai and Shenzhen were designed to create new opportunities for savers, and at the same time shift corporate borrowing from state-owned banks to the private capital markets. Unfortunately, China experienced its own bout of "irrational exuberance" that saw stocks rise by 60 percent in the last half of 2014 and then fall dramatically.

In looking to the future, economic projections foresee continued movement from agriculture to industry and even more to services. In parallel, it is expected that the Chinese population will continue to shift from rural to urban living. Average incomes are expected to rise. One projection sees the average Chinese income by 2050 will slightly exceed the average 2014 income of today's South Korean.⁸⁵ Rising incomes also suggest a significant increase in consumption, even if savings rates were to remain at today's level. China's strategy of moving lower-wage, export-dependent industries to the West could accelerate the rise of rural incomes and add to domestic demand.

For the Chinese leadership, the China Dream refers to a China made prosperous and powerful: a middle kingdom with a global presence. But there is

still the question of the aspirations of the Chinese middle class, which already is large and continues to grow rapidly. The middle class has a separate set of dreams focused on the individual and the family. The high cost of housing in urban areas is one challenge that drives high domestic savings. The difficulty of securing entrance to a Chinese university leads many parents to seek an overseas education for their single child. Many universities—certainly those in the United States—expect most international students to pay top prices for a university education. That requirement demands more savings and even some maneuvering to shift funds overseas. To help China's middle class fulfill its domestic dreams, the policy answer would appear to lie in building more houses that will be available at modest prices and in creating more opportunities for China's young people in quality domestic universities.

Innovating for the Future

China has been very successful in harvesting existing technology to help drive its phenomenal growth. Taking advantage of the current state of the art in many fields makes perfect sense as a country moves from a catch-up phase of development to the frontiers of knowledge. There are still areas where China can usefully look overseas or to foreign investors as the source of cutting-edge technologies. However, China has not always operated with due consideration for the rights of its international partners. Foreign direct investors are expected to share their advanced technology with a local Chinese partner, and at times China's technological advances have come from intellectual property theft, whether directly from foreign firms operating in China or through the use of cyber tools.

China is intent on reducing its dependence on foreign technologies and becoming an innovative power in its own right, hoping to gain positive economic, national security, and political advantages from this power. Already, China is seeking to move up the global value chain and develop its own innovative capacity. To build that future, it is taking four complementary steps. First, China is steadily increasing its commitment to spending on research and development. Second, China is putting growing emphasis on domestic and international education. Third, China has begun to increase its engagement in international projects as science and technology become a

global enterprise. Finally, China will need to foster an ecosystem that supports entrepreneurship.

Moving Up the Global Value Chain

China is intent on moving up the value chain to more sophisticated products. Starting over a decade ago, China has added foreign acquisitions as a path to an innovative future. For instance, on May 1, 2005, Lenovo brought IBM's personal computer division. Lenovo took the next step by acquiring the low-end of IBM's server business in January 2014. By purchasing Volvo (in 2010), Geely Motors now has a presence in the dynamic American car market. Geely has its eye on the future, as it recently signaled that it is entering the race for self-driving cars. In some cases, China is moving to control the entire value chain in key technologies. For instance, Harvard Business School professor Willy Shih notes Chinese growing dominance in several technologies. In their recent book, *Producing Prosperity: Why America Needs a Manufacturing Renaissance*, Shih and fellow Harvard Business School professor Gary Pisano call for the restoration of an industrial commons that forms a critical part of America's still vital innovation system.⁸⁶

The increasing use of robots is another example of China's efforts to move up the value chain. With wages rising in much of China, companies are turning to robotics and automation.⁸⁷ Foxconn, the Taiwanese-based company with significant manufacturing capacity in China, is not only introducing robots but is also investing in facilities that will help invent, develop, manufacture and (one suspects) export its own line of robots.⁸⁸ China as a whole is becoming an enormous market for imported robots and other forms of automation. However, it has a long way to go to match the robots present in other competitive countries. As of 2016, China has 68 robots per 10,000 manufacturing workers, lagging well behind the comparative figures of South Korea (631), Germany (309), and Japan (303). With 189 robots per 10,000 workers, the United States is in the middle. China, however, has ambitious plans for its robotic future. As part of its Made in China 2025 initiative, China plans to have 1.8 million robots in its manufacturing force, with 70 percent (1.26 million) made in China.⁸⁹ Faced with a declining workforce and rising wages, robots clearly will play a major role in China's industrial future.

Investing in Education

As part of the drive to become ever more innovative, China is making investments in all levels of education, including the attempt to develop world-class universities. Many of China's best students are earning doctoral degrees in science and engineering at top American and other foreign universities.⁹⁰ Among the large international contingent of postsecondary students studying in the United States, in 2015–16 123,250 Chinese students were seeking graduate degrees.⁹¹ According to National Science Foundation statistics, in 2015 Chinese and other international students earned 34 percent of U.S. science and engineering doctoral degrees.⁹² In some other fields, the concentration of Chinese students is even higher. In spite of the complicated U.S. immigration system, many Chinese scholars stay to work and conduct research in the United States, gaining added experience and knowledge. Out of growing concern that too few of these students have returned to China, China is working to develop world-class universities to make it easier for talented students to stay at home rather than going abroad.

The U.S.-Chinese relationship in higher education is complicated. In science, technology, engineering, and mathematics (STEM) disciplines, Chinese graduate students form a high percentage, often half the enrollment in some cases. Undergraduates from China generally pay the full cost of private or public education in the United States, helping offset the impact of declining support from state legislatures. When Chinese students stay in the United States, they strengthen the public and private research base in the country. At the same time, the U.S. universities are educating researchers at the cutting edge of science and technology, which will add considerable strength to China's position as a growing economic, political, and even military competitor of the United States. At a June 2018 hearing before the Senate Judiciary's Subcommittee on Border Security and Immigration, Bill Priestap, the assistant director of the Federal Bureau of Investigation (FBI) Counterintelligence Division, expressed concern over the loss of intellectual property to Chinese students studying in the United States. Priestap also drew a contrast between the more closed corporate research environment and the open approach of the academic community, which also may factor into Chinese students' desire to study abroad and reap the benefits of exposure to U.S. scientific and technological innovations.⁹³

In contrast to the appeal of U.S. higher education, China is not impressed with the American K–12 education system, which placed America in the middle in a ranking of advanced countries according to 2015 scores in the Programme of International Student Assessment (PISA) for 15-year-old students. Compared to the Organisation for Economic Co-operation and Development (OECD) countries, China is not yet at the top of the table, but in 2012, the youth of Shanghai did stand out as a notable success. In a city with a population of 20 million, Shanghai's 15-year-olds scored 613 in math and 580 in science, putting them first in both disciplines compared to the OECD and other educationally competitive countries. Although the reading scores were not given the same emphasis in most press coverage, Shanghai also came in first in reading.⁹⁴ The 2015 PISA exam did not give a special score or rank for Shanghai. China still did well with a 10th-place finish in science and sixth-place standing in mathematics. The United States, by contrast, finished below the OECD average in both disciplines.⁹⁵ The next PISA assessment will be conducted in the fall of 2018 with results available in December 2019. Chinese parents are also looking to the high-tech future. Like some American families, the Chinese are encouraging their children to start coding at an early age.⁹⁶

While the American K–12 system mixes outstanding schools and students with mediocre ones, there is a global sense that somehow American schools are better at fostering creativity and problem-solving, two skills that are likely to be important for the future of work. China is already taking steps to catch up: in one example, it has started to introduce FIRST (For Inspiration and Recognition of Science and Technology) to Chinese students. The FIRST program began when Dean Kamen, an inventor and entrepreneur, and Woodie Flowers, then a professor of mechanical engineering at MIT, were concerned about the future generation of engineers, and created a problem-solving program for high school students. On the first January of each year, the high school students are presented with the rules of a new game, a kit of parts, and six weeks to build a robot to play the game. The program has grown, spread around the country and parts of the world, and now has four programs that include elementary and middle schools. FIRST emphasizes that it is about the student, not the robot, and its tenets emphasize creativity, problem-solving, teamwork,

and positive values. Once introduced to China, the program quickly grew to 4,000 teams.⁹⁷ Even though China's recent limitations on nongovernmental organizations led to the temporary suspension of FIRST competitions, the program's headquarters is confident that FIRST will return to China soon.

Investing in Research and Development

China is now the number-two country in the world in terms of total dollar-amount spent on research and development, second only to the United States.⁹⁸ Chinese research and development investment has grown steadily over the past several years from 0.57 percent of GDP in 1995 to 1.42 percent in 2006 and to 2.05 percent in 2014.⁹⁹ In its *2016 Global R&D Funding Forecast*, *R&D Magazine* projected that China's R&D spending in 2016 would reach \$396.3 billion, compared to 514 billion in the United States. Although growth in research investment has slowed as the Chinese economy slows, the OECD projects that China will outspend the United States on research and development by 2019.¹⁰⁰

In terms of international high-tech industries, the pharmaceutical sector is the leading research and development investor in China, with 32 U.S. companies spending \$1.6 billion on 36 projects in 2010–14. Research and development in business machines and equipment (\$817 million in investment) and consumer electronics (\$540 million in investment) are close behind.¹⁰¹ China has also been aggressive in applying for technology patents, with 825,136 applications in 2013 compared to slightly more than 571,612 in the United States.¹⁰² However, U.S. patents, in general, are much more widely cited. China is pursuing other major science-related projects, including recent proposals to build two new supercolliders that would far outstrip the size of CERN's Large Hadron Collider.¹⁰³ In another sphere, China now boasts the world's fastest supercomputer made entirely with Chinese-made processors.¹⁰⁴

China also is making a major effort to take the lead in the development and use of artificial intelligence (AI). In his recent book *AI Superpowers: China, Silicon Valley, and the New World Order*, leading AI expert Kai-Fu Lee sees China taking the lead in AI research and development over the

next five years. Because data are the fuel for developing AI, Lee sees China's advantage in the sheer size of its population and the much wider use of digital media.¹⁰⁵

Building an Innovation System

China is intent on building a national innovation system, one that spans laboratory-to-industry supply chains to investments in education and research. The Hu and Wen administrations' emphasis on developing indigenous technologies has implications for national security and is consistent with a growing commitment to research and education. However, a domestic focus must deal with the reality that science and even technology are becoming global enterprises. Ideas, technologies, and corporate organizations move rapidly from one country to the next. In her treatment of the defense industrial base, Kathleen A. Walsh of the U.S. Naval War College stresses how the Chinese focus on the key strategic industries while also recognizing that science and technology are now global pursuits.¹⁰⁶

Fostering Entrepreneurship

Since adopting the path toward markets in 1978, China has tested out the use of various economic zones, which allowed controlled experiments in economic liberalization. As early as 2003, China had more than 100 investment zones recognized by the central government, as well as hundreds of zones under purely local government control.¹⁰⁷

Developing an ecosystem that supports entrepreneurship requires several elements. First is the entrepreneur, with an idea and a willingness to take a risk—coupled with financing, the right mix of labor, domestic and or international demand, and a degree of legal security for the entrepreneur's patent or trade secrets. Government support can also be useful. For instance, in the United States, the Small Business Innovation and Research Program requires federal agencies with a research budget of a \$100 million or more to dedicate a percentage of their budget to small entrepreneurial firms. Aspiring entrepreneurs compete through two stages for this federal funding and, if successful, must take the next step to secure private funding from companies, venture capitalists, or angel investors.

