THE CAMBRIDGE ECONOMIC HISTORY OF CHINA

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China's Great Boom as a Historical Process

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Overview

Beginning in the late 1970s, China's economy produced the largest growth spurt in recorded history. This striking departure from the economic experience of the previous 200 years encourages onlookers to view recent economic success as a "miracle" that requires neither economic nor historical explanation. Such thinking ignores common elements that have shaped China's long-term economic trajectory: forces propelling spurts of innovation and growth, restrictions that often impede these dynamic forces, and enduring features of China's polity that generate tensions between centralized authoritarian power and economic growth. Neglect of these historical legacies invites misconceptions about the current boom's origin and the economy's likely future path. History and economics figure prominently in our analysis of both.

China has experienced repeated bursts of innovation and accelerated growth. More than a century before China's recent growth explosion, the opening of coastal treaty ports, largely outside Qing jurisdiction, expanded international and domestic commerce that served as conduits for new technology and ideas. Extension of foreign privilege to include the operation of treaty port factories curtailed domestic opposition to modern manufacturing, opening the door to long-term industrial expansion. During the early decades of the twentieth century, these developments propelled structural change and modern economic growth in two regions – the lower Yangzi area adjacent to Shanghai and the northeast.

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Despite differences in timing, scale, and geographic scope, these episodes share important commonalities. Innovation and growth arise primarily from decentralized initiative rather than state direction. External opening – forced or voluntary – and relaxation of domestic constraints encourage bottom-up development. The opening of nineteenth-century treaty ports and late twentieth-century special economic zones, the post-Mao shift from collective to household farming, and the subsequent expansion of rural industry demonstrate the potential of localized or sectoral innovation to unleash unexpected and momentous consequences.

Episodes of growth acceleration coincide with interludes of state weakness and retreat. The nineteenth-century opening of treaty ports, the imposition of a free-trade regime, and, in 1895, ceding foreigners the right to establish factories on Chinese soil all reflect Qing inability to resist foreign pressure. Official weakness also facilitated financial innovation: "modern banking gathered momentum, particularly through the 1920s, when central authority was at low ebb."[1]

China's current boom began amid extreme state incapacity after the Cultural Revolution had "effectively destroyed" China's "apparatus of civilian rule," left "the legitimacy of the CCP [Chinese Communist Party] . . . deeply shaken" and "severely damaged the national bureaucracy, leaving it weak and divided" and rendering Beijing unable to "monitor compliance with many kinds of orders."[2] Temporary withdrawal of central oversight permitted local leaders and groups of households to defy official mandates by reviving and extending short-lived rural reforms begun after the 1959–1960 famine.

Premier Zhu Rongji extended domestic-market liberalization by agreeing to constraints on state economic actions as part of China's 2001 accession to the World Trade Organization (WTO).

The link between political frailty and economic dynamism is no accident. The enduring features of Chinese political regimes – imperial, Republican, and Communist – give rise to powerful tensions between authoritarian control and the bottom-up institutional change, experimentation, and entrepreneurship that foster productivity growth, the core component of long-term economic advance. While Chinese states have become powerful

[1] N. Horesh, *Shanghai's Bund and Beyond: British Banks, Banknote Issuance, and Monetary Policy in China, 1842–1937* (New Haven and London, Yale University Press, 2009), p. 41.

[2] A.G. Walder, "Bending the Arc of Chinese History: The Cultural Revolution's Paradoxical Legacy," *China Quarterly* 227 (2016), 617–18; L.T. White III, *Unstately Power: Local Causes of China's Economic Reforms* (Armonk, NY, M.E. Sharpe, 1998).

champions of development, repeated episodes during the past 200 years highlight consistent elite preference for systems that allow rulers to concentrate decision making and appropriate resources in ways that enhance their control but ultimately limit economic advance.

Enduring Features of Chinese Political Regimes

What are these enduring features of the Chinese polity, which John Fairbank described as resting on "ancient structures of social order and political values that are too deep for rapid change?"[3]

The closely intertwined objectives of today's Chinese rulers hardly differ from the goals of Qing emperors. Both seek to maintain stability and regime control, to harness domestic prosperity and advanced technology for military and security purposes, and to match or overtake neighbors and potential rivals.

State structure is equally consistent over time. Power resides in self-perpetuating authoritarian hierarchies. Interlocking sets of economic, social, and political ties that align interests within national elites and between rulers and citizens enhance regime longevity. Checks and balances limiting state action are notably absent. Custom and law promote order and harmony; they legitimate and strengthen, rather than constrain, the state. There is little tolerance for dissent. Official surveillance, nowadays reinforced by electronic technology, identifies violators. Harsh penalties silence all but the most determined critics.

The state promotes ideologies – Confucianism, Chinese variants of Marxism, and, currently, elements of both – that portray the incumbent polity and its leaders as founts of moral authority and bulwarks of stability. Ideological commitment is an important criterion for official appointment. Shared ideology offers a partial substitute for bureaucratic supervision, allowing officials to enjoy wide discretion in governing as long as outcomes satisfy their superiors' expectations.

While severely limiting ordinary citizens' voice in governance, Chinese regimes strive, often successfully, to secure popular support. Meritocratic systems of educational advancement and official recruitment – including the former imperial examinations, the more recent civil service examinations (*guokao* 国考), and the current system of competitive school and college admissions – offer mobility paths that expand regime capability while

[3] J.K. Fairbank, "The Unification of China," in R. MacFarquhar and J.K. Fairbank (eds.), *The Cambridge History of China*, vol. 14, *The People's Republic*, part 1, *The Emergence of Revolutionary China, 1949–1965* (Cambridge, Cambridge University Press, 1987), p. 26.

legitimating elite privilege. Censorship, information control, and state monopoly over educational curricula steer public opinion in directions that benefit the incumbent regime.