Some major companies have an internal venture capital firm or give employees an opportunity to pursue their own ideas. U.S. universities are also working to support entrepreneurial ventures. Many have incubators that provide entrepreneurs with administrative and other support to help develop ideas with commercial potential. Harvard University recently created an innovations laboratory (the ilab) that welcomes anyone from the current Harvard community to pursue an idea for 90 days. Harvard measures success by inputs or the number of entrepreneurs trying new ideas. Some of the ideas are attempting to make path-breaking progress. For instance, 2018 winners of the Harvard President's Innovation Challenge include PionEar, a company that is revolutionizing the treatment of ear infections through implants; STEMgem, which is creating STEM education toolkits to help students build customizable wearable smart devices; and OZÉ, for developing a mobile app that helps small businesses in Africa improve their performance.¹⁰⁸ By showing progress, an individual or the team can secure another 90 days using Harvard's facilities. In 2013, Tsinghua University in Beijing created a similar innovation platform, X-Lab.¹⁰⁹ But Tsinghua has a much longer history of supporting new business enterprises; in 1994, it created TusPark (short for Tsinghua University Science Park), which has incubated and accommodated more than 1,000 enterprises, including 600 entrepreneurial companies and 14 listed corporations.¹¹⁰ In the two decades of its existence, TusPark has commercialized 56 national key science accomplishments and made 62 main technology inventions.¹¹¹ One example of a TusPark success was NucTech's development of a large-scale X-ray machine that helped identify smuggled goods at Chinese ports.¹¹² TusPark is also investing overseas; in 2018, for instance, it invested in Cambridge Science Park's Bio Innovation Center at Cambridge University.¹¹³

There is growing global interest in entrepreneurship as a key ingredient that translates new ideas into new competitive products, and China is no exception. In studying California's Silicon Valley, Anna Lee Saxsenian found that 29 percent of technology companies started between 1995 and 1998 were run by Chinese and Indian immigrants.¹¹⁴ It would seem that culture is no barrier for the Chinese; it is context that matters. Entrepreneurship in China itself is a dangerous gamble. In addition to the lack of risk capital,

China's inconsistent protection for intellectual property and restrictions on open speech run counter to the kind of freewheeling environment conducive to successful entrepreneurship. In public statements and in official publications, Xi has supported innovation and entrepreneurship.¹¹⁵ At the same time, however, he has been tightening controls over dissent and even intra-party debate over policy. Xi has called on entrepreneurs not to become advocates for capitalism, reminding them not to forget their loyalty to the party and the people.¹¹⁶ Outside observers suggest that with a slowing economy and the desire to shift economic direction, Xi is intent in maintaining stability at the risk of slowing the emergence of widespread entrepreneurship.

In the mid-1980s, even the Chinese military showed a flair for business. Driven by the need to restore budgets after years of austerity and lured by the prospect of economic opportunities, the PLA branched into thousands of enterprises that employed hundreds of thousands of workers. In 1998, the PLA's business efforts were curtailed, and China's military was, in effect, sent back to its noncommercial barracks.¹¹⁷ Over the past two decades, however, the PLA has become a key part of China's defense innovation system, itself part of an overall national innovation system. In developing its current system, China has emphasized a dual-use approach where research will emphasize both the civilian and the military sides of research.

The Road Ahead, Part 1: Domestic Challenges

Changing economic conditions naturally will affect China's near-term and longer-term strategies. At home, China will need to adapt to an aging workforce and rising wages in its industrial/export-oriented belt. As mentioned, private companies have been responding to the pressures of rising wages by turning to robotics and other productivity-raising equipment, and by relocating to lower-wage markets. For instance, Midea Group, a major appliance maker, replaced 14 workers with robots in 2015, with the prospect of greater automation to come.¹¹⁸ Changying Precision Technology Company, based in Dongguan City, established an unmanned factory almost entirely dependent on robots.¹¹⁹ Analysts see more robots on the way. From the perspective of late 2016, IDC (International Data Corporation) predicts a growth rate in robots of 150 percent by 2018.¹²⁰

Over the past 30 years, China has set a remarkable record for rapid growth, averaging nearly 10 percent a year. For decades, investment poured into the country; in the 1990s alone, China went from a foreign direct investment base of less than \$19 billion in 1990 to more than \$300 billion at the end of 1999.¹²¹ China has emerged as the second-largest economy, and in 2017 International Monetary Fund and World Bank purchasing power parity calculations put China in first place.¹²² Yet by 2019, growth had slowed to an official rate of 6.7 percent a year. In light of this slowdown, the financial press and analyses of China have focused on a number of domestic challenges. The challenges will force China to adapt to the new circumstances, but the basic structure—the tenets of the East Asian Miracle, state capitalism, and a market serving national goals—will remain.

As millions of rural Chinese moved from farms to factories, observers often joked that the construction crane was the national bird of China. Yet housing remains a perennial concern in the Chinese economy. In some parts of the country, there is a housing glut, and middle-class savers who bought ahead of the market face actual or potential losses if they try to sell their homes. As noted above, the building boom has spawned reports of ghost cities made up of empty or half-finished apartment complexes and unoccupied commercial buildings.¹²³ The glut in urban construction created deeper problems for local government financing. During the housing boom, many local governments balanced their own budgets by providing long-term leases for land to developers. As housing demand has slowed, local governments have found themselves struggling to balance budgets and pay their debt obligations. Tightened regulations on buyer eligibility have added to the pressure on real estate. In the long run, though, the urban expansion is consistent with China's plan to move more rural residents into an urban setting. Some local governments are coming up with incentives to encourage the rural-to-urban shift, including efforts to attract those who moved to cities elsewhere in China in search of work. As employers turn to automation and send jobs overseas to lower-wage countries to combat rising wage costs, previous migrants have started looking back to their hometowns for opportunity. In the relatively poor and underdeveloped Guizhou Province in southwestern China, for instance, the provincial government has created a new policy, "Returning Geese Revitalize Guizhou," that offers

everything from entrepreneurial training to low-interest loans to encourage returning migrants to settle in the region.¹²⁴

The investment surge in infrastructure and housing also has led to an expansion and upgrading of capacity in steel and aluminum production. With slower growth at home and abroad, China has sought to sell or dump some of its steel and aluminum production overseas at bargain prices. The steel and aluminum industries in Europe and the United States have responded by demanding trade protection. U.S. industry contends that China is dumping (selling below cost) its steel in the American market. China, in return, argues that its excess capacity is the product of its stimulus package that helped China stabilize the world market by contributing half of all global growth during the Great Recession. Beyond the raw figures, the U.S. steel industry also is seeking redress for Chinese theft of intellectual property, claiming that China is using stolen ideas to make the steel that is depressing the U.S. market. Under U.S. law, imports that use stolen American intellectual property can be stopped at the U.S. border. However, U.S. domestic market protections do not apply if China sells its disputed products to third countries. Following an order from President Trump, the Department of Commerce conducted a study that found that imports of steel and aluminum had a negative impact on national security. The Trump administration responded by imposing 25 percent tariffs on imported steel and 10 percent tariffs on imported aluminum. Concerns about China were driving factors behind the study and the subsequent tariffs, even though steel imports from China amounted to a small percentage of U.S. steel imports and usage.¹²⁵

One of the long-standing issues in China's domestic economy has been the place of SOEs in an increasingly market-oriented future. The economic reforms of Deng Xiaoping and the Hu and Wen administrations reduced the number and role of the SOEs, but many still dominate strategic industries and key sectors of the economy. For instance, power generation and telecommunications remain government monopolies. They are the kind of industries that Soviet leaders like Lenin identified as the commanding heights of the economy, industries that were fundamental to its operation. Despite government efforts, however, the SOEs remain considerably less productive than the bulk of private sector businesses. In more than a few

cases, the national government has had to subsidize significant losses of the SOEs. Especially under Xi Jinping, SOE reform often has entailed merging two large companies into a national champion, with the merged firm expected to be a more effective global competitor.¹²⁶ However, sheer scale does not necessarily answer the need for improved SOE efficiency. China will have to hope that competing on the global stage will itself force the country's state-run firms to become more innovative.

Financial fluctuations have been affecting China on both macro- and microeconomic levels. In June 2014, China's hard currency reserves reached the equivalent of almost \$4 trillion.¹²⁷ Over the past three years, however, China's reserves have gone down by hundreds of billions of dollars. The International Monetary Fund midyear 2016 figure put Chinese reserves at 3.3 trillion, with roughly one-third or \$1.2 trillion in U.S. Treasury securities.¹²⁸ At one point, Chinese reserves dropped below the \$3 trillion mark, but recently rebounded to \$3.01 trillion and remained at or near \$3 trillion mark into 2019.¹²⁹ Yet much of the foundation supporting China's domestic wealth comes from its people's savings. China's 30 years of record-setting growth have created a middle class of some 600 million. This growing middle class has built up expectations of more growth, greater opportunity for their children, anger at corruption, worries about environmental degradation, and concern over visible economic inequality. According to recent statistics, China now has a million millionaires and some 568 billionaires—a few dozen more than the 535 in the United States.¹³⁰ Many of the newly wealthy, or “Big Bucks” as they often are known, are not shy about showing their prosperity, but the slowing growth rates of the past few years have dented the easy confidence in endless growth just at the time when China is shifting its growth strategy. The fierce competition to enter top Chinese universities has led many families to send their children overseas. Uncertainty about the economy and, starting in 2015, a tightening of the political reins have pushed many Chinese to seek real estate investments overseas, partly accounting for the drain on China's hard currency reserves. To boost its returns on those reserves, China is increasing its integration into the world economy through major investments in international infrastructure, complementing its push into high technology through the acquisition of foreign firms.

China's hard-driving approach to industry and urbanization has come with some severely detrimental environmental costs. The levels of pollution in many Chinese cities easily exceed World Health Organization standards. In early 2017, 32 cities were under a "red alert," China's most severe pollution warning.¹³¹ When China hosted the 2008 Summer Olympics, it shut down nearby factory production in an effort to keep the air cleaner.¹³² Pollution takes a human and financial toll. According to an October 2018 *South China Morning Post* article, pollution kills 1 million people every year and costs the Chinese economy 257 billion yuan (about \$40 billion) in terms of lost crops. Some parents of Chinese students studying overseas worry about their children returning home because of the levels of pollution.

China has made efforts to attack the pollution problem. It has taken an active role in global diplomacy on climate change, invested in clean technologies, and set ambitious goals for reducing carbon emissions. Barbara Finamore's recent book *Will China Save the Planet?* traces the evolution of Chinese climate diplomacy.¹³³ At the 2009 Copenhagen Summit, China resisted making any firm commitments on climate change, but by the time of the Paris Accords in December 2016, China was playing a leading role in the discussions. As with international trade, China is stepping forward to be a leading voice on climate change as part of its drive to be a leading global power.

Can the Chinese leadership match rhetoric with actual progress? China is investing heavily in solar and wind power, and more recently in electric vehicles. It has specific plans to reach peak carbon consumption by 2030, has designated green technologies as strategic industries, and has established a carbon trading system. To reach its carbon emission goals, Finamore suggests that China will have to reduce its growth rate to 2.6 percent a year by 2050. Over the same period, China plans to eliminate poverty by 2030, and the level of growth needed to eliminate poverty may well require spending on fossil fuels. China's BRI focuses heavily on infrastructure spending to link Europe and Africa, which also could entail added spending on carbon fuels rather than reliance on energy alternatives. So China may face a dilemma: either respond to popular pressure to contain pollution, score diplomatic victories, and accelerate the development

of cutting-edge industries, or choose to pursue poverty reduction, continue the BRI, and meet popular expectations for continued rapid growth.

Whatever environmental approach it chooses, China will have to address an equally corrosive topic: corruption. In most countries, corruption is a fact of life, and the question lies in how much corruption exists and what countries do to control it. CCP general secretaries often have used anticorruption campaigns to push aside potential rivals, but in recent years they have become more aware that corruption is widely reviled by the growing Chinese middle class. Even the act of uncovering and rooting out corruption can raise its own problems. For instance, the Lava Jato (Car Wash) scandal in Brazil has affected much of the political class and even spread beyond Brazil's borders to Peru.¹³⁴

Xi Jinping has been more aggressive than most in his anticorruption efforts. Press reports suggest that Xi's most recent drives have disciplined some 414,000 officials and leading figures in the military. A recent article in *The Atlantic* suggests that Xi is working to "transform the people who make up the state, rather than the structure of the state itself."¹³⁵ In addition to the potential political costs, corruption can lead to misallocation of resources, reports of misleading production figures, and intraparty disputes. Xi appears to be intent on getting corruption under a greater degree of control than his predecessors did.

Protests are another aspect of China's political system that may affect its economic future. In China, protests are the norm, where battles over land grabs, pollution, quality of products, and regulations are common. In 2006, the Ministry of Public Safety reported that there had been some 87,000 protests in 2005, up 7 percent since 2004 and 50 percent since 2003. Following that data release, regular reports on protests stopped, but a state-controlled journal reported that the number of protests had doubled by 2010, with analysts interpreting this information to conclude that China had seen 180,000 protests in that year. Other writers have used the 180,000 figure in articles discussing protests.¹³⁶

Land is at the heart of many protests. In a 2012 Council on Foreign Relations blog post, Elizabeth Economy cited Chinese research estimates

that 65 percent of the 180,000 protests deal with land seizures. She also discussed a survey of 1,791 farming households conducted by Remin University and Michigan State University. The survey found that the mean prices paid to farmers for their land was approximately \$17,850—but this land in turn was sold to developers for a mean price of \$740,000 per acre.¹³⁷

Are the protests a threat to China's stability, or even to the Party itself? So far, the answer appears to be no. Max Fisher, writing in *The Atlantic* in January 2012, asked how China could maintain stability despite 500 protests every day.¹³⁸ Fisher noted that protesters were always specific about their protest and careful not to call for an introduction of democracy or to challenge the Party. In part, Fisher thought the Chinese had digested the lessons from the brutal suppression of protests in Tiananmen Square in 1989, and so the Chinese leadership appeared to tolerate protests as a way of allowing the public to let off steam. Such protests also could be used to judge the intensity of popular attitudes, and at times to meet the most vocal popular demands by adjusting policies or even by the jailing of corrupt local officials. Yet China is not passive in controlling actual or potential protests. Officials actively monitor the internet and chat sites in order to stop planned disruptions, and Xi Jinping continues to limit the development of civil society. The Falun Gong were actively suppressed for their open activity and ability to form large networks of Chinese. More recently, the government has moved against a Protestant preacher for creating instability. There are reported to be some 90 million Protestants in underground churches, a breeding ground for the ideological danger of a religion that speaks of a higher authority than the Party.¹³⁹

The Road Ahead Part 2: International Considerations

IN A SPEECH in Kazakhstan on September 7, 2014, President Xi Jinping announced plans to link Eurasia with a new silk road, and later that fall he talked of a parallel effort at sea. Now referred to as the BRI, China has already announced a trillion dollars of various infrastructure and investment projects to realize this goal.¹⁴⁰ (Of course, announcing projects and actually allocating the resources are two different steps.)¹⁴¹

Adding global infrastructure to the array of Chinese economic policies serves several Chinese goals. First, it creates significant demand for China's basic industries, which have struggled as global demand and Chinese growth have both slowed. China's SOEs are heavily involved in the basic industries, providing employment and an economic instrument when stimulus is needed to help maintain stability.¹⁴² Currently, China has sought greater efficiencies by merging its larger SOEs, creating the abovementioned national champions to be more effective competitors in global markets. At the least, a period of increased international demand for the basic industries will give China time to make a gradual transition to more profitable, more self-sustaining industries. Going global with infrastructure investment also has the potential to provide China with a good deal of soft-power and growing political influence in Asia and elsewhere around the globe.

To make its ambitious international initiatives happen, China naturally will have to dive head first into the technology race. China has been particularly aggressive in acquiring overseas technologies to fuel its own growth, and in forcing foreign investors to share their technology with local Chinese partners in order to access the enormous Chinese market. Global industries also bring the example of tacit knowledge in manufacturing. More recently, China has moved to purchase technology in the form

of patents, or actually buying a high-tech company. By asserting newly acquired patent rights, China is also seeking to block sales of foreign high-tech goods in favor of domestic production. But merely having patents is not enough; production requires a degree of know-how that is an essential complement to the designs that are part of a patent or proprietary trade secrets. China has made enormous advances in science and technology, yet there is still a world of technologies that China could acquire without having to develop them. Foreign companies also may provide inspiration for Chinese firms in terms of process technologies, the creative use of services, and effective management techniques.

Out of concerns over economic fluctuations, including the Asian financial crisis of 1997–98 and the Great Recession a decade later, many Asian economies have sought to develop enough savings to weather a major financial storm. In addition to insurance, large savings reserves have given China the ability to pursue national priorities and build its global influence. Investing in dollars or other hard currencies (usually euros or yen) also supported Chinese exports by reducing the value of the renminbi. Currency manipulation has been part of China's high growth success, just as it has been for other Asian countries that pursued the East Asian Miracle approach to growth. Economists often have criticized China's practice of holding so much of its reserves in low-yielding assets. U.S. Treasury bonds, for instance, provide security but at the cost of much lower interest rates. Some international investments may reflect a decision to acquire higher returns. Individual Chinese may be moving personal savings overseas to diversify their portfolios, acquire assets in secure countries, and earn returns much higher than those offered by Chinese banks. Even SOEs use their size and influence to improve their profitability by investing overseas. China has already responded to unstable global market conditions by tightening currency controls to prevent a further drain on its reserves.¹⁴³

Like many emerging market countries, China often feels constrained by rules and regulations of the current set of international institutions that were created by the United States, Great Britain, and their allies near the end of World War II. To date, however, China has been able to assert a

certain degree of influence within these institutions, not least as one of five countries to have veto power in the United Nations Security Council. In some cases, China has used membership in these established international institutions to force needed domestic change, as it did in joining the WTO. At other times, China has been able to simply ignore international standards. Other countries, particularly the United States, have tolerated China's disregard for international conventions in return for access to the enormous Chinese market or to secure Chinese support for foreign policy goals.

Although China often complains about the structures of the international institutions, it has not yet sought to make major changes in them. Instead, it has created potential alternatives to the major institutions. For instance, in October 2014, China launched the Asian Infrastructure Investment Bank (AIIB), with members pledging \$160 billion—less than the World Bank, but much larger than the Asian Development Bank, which has \$115.7 billion in total assets (with callable capital of slightly more than \$145 billion).¹⁴⁴ By 2015, the AIIB had expanded to include 50 nations.¹⁴⁵ The United States did not join the AIIB, but most of the leading European economic powers have joined, and even America's northern neighbor Canada recently decided to seek membership. China also has worked to promote the growing use of the renminbi as a global currency and as an eventual alternative to the dollar.¹⁴⁶ In reporting on the renminbi, China is referring to the overall use of its currency, whereas the unit of account remains the yuan.¹⁴⁷ So, for instance, China could report that the use of the renminbi has increased by, say, 25 percent in international transactions or by 50 billion yuan compared to a previous year.¹⁴⁸

China's progress in becoming an innovative power, however, suggests that the current international institutions that protect intellectual property will become ever more useful to China. The same may also be true of multi-lateral development institutions, such as the World Bank, that help promote growth in neighboring countries, which in turn will create more demand for China's products and services.

GOING GLOBAL: CHINA'S CHALLENGES AND OPPORTUNITIES

China will not abandon its three-part growth strategy of using the East Asian Miracle, state-directed capitalism, and global markets to achieve national goals. However, the very success of China's model now faces a series of hurdles, including key trade questions for the United States, the U.S. and European electoral climate, and global businesses' growing objections to doing business in China. Where once American business and political leaders tolerated China's approach, they are no longer willing to simply accept rampant intellectual property theft, the arbitrary application of regulations, and the generally less-welcoming attitude toward foreign investors. The shift in attitude by international business points to a global climate quite different from the one China faced in its 30-year race to become the world's second-largest economy.¹⁴⁹

China's growing global presence has met with a similarly negative response. From the time of Deng Xiaoping's ascension to power in 1978, China has become more dependent on international markets for needed raw materials and customers for its export industries. As China seeks new technologies by buying American and European high-tech companies, it is coming face to face with new regulations that limit its acquisitions. Europe and the United States are also taking steps to protect and promote key industries. As China broadens its approach to global markets, it will continue to be dependent on overseas markets for exports, and will face increased competition from its Asian neighbors. China will have to wrestle with the complexity of international markets, global finance, and changing technologies.

Capital Outflow

Chinese SOEs have long been active in investing overseas in the search for needed energy and other raw materials. SOEs, private companies, and the funds of individual Chinese have flowed into overseas real estate targeting Australia, Canada, the United Kingdom, and the United States. Overseas real estate investments totaled \$110 billion for the five-year period ending in 2015. The costs of overseas study by Chinese students has added to the

outflow; one Chinese report put the figure for Chinese overseas students at \$23 billion in 2013.¹⁵⁰ Some of the reserves also have been used to prop up the value of the renminbi, in part as a response to international pressure and in part to take another step toward China becoming a global financial force. Funds are expected to continue flowing out of the country as China builds BRI links to much of Eurasia.

In the fall of 2017, as part of an effort to promote international use of the renminbi, China relaxed its capital controls. As a result, the renminbi dropped in value. In response, the government reimposed some capital controls, including actively discouraging Chinese companies from making acquisitions that are not part of their main businesses. For instance, one Chinese billionaire investor has pulled back from his latest plan to invest more in Hollywood. Authorities also looked askance at overseas purchases of European sports teams.¹⁵¹ Individual Chinese, however, can now take as much as \$50,000 out of China each year. The allowed individual amount, however, would not be enough to buy an apartment in a Western city like Sydney or Vancouver, or even to pay tuition, room, and board at many private American universities. Individual Chinese have responded by having relatives and friends carry additional funds out of the country, working around these transaction controls in a practice known in financial parlance as “smurfing.” Smurfing allows individuals to make real estate investments, purchase other assets, or pay for the costs of education in ways that avoid attracting the attention of Chinese or overseas governments and financial regulators.¹⁵² Although rules on smurfing have been tightened, some capital still leaves China through many different practices, from underground banks to the reuse of invoices.¹⁵³ The Chinese government’s concern also raises the possibility of scrutinizing and even limiting the repatriation of foreign company profits.¹⁵⁴ China may want to maintain sizeable currency reserves for the added leverage and flexibility they offer.

Export Dependence on Major Markets

The financial crisis that began in the United States in 2007 reached panic level with the collapse of the Lehman Brothers global financial services firm in September 2008, and the Great Recession that followed hit Asia, Europe,

and the United States. The world economy has since mostly recovered from its effects, and the expectations for growth remain positive. However, the crisis left the United States and some European countries with such high levels of debt that it will be more difficult to turn to government spending in response to a future crisis. China responded to the loss of American and European markets with a major stimulus package. The policy kept China growing and contributed to global growth as well. However, it left China with a large and complicated debt structure and excess capacity in its steel, cement, and other basic industries.

In the post–World War II era, the practice of tightening monetary policy in response to inflation has triggered many recessions. It is akin to slowing the flow of water to fields that depend on irrigation, even though the pipes, the sprinklers, and other equipment remain in place. Financial crises are different. Bankruptcies decimate the banks that support small businesses. Money center banks—ones that loan to governments, and generally do not take deposits from individual consumers—that seem invulnerable can (and in 2008 and 2009, did) fail. Networks built on trust are weakened, stretched, and at times destroyed. Unlike simply slowing the flow for irrigation, financial crises break some of the pipes and make the water supply itself unreliable. For several years after the peak of the Great Recession, decline in demand in China’s two major stock markets created a challenge for China and added to the pressure for China to make significant changes in its economy. Recovery in the United States and Europe has reduced that pressure, but China shows little interest in slowing its ambitions for global economic leadership.

China’s foreign policy may create added hurdles. The periodic tensions with Japan over island territory in the East China Sea (known in Japan as the Senkaku Islands and in China as Diaoyu) has military as well as economic repercussions. Tensions in the South China Sea are even more complicated, as several countries claim some of the territories claimed by China and the United States insists on the freedom of navigation in the same area. Already, China has created several artificial islands, added a military presence to some, and complained about the U.S. insistence on maintaining a naval presence in and around China’s Pacific waters.

Disputed borders with India and Bhutan create added challenges. Despite the BRI's potential for expanding China's diplomatic reach, it also could trigger a severe response from other major powers. For instance, Russia views Uzbekistan and the other Central Asian republics as part of its near abroad, hearkening back to the days when Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan were constituent republics of the Soviet Union. Kazakhstan and Kyrgyzstan are also members of the Russian-initiated Eurasian Economic Union, intended to be an economic counterweight to the temptations of the EU. Although joint Russian and Chinese military exercises may strengthen current relations between Asia's greatest powers, the potential for future hostilities still exists.

Competition from Asia and Latin America

Rising wages in China have been putting pressure on low-wage industries, such as textile manufacturing, that rely on large pools of labor. The financial press is reporting that companies that have factories in China, whether Chinese or foreign owned, have been moving their operations to India, Vietnam, and other countries. Most of the ASEAN (Association of South East Asian) countries have lower wages and governments that are pursuing ambitious growth strategies, and China has found it increasingly difficult to compete in this highly contested labor market. Mexico also has become an attractive destination for some manufacturing leaving China. According to one labor outsourcing firm that works in Latin American, in 2012, the unit labor costs (equivalent to the wages adjusted for productivity) in China were equal to those in Mexico. By 2015, however, manufacturing wages in Mexico were 30 percent lower than those in China.¹⁵⁵ Relatively low wages and proximity to the U.S. market can be a double attraction for Chinese manufacturers in Mexico.

The Trans-Pacific Partnership (TPP) trade agreement could have been an added challenge to China, as it spelled out a number of guidelines—including protection of intellectual property and considerations regarding good governance and human rights—that the Chinese leadership might have found difficult to countenance. However, on January 23, 2017, President Trump withdrew the United States from the TPP, and the agreement became

defunct. Had the 12 negotiating partners adopted it, Vietnam and Malaysia would have benefitted from assured access to the American and Japanese markets. If ratified, other Southeast Asian countries might have sought to join the TPP; media reports put Indonesia, the Philippines, and Thailand on the list of potentially interested countries. With the United States out of the picture, the 11 other TTP signatories formulated the Comprehensive and Progressive Agreement for Trans-Pacific Trade, which kept many of the original TPP provisions. After Australia became the sixth country to sign the TPP-11 (the Comprehensive and Progressive Agreement for Trans-Pacific Partnership), the agreement entered into force on December 30, 2018. The TPP-11 left out a number of items of special interest to the United States, including revisions to copyright laws, as an incentive to encourage the United States to rejoin the pact, and Japanese prime minister Shinzo Abe has made particular efforts to bring U.S. negotiators back to the table. However, the possibility of the United States rejoining the TPP or an alternative multilateral American approach to trade in Asia is not clear. Instead, on September 26, 2018, the United States and Japan announced that they would start to negotiate a separate U.S.-Japan free trade agreement.

China is actively involved in the negotiations over a Regional Comprehensive Economic Partnership (RCEP), which would involve the 10 ASEAN members and the six states that have free trade agreements with ASEAN (Australia, China, India, Japan, New Zealand, and South Korea). Although the RCEP negotiations initially focused on tariff reductions, they now include some of the more ambitious elements of the TPP. The TPP itself included provisions on electronic commerce, intellectual property, and SOEs. The RCEP is viewed as a major Chinese initiative. After President Trump withdrew from seeking congressional approval of the TPP, China welcomed Peru, a TPP member, to participate in the RCEP negotiations. However, negotiations on RCEP slowed in 2018, with final decisions delayed until 2019.

Europe and the United States are responding to the international competition in manufacturing by investing in 3-D printing, robotics, AI, and improved internet communications. In 2014, President Barack Obama founded Manufacturing USA, an umbrella organization that includes the

network of several manufacturing institutes that focus on different aspects of advanced manufacturing.¹⁵⁶ Support for Manufacturing USA has continued in the Trump administration. The financial press continues to report about foreign firms that had considered investing in China choosing to stay at home or moving some production back to Europe, Mexico, or the United States.¹⁵⁷ President Trump has threatened to impose high tariffs on American firms moving production overseas. U.S. secretary of commerce Wilbur Ross has emphasized the use of tax and regulatory reform as carrots that will lure new manufacturing investment from overseas.¹⁵⁸ The 2017 tax bill sharply lowered the corporate tax rate, a change that could make investing in the United States more attractive. Targeted competition for manufacturing jobs could well lead to more activity shifting from China to the United States in the future.

The Politics of China in Europe and the United States

Trade, America's role in the world, and the future of the U.S. economy were all major issues in the 2016 U.S. presidential campaign. China is central to any discussion of all three. Most political analysts see then Republican candidate Donald Trump's attacks on trade and globalization as two of the factors responsible for his electoral success. In his inaugural address, he continued his campaign themes of taking an aggressive approach to trade policy. He frequently says that he is intent on "putting America first." The two leading 2016 Democratic contenders, Hillary Rodham Clinton and Bernie Sanders, also expressed views that ranged from serious reservations to outright hostility regarding American's current trade policy.

The debate on trade revolved around five key issues: intellectual property, currency manipulation, Chinese overcapacity in steel and aluminum, foreign direct investment, and the outsourcing of American jobs. Over the past two years, U.S. politicians have placed greater emphasis on subsidies to the SOEs and China's ambitious effort to lead in key technologies through its Made in China 2025 initiative. At a more fundamental level, political and academic commentators are expressing skepticism about whether or not China's integration in the global economy is actually moving China in the direction of democracy and an open market economy. At the same

time, the U.S. and (more recently) European business communities have been complaining about China's increasingly inhospitable environment for foreign direct investment.¹⁵⁹

Intellectual Property

In an age of hacking, intellectual property theft has become easier and more widespread. As an innovation leader, the United States has been particularly vulnerable to such theft. Public and private institutions alike have been adopting defensive measures to make their information technology systems more secure. In trade negotiations, the United States often has sought tighter rules protecting intellectual property, but all the same it has not pushed for new or expanded protective powers and has been lax about enforcing existing agreements.

Intellectual property is part of a broader concept of intangible components of trade in a more globalized world. In 1944, as the Second World War was turning in favor of the Allies, the United States, Great Britain, and 42 other allies met at Mount Washington Hotel in the northern New Hampshire town of Bretton Woods. The Bretton Woods Conference, as this meeting later would be known, agreed on new bodies to govern the world economy after the war. To foster trade, the conference participants agreed to establish the General Agreement on Tariffs and Trade (GATT). Under the GATT, countries could form trade communities, including ones that created common tariffs for members of these communities. Inevitably, such a common tariff would divert trade to the new economic community, but it would still be within the GATT rules provided that it added enough growth to increase overall international trade. When six Western European nations formed the European Economic Community in 1957, the United States did not insist on applying the GATT rules to penalize the arrangement; it considered the Cold War and containment of the Soviet Union to be a greater priority than antagonizing fellow members of the Western alliance. In more recent times, the United States tolerated trade violations to secure China's support for trade sanctions and nuclear nonproliferation efforts with Iran and North Korea, and to forge the Paris Accord on climate change.

This pattern of overlooking trade violations in favor of broader U.S. political and diplomatic interests has already changed in the Trump administration. Trump has directed Robert Lighthizer, his U.S. trade representative and chief trade negotiator, to explore China's reported theft of intellectual property and the practice of forcing U.S. investors to share their intellectual property with local Chinese firms. Upon investigation, Lighthizer found serious Chinese violations of U.S. trade law under Section 301 of the Trade Act of 1974. In June 2018, the White House Office of Trade and Manufacturing Policy issued a major report outlining Chinese threats to U.S. and global technology and intellectual property. Shortly thereafter, presidential assistant Peter Navarro, head of the White House Office of Trade and Manufacturing Policy, spoke about the report at a conference sponsored by the Hudson Institute.¹⁶⁰

The proposed penalties and remedies for the putative Chinese economic threat appear likely to significantly disrupt U.S.-Chinese trade and broader relations.¹⁶¹ In response to his administration's findings, President Trump imposed tariffs on \$34 billion of Chinese exports, with another \$16 billion in waiting. Following Chinese retaliation for this opening salvo in a new trade war, on July 18, 2018, Trump announced his intention to impose 10 percent tariffs on \$200 billion of Chinese exports, and applied them on September 24, with a plan to raise them to 25 percent on January 1, 2019. In each case, China has responded with tariffs of its own. Trump has spoken of responding with yet more tariffs to \$267 billion of Chinese goods. If applied, essentially all Chinese exports to the United States would be subject to tariffs. At the end of January 2019, he extended the deadline for applying higher tariffs to March 1.

The United States has not been alone in its efforts to push back against China. The EU as a whole has been rediscovering industrial policy, and individual EU countries are also focusing on industry.¹⁶² Great Britain recently issued its own industrial policy report, responding to growing global competition, including China's variant of the East Asian Miracle and state capitalism.¹⁶³ More recently, the EU countries have been concerned about Chinese acquisitions of European-based high-tech companies. German industry has been an attractive target for China because of

its array of high-tech businesses. With strengths in robotics and semiconductors, core priorities of China, German industry was a natural target. The new Double Tax Treaty that Xi Jinping signed with German chancellor Angela Merkel in 2014 offered Chinese investors reduced withholding taxes. According to the *Wall Street Journal*, Chinese companies were on course to set record investment levels in Germany in 2016.¹⁶⁴ But now Germany is reconsidering its previously welcoming stance.

Germany was particularly concerned about the Chinese bid to acquire Kuka AG, a robotics firm linked to the auto industry. The \$5 billion bid was successful, and Kuka AG is now 86 percent owned by the Midea Group Co, a Chinese home appliance maker. The bid for Kuka AG prompted Germany's economy minister to say, "The government wanted to form a consortium to formulate an alternative offer."¹⁶⁵ Germans also expressed concern that their open market for investment was not matched by reciprocal opportunities for German firms to invest in China. More recently, Chancellor Merkel has expressed interest in exploring regulations on foreign direct investment in Germany, similar to Australia's Foreign Investment Review Board or the United States' Committee on Foreign Investment in the United States (CFIUS).¹⁶⁶ In mid-2017, the German government took steps to make it easier for it to veto takeovers of strategically important companies.¹⁶⁷ Germany is not alone in this shift in thinking; France and Italy also have called on Brussels to allow them a right of veto over takeovers of high-tech firms.¹⁶⁸ In February 2019, Germany took an added step by announcing an industrial strategy, "the first of its kind by a postwar German government."¹⁶⁹

Currency Manipulation

During the 2016 presidential campaign, candidate Trump said that he would label China a currency manipulator from "day one." After the election, he indicated that he would talk with China first. In part, the currency debate stems from the long-term failure of the United States to discourage countries from manipulating their currencies to gain a trade advantage. In the Omnibus Trade and Competitiveness Act of 1988, the U.S. Congress required the Treasury Department to report semiannually on trading partners that practice currency manipulation. Although these reports have

raised concern about undervalued currencies, most administrations have done little or nothing beyond periodically raising the issue.¹⁷⁰

In the 2015 congressional debate over whether or not to give the President “fast track” or trade promotion authority that would allow for expedited consideration of future trade agreements, the currency debate moved to center stage. A December 2012 paper written by C. Fred Bergsten and Joseph Gagnon spelled out the impact of undervalued currencies on jobs and the U.S. trade deficit.¹⁷¹ The Obama administration failed to respond by adding a chapter on currency to the TPP agreement, but did add a side note that committed the signatories to be transparent about interventions (sales or purchases) in the currency markets. Many in Congress continued to object, and in response, Jacob Lew, President Obama’s treasury secretary, announced a three-part test that would define currency manipulation.¹⁷²

Overcapacity

With its domestic capacity in steel and aluminum exceeding domestic demand, China has offered artificially low prices to secure export markets.¹⁷³ Industry in Europe and the United States have reacted forcefully to this trade practice. In the United States, the United Steelworkers union charged that China was using stolen intellectual property to produce Chinese steel. Under U.S. law, the government can stop products at the border if they incorporate stolen intellectual property.¹⁷⁴ Commerce Secretary Wilbur Ross, who has extensive experience with the steel industry, has made overcapacity in steel and aluminum key issues of his trade policy efforts.¹⁷⁵

Section 232 of the Trade Expansion Act of 1962 provides authority to apply tariffs to protect national security. Secretary Ross sought a national security review of imported steel and aluminum. Based on the study, he applied 25 percent tariffs on steel and 10 percent tariffs on aluminum. Although many steel exporters around the world have expressed concern about Chinese exports flooding the global metals market, they nonetheless criticized the United States for invoking national security as a pretext for its tariff decisions.

Foreign Direct Investment

The United States, with the exception of certain sectors, places controls on

foreign direct investment only for national security purposes. CFIUS, the U.S. committee that monitors and reviews foreign investment, was established in 1975 by President Gerald Ford but acquired an expanded role in the Omnibus Trade and Competitiveness Act of 1988. At the time, there was a debate over whether CFIUS could recommend blocking investments that affected essential commerce as well as national security. In the end, only the national security test survived.¹⁷⁶ As an example, in the 1980s, CFIUS objected to a Japanese ceramics company purchasing an American company that made the trigger for nuclear bombs. The purchase was allowed to proceed only after the target company sold the trigger-making division. The 2007 Foreign Investment and National Security Act expanded the powers and gave CFIUS a statutory basis.¹⁷⁷

As defense industries have drawn more on the civilian industrial base—a practice often referred to “spinning on”—there has been a growing concern about foreign acquisitions of civilian as well as explicitly defense oriented companies. Recent Chinese bids in the semiconductor field have come under fire in the United States. In 2015, the *New York Times* reported that Tsinghua, China’s leading semiconductor firm, was preparing a \$23 billion bid for Micron, the last remaining market maker of memory chips in the United States. In the end, the bid did not go forward.¹⁷⁸ More recently, U.S. intelligence services warned Germany about a proposed takeover of Germany’s Aixtron, part of the supply chain for the semiconductor industry, stressing that the sale could give Beijing access to technology that could be used for military purposes. As before, the sale did not go forward.¹⁷⁹ In January 2016, CFIUS blocked the Dutch company Phillips from selling its California-based light-emitting diode (LED) business to Chinese buyers.¹⁸⁰ Also, in early January 2018, the *Wall Street Journal* reported that the Obama administration had been “finalizing a study that could lead to restrictions on Chinese investment in the U.S. semiconductor sector.”¹⁸¹

Job Outsourcing

In 2018, unemployment dipped below 4 percent, a figure not reached since the second term of President Bill Clinton around two decades earlier. Despite the low unemployment figures, economic anxiety remained high in

the United States. During his successful 2016 campaign, President Trump raising the issue of U.S. companies moving factories overseas, chose Mexico and China as his targets for his rhetoric on outsourcing. Even before becoming president, he successfully pressured Carrier, a producer of air conditioners and a subsidiary of United Technologies—itsself a major defense contractor—to keep at its Indiana facilities slightly less than half of the jobs that it was planning to transfer to plants in Mexico. Trump has also warned automakers about shifting production overseas, invoking the threat of imposing high tariffs. Ford initially adjusted its plans to move more of its automotive manufacturing to Mexico.¹⁸² In December 2017, Ford announced plans to build electric cars in Mexico, coupled with plans to build self-driving cars at its Michigan facility.¹⁸³

The shift of manufacturing to overseas locations is usually driven by the lure of low wages, lower taxes, a promising market, and business-friendly regulations. In some cases, however, countries compete for key businesses by offering large financial incentives, special tax breaks, and enticing property concessions. There is no international regulation against bidding wars for factories, laboratories, or commercial facilities. In fact, many U.S. states also compete to attract plants, laboratories, and offices, but naturally they do not have the resources to match those that a major government, like China, could offer.¹⁸⁴

China's Transition to a Market Economy

The 2001 agreement on China's WTO membership contemplated a transition to treating China as a market economy for purposes of applying countervailing duty and antidumping penalties. The WTO has rules against dumping or selling below cost to gain a trade advantage. For market-based economies, governments will look at the actual costs of producing the item overseas. If the foreign supplier is dumping its exports or otherwise selling them below cost, dumping duties (added tariffs) are applied to offset the foreign advantage. The same logic applies where the exporting country provides a government subsidy that can be used to lower the export prices and gain an advantage in international markets. When there are no established market prices for the good or commodity in question, countries estimate

the free market price by looking at a similar product in a market-based economy in Europe, the Americas, or parts of Asia. As result, there is much greater flexibility in defining subsidies or dumping when nonmarket economies are involved.¹⁸⁵

China contends that when it joined the WTO in 2001, countries would begin to treat it as a market economy in 2016 for purposes of assessing antidumping or countervailing duties. Even after the December 2016 deadline for granting China market economy status passed, Europe and the United States continued to question whether China could be viewed as a market economy. As part of that concern, Europe has been strengthening its antidumping and countervailing-duty laws. Key members of the U.S. Congress wrote President Obama opposing granting China market economy status for antidumping and countervailing-duty calculations. There was a broad feeling among members of Congress and key interest groups that China did not meet the standards of a market economy. In December 2016, Obama decided not to grant market economy status to China. China has taken its case to the WTO. In the same month, China filed a case against Europe and the United States for not granting it market economy status.¹⁸⁶

Five Trends to Watch

IN REVIEWING THE global response to China's rise, several internal trends are also important. Five such trends—slowing productivity growth, the impact of tightening political controls, the pace of introducing added market-oriented reforms; a gradually aging workforce, a growing level of domestic debt—are discussed in greater detail below.

The Productivity Problem

Like many predominantly rural economies, China has benefitted from the growth that came from shifting from low-productivity rural labor to higher-productivity manufacturing. Can China maintain its pace of productivity growth with the flow of rural labor slowing? There are doubts. In her 2013 paper, “Challenges for the Future of Chinese Economic Growth,” Jane Haltmaier spells out a base case on economic growth to 2030. For her case, she assumes that the employment population ratio remains stable, investment stays at 45 percent of GDP, employment continues to shift from the primary (mostly agriculture) sector to first manufacturing and then services, and investment also gradually shifts to the service sector. Her optimistic assumptions show a gradual decline in growth to 8.5 percent in 2020 and slightly more than 6 percent in 2030.¹⁸⁷

Haltmaier also looks at the implications of less favorable assumptions—slowing employment growth, decline in investment as a share of GDP, and a decline in the share of manufacturing (with its higher productivity growth). Individually, each less favorable assumption suggests slower overall growth. Combining the four less-optimistic assumptions leads to far different projections of growth: 5 percent by 2020 and “just over” 1 percent by 2030. She notes that increased investment in human capital could tip the outcome in a more favorable direction. China is also in a position to continue to draw on technology that is already available in other countries. She then tempers her optimism by noting that the base line case already

assumes a weighted average growth in total factor productivity (including machinery, buildings and other factors as well as labor) that is already a positive 4 percent.

There may be greater potential than Haltmaier suggests. In his recent book *The State Strikes Back: The End of Economic Reform in China?*, Nicholas R. Lardy suggests that bringing market reforms to SOEs could add 1.5 to 2 points to China's growth.¹⁸⁸ Of course, the policy climate has also changed with the rise of Xi Jinping and the election of Donald Trump. Trump's demand for change in Chinese policy and Xi's ambition for Chinese greatness could disrupt any of today's calculations.

Tightening Political Controls

In his latest book, *China's Future*, David Shambaugh offers a list of familiar economic challenges in China that range from declining growth to overcapacity to SOE reform. He also describes social trends that will affect China's economic future. Not surprisingly, he mentions the demographic challenge of an expected decline in the workforce, growing economic inequality, the move toward urbanization and its implications for undocumented (lacking a resident permit) migrants, and the growing reaction to the contaminated environment.¹⁸⁹

Economists have suggested a host of policies to deal with these individual challenges, but Shambaugh adds a focus on four possible political futures for China: neototalitarianism, hard authoritarianism, soft authoritarianism, and semidemocracy. He discounts the likelihood of the neototalitarianism that characterized some of the earlier years of the People's Republic of China, but sees a series of centralizing policies by Xi Jinping as moving China toward hard authoritarianism that will bring, in his view, "limited reform, stagnation, and decline." Even continuing China's recent era—what he terms soft authoritarianism—would lead, he believes, to only moderate reform. In Shambaugh's view, the most promising path to a prosperous and dynamic future is semidemocracy. He envisions something like the Singaporean political system under the late Prime Minister Lee Kwan Yew. For three decades, Lee presided over a guided democracy that produced growth, solid institutions, and social stability. Although this type

of guided democracy does not appear to be on Xi's agenda, some Chinese leaders considered it in the past. In the 1980s, there were Chinese who were interested in the example of Japan's Liberal Democratic Party, which held office for most of the post-World War II era and helped foster the rapid economic rise of Japan.¹⁹⁰

Faced with slowing growth, domestic challenges, and a more difficult international climate, Shambaugh sees China moving in the opposite direction to semidemocracy. Shambaugh does not see a return to the rigidity of Maoist-style rule, but much of the Western press routinely refers to Xi as the most powerful Chinese leader since Deng or even Mao himself. Recent events seem to support that impression, with the 19th Congress of the Communist Party of China enshrining Xi Jinping Thought in the Party constitution, as it had for Mao Zedong Thought. Shambaugh does not dwell on the impact of tighter controls on entrepreneurship and innovation. So far, Xi has been supportive of a more entrepreneurial economy while discouraging critical political speech. China's state-sponsored investment funds could keep entrepreneurs happy while forestalling any desire for them to voice their opinions on the issues of the day.

Shambaugh is not alone in his reservations about future Chinese growth. Writing in the *National Interest*, Dan Blumenthal and Derek M. Scissors share some of his pessimism in their 2016 article "China's Great Stagnation." They point to the need for a series of reforms to continue the move to markets.¹⁹¹

Market-Oriented Reforms

Ever since Deng Xiaoping took power in 1978, China has taken one step after another to develop market forces at home and to participate more fully in the international economy. Many observers and most Western economists think there is much for China to gain by a more rapid move to markets. For instance, Nicholas R. Lardy, in his 2014 *Markets over Mao: The Rise of Private Business in China*, emphasizes the role of private business in China's rise. By contrast, he sees the SOEs as a continuing drag on the Chinese economy. Lardy cites decisions made at the Third Plenum of the 18th Party Congress (November 2013) as pointing in the right direction.

The plenum called for reductions in price distortions in key sectors and for the market to be the decisive force in allocating resources. It put the nonstate sector on par with the state sector, and encouraged state control of “natural monopolies.”¹⁹²

Not surprisingly, Lardy has called for further efforts at liberalization by allowing private and even foreign firms to compete. Instead of merging SOEs to create so-called national champions, Lardy advocates the process of forcing SOEs to meet market tests in everything from profitability to innovation. In Lardy’s view, a shift to market forces will allow China to reduce investment in manufacturing and help shift the economy toward the service sector. The further move toward the market could also increase the share of wages in the Chinese economy, a development consistent with China’s current emphasis on shifting toward more dependence on domestic consumption. In his latest book, *The State Strikes Back*, Lardy again emphasizes the potential gains from reforming the SOEs.¹⁹³

The SOEs continue to be a drag on China’s growth. However, in current circumstances, they play a stabilizing role in maintaining a certain level of employment, a must in a population as sizeable as China’s. In the 1990s, Zhu Rongji took millions of jobs out of the SOE economy, and the transition was not smooth. In his 2012 book *Tiger Head, Snake Tails*, Jonathan Fenby notes that some displaced workers found part-time work or received partial wages, but many others simply added to the impoverished population. At times, particularly in China’s northeast, the unemployed took to the streets.¹⁹⁴ The current Chinese leadership may be unwilling to follow Zhu’s harsh approach in the context of an already slowing economy. Instead, China may have to wrestle with the American-like challenge of introducing new technologies into legacy sectors.¹⁹⁵ As SOEs control much of heavy industry, they also contribute to pollution and health problems. Growth to maintain stability, regardless of environmental costs, may instead trigger major protests that threaten the same social stability that growth is meant to provide.

It has yet to be seen whether Xi Jinping will move China toward greater reliance on domestic markets. In his major speech at the opening of the 19th National Party Congress, he did not repeat his inaugural commitment to relying more on market forces. He seems to be moving in the direction of

turning the SOEs into national champions, focusing on Chinese leadership in key high-tech industries, and working on all fronts to achieve the China Dream of attaining great world power status.¹⁹⁶

Demographics of an Aging Workforce

For decades, China has reaped the benefits of the seemingly endless supply of rural migrants seeking employment in the factories that made China the workshop of the world. The decline of this rural population surplus will put wage pressure on many of the export-dependent industries. The one-child policy adopted by Deng Xiaoping may have helped to raise per capita income, but it is now contributing to a growing worker shortage. Between 2002 and 2009, urban wages more than tripled (from the equivalent of \$1.09 per hour in 2003 to \$3.60 in 2016) and have continued to grow since.¹⁹⁷ Many firms have attempted to adopt robots and automation to cut worker costs, but despite real progress, China still lags behind industrial norms for the use of robots. In other cases, leading Chinese and international firms are introducing robots and other forms of automation. For instance, Foxconn, a Taiwanese firm with facilities in China, is a major producer of parts used in the Apple iPhone. Foxconn is not only introducing robots, but also doing research to develop its own line of robots. The Foxconn move is an example of how China is slowing the loss of manufacturing while also moving up the value chain.¹⁹⁸

The Chinese policy response to the demographic challenge includes a loosening of the limitations on child bearing. The first step was to allow married couples to have a second child if both parents also were single children. More recently, China fully lifted the ban on a second child. Even if China is successful in stimulating a higher birthrate, the benefits for the labor force lie many years in the future. Given the costs of urban living, the challenge of preparing a child for entry into a top Chinese university, and the costs of overseas education, parents may decide that one child is still the best policy.

China has also reached out to a fellow socialist republic with a good-sized pool of low-wage workers: North Korea. To facilitate trade and create closer economic links with its neighbor, the Chinese leadership had been

working with Kim Jong Il to develop cross-border rail and electricity links. That strategy, however, did not survive the shift in power to the elder Kim's successor, his son Kim Jong Un. In the younger Kim's quick move to consolidate power following his father's death in December 2011, in December 2013 he executed his uncle Jang Song Thaek, who had been a key link to the Chinese economy. It is likely that Kim Jong Un will follow the example of his father Kim Jong Il and his grandfather Kim Il Sung by playing Russia and China against each other to assert North Korea's independence. All told, North Korea's nuclear proliferation efforts, illicit economic activities, and policies seemingly bent on regional destabilization have made it an awkward potential partner for any Chinese attempts at deepening economic ties among its immediate neighbors.

China has considered other sources of labor, both foreign and domestic. Some factories are moving to western China, where a large pool of rural labor is more accessible. Heavy Chinese investment to create efficient transportation links to western China could increase the competitiveness of the relocated factories. If the SOEs could be made more productive, some estimates suggest that greater efficiency could free 10 to 11 million workers to supplement the greater Chinese labor force. Xi's plans to downsize the PLA could free another 300,000 to join the workforce.¹⁹⁹ An Asian-focused guest worker program might be another potential method of tapping workers who are willing to work for lower wages. However, perhaps in the not-too-distant future, the guest worker approach would run into the growth-fueled demand for labor in neighboring economies. Currently, illegal immigrants provide a modest supplement to China's labor force, but recent legislation has introduced new, more restrictive laws to control this flow.²⁰⁰ As mentioned earlier, automation continues to hold promise. An accelerated introduction of robots for relatively routine work could slow or even offset the labor force squeeze. Finally, AI could be a long-term answer to China's declining workforce. Studies of AI's potential impact on the labor force vary a great deal, but some see major displacement.²⁰¹

Dealing with Domestic Debt

China's sharp increase in its debt-to-GDP ratio began in its response to the Great Recession. Facing a massive falling-off in its export markets, China

turned to investment. Its fiscal stimulus of more than 12 percent of GDP exceeded the size (relative to GDP) of the U.S. stimulus and may be the largest peacetime stimulus on record.²⁰² China poured money into housing, infrastructure investment, and expanded industrial capacity to meet the surge in demand. The success of the stimulus, however, came with lingering costs. Local governments and China as a whole incurred large, persistent debts to finance the stimulus. Even after the stimulus, Chinese debt continued to grow faster than the economy. Much of the debt and the surge in investment was in housing and SOEs.

Recently, International Monetary Fund researchers have urged China to deal with its corporate debt, which is now approaching 145 percent of China's GDP.²⁰³ Slightly more than half of the debt is tied to the SOEs. Financial observers also cite the rapid increase in lending by shadow banks. By not taking direct deposits, shadow banks often avoided the limits on lending or capital requirements imposed on regular bank's loans. In March 2014, estimates varied between Standard Chartered's estimate of \$700 billion to \$2 trillion in loans and J.P. Morgan's \$7.5 trillion.²⁰⁴ The financial credit rater Moody's also has raised concerns about the level and rapid increase in China's debt. Yet debt is not the only worry; the Chinese government and local investors have the added fear of a possible housing bubble. In May 2017, concerns over China's debt levels led Moody's to "cut its credit rating" for China one notch to A1.²⁰⁵

Part of this international concern focuses on the pace at which the shadow-banking sector has grown, rather than its size. Where do the shadow banks find their assets? In many cases, they come from regular banks seeking ways to work around China's national financial controls. In his 2018 book, *China's Great Wall of Debt*, Dinny McMahon explores the role that debt has played in fueling China's growth and identifies the ways in which regular banks fund the shadow banks. A number of observers have raised the specter of a Chinese financial collapse that would further dampen global demand. McMahon also raises the question of whether those close ties might fuel a "Lehman Brothers moment"—hearkening back to the investment firm's September 2008 bankruptcy, and the subsequent global financial collapse that led to the Great Recession. Will the crisis come? And

can China effectively respond? McMahon does point to the way in which the Chinese government intervened to restore stability to its stock markets in 2015, using a group of SOEs to buy up huge volumes of shares.²⁰⁶ In this light, McMahon suggests, “no one questions Beijing’s commitment to maintaining stability.”²⁰⁷ At the same time, he also questions the general utility of China’s debt-fueled investments in infrastructure and housing. Local governments have become dependent on seizing and leasing land to developers to fund local growth, and the CCP rewards local Party officials who meet goals for growth, which contribute to stability. However, land seizures intended to promote growth often trigger local protests, inconsistent with stability.

In a recent article, Nicholas Lardy of the Peterson Institute takes a different view.²⁰⁸ He compares the size of China’s debt to the high levels of Chinese savings. China, he says, has slightly more than \$3 trillion dollars in hard currency reserves, which more than covers the relatively small amount of dollar-denominated debt, and Chinese companies have been steadily reducing their dollar debt. Optimists also emphasize the ability of the Chinese government to intervene in the financial sector. In America, the Federal Reserve system and other institutions regulate the banking system, but do not control it. Nor is the federal government responsible for the finances of state and local governments. Translating the Chinese system into American terms, China’s banking infrastructure operates as if the Federal Reserve system controls most of the banks and treats state and local entities as if they carried a government guarantee.

CHINA LOOKS AHEAD: THE CHINA DREAM

Xi Jinping has articulated a China Dream to match the much talked about American Dream. Unlike the American Dream, which focuses on individual success, the China Dream is about China as a whole. In Colonel Liu Mingfu’s *The China Dream*, he predicts the end of American hegemony. Instead, there will no longer be a hegemon—though China will be the most powerful nation.²⁰⁹ Michael Pillsbury sees this China Dream as part of a “hundred-year marathon” to replace America as the global superpower.²¹⁰

The Party leadership believes that the CCP assures Chinese growth and stability, and will help restore China's former greatness. Most outside observers (and reportedly many, if not most, Chinese) no longer believe in Marxism-Leninism or feel that Mao Zedong Thought confers legitimacy on the Chinese government. Instead, China has two cards to play: spreading prosperity through continued growth and building a sense of national greatness. China's three-step policy of emphasizing domestic demand, becoming an innovative power, and increasing its global presence serves both goals by supporting China's focus on maintaining growth while emerging as an economic leader in advanced industries, thereby validating elements of the China Dream.

In addition to its desire for recognition by major international financial institutions, China wants its economy and its industries to be global leaders. Rather than shifting to total dependence on market forces, China will want to continue to develop its list of strategic industries, make efforts to develop some indigenous technologies, and maintain control over the traditional "commanding heights" of the economy. Its ambitious "Made in China 2025" plan emphasizes key high-tech industries while upgrading a wide range of manufacturing enterprises and service providers. China is unlikely to shift too precipitously from its low-wage industries or to completely abandon its use of currency as a tool to boost exports. In fact, it is already shifting production of lower-tech products to its western regions, where low-wage labor is more abundant. Past investments in infrastructure make transporting the goods more feasible and economic than in an earlier era. Chengdu in Sichuan is one example of clear success. Chengdu has taken advantage of the regional prevalence of low-cost labor, but it also has a reputation for human capital and is home to several universities. The Milken Institute Best Performing Cities China Index has placed Chengdu at the top of first- and second-tier cities. Although it fell to the 7th position in 2018, it remained solidly in the top 10.²¹¹

As mentioned earlier, in late October 2017 Chinese president Xi Jinping secured a second five-year term, but chose not to appoint a successor, indicating that he intends to remain in power longer than the two-term limit that constrained his most recent predecessors. Ever since his sweeping and

ambitious speech to the 19th Party Congress on October 18, the West has been keeping an eye on Xi. But Xi is not just dreaming a grandiose China Dream, or speaking to a loyal Party audience whose members have every reason to admire (or fear) him. His Made in China 2025 initiative is dedicated to making China a global power in key high-tech industries.²¹² His May 2017 Silk Road Summit to promote the BRI attracted delegations from more than a hundred countries.²¹³ It is true that many countries will welcome the BRI, even if much of the Chinese investment comes in the form of loans rather than grants or direct investment. At the same time, some countries are resisting the potential burden of debt, and some potential projects have been canceled. However, the Western response (particularly that of the United States) to China's geopolitical ambitions has been defensive and reactionary at best, and tepid and apathetic at worst. In mid-2018, the United States' Defense Advanced Research Projects Agency (DARPA) announced plans to expand its Electronics Resurgence Initiative by adding \$1.5 billion over five years to change the way semiconductors are made. It is a welcome step, but DARPA's proposed \$1.5 billion is only 1 percent of what China has announced.²¹⁴ Around the same time, U.S. secretary of state Michael Pompeo announced an infrastructure program for emerging Asia of \$113 million, a tiny fraction of the promised funds in the BRI.²¹⁵

Regardless of Xi's words and actions, he must operate in the context of a Chinese economy that has undergone considerable transformation in almost four decades of growth, and faces several serious domestic and international economic challenges. As a result, China will need to balance its economic goals and its geopolitical ambitions. In the July 21, 2017, edition of the *Financial Times*, Philip Stephens highlighted what he saw as China's ambition to be the key power in the Eurasian world.²¹⁶ The more prominent the geopolitical ambitions, the more resistance China will face from economic powers in the industrial world and rival political powers in Eurasia. India, Japan, and the nations of Southeast Asia will certainly resist Chinese dominance even as they work with China on some economic goals. As the BRI moves into Central Asia, China may face Russian resistance for its encroachment into the Russian "near abroad," yet Russian and Chinese relations remain fluid. Chinese imports of Russian oil and gas have

helped Russia offset the impact of American and European sanctions, and in mid-September 2018, China joined Russia in major military exercises, with Russia showing China advanced military tactics.²¹⁷

China's desire to secure recognition as an economic and financial power can create its own problems. When the renminbi was added to the basket of currencies that make up the International Monetary Fund's Special Drawing Rights, it became more awkward for China to impose capital controls.²¹⁸ The more open the capital market becomes, the more difficult it will be for China to return to the use of its currency to gain trade advantage in response to international competition or to strengthen the domestic economy in the face of an economic downturn.

As China becomes more of an innovative and economic power, it will need to strengthen its protection of intellectual property. The steady growth of the entrepreneurial class will be bolstered by greater assurance that its ideas and innovations will be protected. Improved intellectual property protection could also help attract more interest from the successful Chinese diaspora in the United States and elsewhere in the industrial world. Current efforts to limit political speech can only impede the kind of dialogue about technological developments that turn new ideas into growth, jobs, and wealth. Like science, technology is increasingly becoming a global phenomenon that benefits from dialogue within and between nations.

China's BRI may help put some of the overcapacity in basic industries to effective use. At the same time, it will be seeking to make the SOEs more productive. Starting in the late 1990s, China began to turn SOEs into stock-based companies. If SOE policy changes produce the hoped-for gains in productivity, then China, at least in the short term, will need to think of a worker adjustment strategy of its own.

The current effort to limit policy disagreements inside the Party could prove costly in terms of making needed adjustments to policies. Even China's decision to reemphasize Marxism, Leninism, and Mao Zedong Thought in the schools could carry some risks. Now that Xi Jinping Thought (technically, Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era) has been embedded in the Chinese constitution, it is sure to be

the subject of study in updated textbooks. Students will quickly see the contrast between the economic reality of contemporary China and an earlier Marxist vision. Conservative elements in the Party will no doubt welcome the back-to-basics approach. But the emphasis on class distinctions could simply highlight the growing inequality in a still rapidly growing China. Or might some thoughtful students see a link between the BRI and Lenin's theory of imperialism as being driven by a vent for surplus?

Conclusion

IN ITS EARLY YEARS, the People's Republic of China followed elements of the Soviet model, including central planning, a national security–inspired emphasis on basic industries, and collectivization of agriculture. China eventually went beyond collectivization to merge collective farms into large communes. After the failure of the Great Leap Forward, there was a short period of recovery, but during the Cultural Revolution China plunged into a decade-long period of internal turmoil. Not until Mao's death and the reemergence of the twice-purged Deng Xiaoping on the political scene did China start back on the road to rapid long-term growth.

Technologists often say that the future is path-dependent, and that the institutions, values, and customs of the past still play an important role. Technologists are not alone. This was at least partially true of China. Deng inherited a structure of communes, SOEs, and central planning, as well as a centralizing Leninist state that had a strong communist party in parallel with a central government. He faced the added complexity of attempting to guide local and regional governments. Although China does not have a federal government similar to Canada, Germany, India, or the United States, its sheer size and complexity make a degree of de facto federalism a reality.

Looking back from today, one can see that China adopted many elements of the East Asian Miracle that has been so successful in fostering economic growth in Japan, the Asian Tigers, and elsewhere in Asia. Unlike the other East Asian Miracle countries, however, China has drawn aggressively and effectively on foreign direct investment. It is only in the past few years that China has expressed an interest in developing indigenous technologies as an alternative to those imported through foreign direct investment or other means. Growing industrial complexity, increasing international integration, the presence in China of foreign industrial and service industries,

the demands of trading partners, and China's own aspirations to be a global as well as a regional economic power have already forced some adjustments to the classic East Asian Miracle.

The effort to subject thousands of SOEs to added market pressure should stimulate efficiency, productivity growth, and innovation, but also will reduce direct state control over this critical section of the Chinese economy. National priorities will often conflict with global trading rules or the national priorities of other industrial powers. The growing prosperity of Chinese firms, particularly those already investing overseas, will add to China's global reach, but at the same time also will erode central control. Japan faced a similar reality as its industrial firms became larger, more prosperous, and more international. Representatives of the Japanese Ministry of International Trade and Industry (MITI, now renamed and expanded as the Ministry of the Economy, Trade, and Industry) continue to play an important role in Japanese economic strategy. During a conversation that I had with a MITI official in 1992, however, they claimed that their guidance and coordination had been replaced by more of an advisory role—they likened themselves to a large consulting firm like McKinsey & Company.²¹⁹

China has demonstrated flexibility in pursuing its national priorities. In economic terms, China's NDRC has spelled out seven clusters of strategic and emerging industries that it sees as national priorities: energy-efficient and environmental technologies, next-generation information technology, biotechnology, high-end equipment manufacturing, new energy, new materials, and new-energy vehicles.²²⁰ The NDRC expects provincial and local governments to play a major role in actually pursuing the development of these strategic industries.²²¹ The seven strategic industries are part of China's focus on the frontiers of industry as well as a response to opportunities and challenges posed by global competition.

Likewise, the Made in China 2025 initiative has broadened the Chinese government's economic focus, and emphasized the need for leadership in 10 high-tech industries. They are the same cluster of industries that define the future aspirations of much of the industrial world, including the United States. The Made in China 2025 initiative also shows China's

intent to emphasize innovation beyond strategic industries to the entire economy. China is attempting to increase innovation by domestic industry players while balancing the need to be engaged in the global enterprise of technological innovation. There will be inevitable conflicts with foreign investors and other countries as China advances its domestic industries and continues to pursue the development of indigenous technologies.

As China has grown and prospered, its growth model has evolved, but its Soviet heritage is not yet gone. SOEs, although reduced in number and importance, are still a significant part of the Chinese economy, and remain a useful conduit for stimulus policies that maintain stability. The identification of strategic industries, however, seems more like indicative planning rather than the broad central planning of a much earlier era. China's future lies in making the transition to an economy that is more dependent on domestic demand, more innovative, and more globally engaged. The direction is clear, but the transition steps are not. The Chinese government and the CCP face the demands of a rising middle class and the growing aspirations of hundreds of millions of rural poor. As in much of the world, growth in China has fostered rising inequality that may lead to social instability that the administration desperately seeks to prevent.

In August 2015, China devalued the yuan relative to the dollar, and characterized the move as following market forces.²²² In spite of this outward reason, the Chinese government also may have been concerned about a slowing economy. At the same time, with the yuan linked to the dollar, an increase in the dollar's value relative to other currencies has made Chinese exports less competitive in world markets. The devaluation also could be seen as moderating the speed with which China will shift from export-dependent productions to domestic consumption. China is providing additional support for its heavy industry and construction firms by continuing to invest in infrastructure in Africa and elsewhere around the world. Because Chinese-financed foreign construction uses Chinese materials and Chinese labor, overseas investments provide indirect support for steel and other construction-related industries within China. Yet China is encountering mounting criticism of its mercantilist economic policies. It can expect growing resistance to its overseas investments, especially where advanced

technologies are involved, as well as growing criticism of its failure to deal with its excess capacity in basic industries and its persistent trade surpluses.

China's rise has also coincided with the decline of interest in Marxism-Leninism and Mao Zedong Thought, the historical guiding principles of Chinese governance and political economic theory. In a 2007 article, Mitchell Landsberg of the *Los Angeles Times* reported that Chinese students in one of the country's top universities were more interested in "money than in Mao."²²³ In one anecdotal case, students were allowed to bring in their textbooks and copy out answers for the required exams on Marxism.²²⁴ At the same time, Party policy is attempting to reemphasize Marxism-Leninism-Mao Zedong Thought in university classrooms.²²⁵ Xi Jinping may be attempting to revive Marxist-focused education in an effort to guide future generations of workers, but most observers think he will have little success in reaching the current generation. Instead, leaders depend on delivering economic prosperity and an appeal to nationalism.

What has taken the place of faith in Marxism-Leninism? There are reports of underground Christian churches.²²⁶ Even earlier, in 1998, the Falun Gong religious movement spread rapidly and even operated above-ground, but then experienced severe repression by Chinese authorities. Nationalism and emphasizing China's historic greatness do have an appeal. The former politician (and now imprisoned) Bo Xilai developed a considerable following in Chongqing by presenting himself as a populist figure; as part of his approach, he revived Maoist-era songs and symbols.²²⁷ The Party has also attempted to return to Confucius. Once derided as a negative influence, the Confucian emphasis on respect of authority is attracting favorable attention. However, a new Chinese ideology, a new Chinese religion, has yet to develop.

As China has developed, it has increasingly followed the strategy of the East Asian Miracle that emphasizes moving from low-tech manufacturing to ever more advanced industry. Pursuing industry that is more advanced is a force that drives improved training, education, and innovation. It brings to mind the advice of the famous Canadian hockey player Wayne Gretzky, who once stated: "A good hockey player plays where the puck is; a great hockey player plays where the puck is going to be." National

aspirations and long-term investments may well require looking beyond today's comparative advantage.

In its decades of rapid growth, China has shown a considerable degree of pragmatism and resilience, and for its current lofty ambitions it needs another decade of practical policies. Where Deng Xiaoping preached the tactic of crossing the river by feeling the stones, Xi Jinping faces the challenge of crossing a turbulent river by feeling for a shifting set of boulders. He has already taken the first steps of this complicated dance; it remains to be seen whether he will be able to lead the rest of the world along with him, or be swept away by influences beyond his control.

Notes

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30. See Rex A Hudson, ed., *Brazil: A Country Study* (Washington, DC: Government Printing Office, 1997).
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 37. Lin, *Demystifying the Chinese Economy*, 16.
 38. Yueh, *The Economy of China*, 26.
 39. Lin, *Demystifying the Chinese Economy*, 185–86.
 40. Elements of the Household Responsibility System had emerged before the Deng era. However, it spread rapidly after the start of the reform era. See Huang, *Capitalism with Chinese Characteristics*, 86.
 41. Lin, *Demystifying the Chinese Economy*, 178–180.
 42. *Ibid.*, 91–92 and 179–80.
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About the Author

KENT H. HUGHES is the chief economic and international trade advisor in the Office of the Director, CEO and President of the Woodrow Wilson International Center for Scholars. Earlier he was a Public Policy Fellow and Director of the Center's Program on America and the Global Economy. Prior to joining the Wilson Center, he served as Associate Deputy Secretary of Commerce and president of the private sector Council on Competitiveness. For many years he also served in senior positions in the U.S. Congress including as a senior economist on the Joint Economic Committee and as the chief economic advisor for Senate Majority Leader Robert C. Byrd. He is the author of two books: *International Economic Decision Making in Congress* and *Building the Next American Century: The Past and Future of American Economic Competitiveness*. He holds a Ph.D. in economics from Washington University in St. Louis, a LLB from Harvard Law School, and a BA from Yale University.

ROBERT DALY, who wrote the preface to this essay, is the Director of the Wilson Center's Kissinger Institute on China and the United States.



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Woodrow Wilson International Center for Scholars

One Woodrow Wilson Plaza

1300 Pennsylvania Avenue NW

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