This system invites widespread investment in scaling finely variegated hierarchies of rank and distinction that bind individuals and groups to the incumbent regime. The People's Republic of China (PRC) has expanded the traditional complex of individual recognition, which now embraces even schoolchildren, and established new award ladders for firms and localities. Today, as under the Qing, these distinctions, as well as promotion through the state's *nomenklatura* system, bring substantial accretions of wealth, prestige, and security.

At every level, power and authority rest on personal patronage networks in which long-term exchanges of money, favors, and loyalty build support for leaders, while offering subordinates a combination of opportunity and protection. Leaders mobilize network supporters – local gentry and merchant guilds under the Qing, multilevel coalitions of like-minded officials under the PRC – to advance their policy agendas. Ambitious leaders need a constant flow of resources to support adherents, enlist new clients, and compete with rivals.

This financial imperative reinforces long-standing elite preference for administrative structures that concentrate decisions in the hands of officials who enjoy wide discretion. Leaders seek personal control over important decisions, in part to facilitate access to continuing resource flows. Personal and network interests figure prominently in official and private choices regarding appointments, promotions, contracts, and institutional arrangements.[4]

Despite episodic enforcement efforts, the culture of gift exchange that permeates these personal networks infuses government systems and elite culture with a comfortable tolerance for bribery. As prime beneficiaries of irregular transactions, Communist elites, like their Qing and Republican predecessors, ignore readily available disciplinary mechanisms: updating land registers in the Qing era or publicizing officials' personal and family assets in today's China. A popular ditty attributed to both Guomindang and Communist leaders cynically portrays corruption as the lifeblood of Party operations: "Fight corruption and destroy the Party, neglect corruption and

[4] J. Osburg, *Anxious Wealth: Money and Morality among China's New Rich* (Stanford, Stanford University Press, 2013), offers a granular account of local networking.

destroy the country" (*fanfu wangdang, bufan ze wangguo* 反腐亡党, 不反则亡国).

Injecting network interests into policy formation and public administration imposes costs that extend far beyond informal side payments. Networks stifle competition. Reserving opportunities for insiders excludes interlopers. When external competition does exist, insiders can leverage connections (*guanxi* 关系) to sidestep inconvenient legal or regulatory requirements that rivals cannot avoid. As a result, network involvement transforms apparent market exchanges into landscapes pockmarked with efficiency-sapping barriers and distortions. During the nineteenth century, Shannon Brown finds, a "symbiotic coalition of Chinese merchants, organized in guilds, and government officials – was quite effective in preventing innovation . . . [so that] market forces alone could not overcome vested-interest opposition . . . even in the transfer of a demonstrably superior technology."[5] Between 2004 and 2012, firms linked to members of China's Politburo obtained land "for less than half the price paid by their unconnected counterparts to obtain land of comparable quality."[6]

These foundations, which have survived the transition from empire to People's Republic, weave authoritarian hierarchy, individual ambition, and personalist networking into a fabric that binds citizens to the state, motivates widespread support for official priorities, and enhances security for both rulers and subjects. Unfortunately, the same structures and mechanisms impose costs that diminish economic performance. Openness to Western technology and ideas, and rebuilding efforts following episodes of state weakness, illustrate the structural tensions between authoritarian control and economic growth.

The Promise and Danger of Openness

While recognizing the need to embrace technological advance as a vehicle for building national strength, elite thinking harbors deep suspicion of the institutional penumbra surrounding Western technology. Wei Yuan 魏源, an early nineteenth-century reformer, supported "the adoption of Western naval hardware and technology" while embracing "ideals, inspiration, and

[5] S.R. Brown, "The Ewo Filature: A Study in the Transfer of Technology to China in the 19th Century," *Technology and Culture* 30.3 (1979), 550–68; Brown, "Cakes and Oil: Technology Transfer and Chinese Soybean Processing, 1860–1895," *Comparative Studies in Society and History* 23.3 (1981), 449–63.

[6] T. Chen and J.K.S. Kung, "Busting the 'Princelings': The Campaign against Corruption in China's Primary Land Market," *Quarterly Journal of Economics* 134.1 (2019), 223.

historical traditions [that were] wholly shaped by Yuan and Ming precedents."[7]

Several decades later, Zhang Zhidong 张之洞, a prominent official, popularized this perspective in the epigram 中学为体, 西学为用, meaning that China would *utilize* (*yong* 用) Western technology and devices while retaining its own cultural *essence* (*ti* 体). This formulation reverberates across the centuries, echoing earlier discussion surrounding the importation of Buddhism and prefiguring the embrace of "self-reliance" by both Mao Zedong and Xi Jinping.[8]

Twentieth-century nationalists viewed China's treaty ports "not as spark plugs or vital centers but as malignant tumors."[9] Such attitudes prompted PRC planners to limit investment in coastal cities and sparked Cultural Revolution attacks on individuals with overseas ties.

Xi Jinping has revived fears that the ideas, attitudes, and institutional arrangements associated with Western technology and thinking threaten the foundations of China's polity. Limiting foreign travel by academics and researchers, removing foreign textbooks from college curricula, and forbidding classroom discussion of specific topics all follow this agenda. His signature "Made in China 2025" initiative, an inward-looking, Soviet-style plan to pursue advanced technology with minimal international involvement, reflects long-standing distrust of the "software" associated with imported technology.

A contrary perspective welcomes the absorption of Western institutions along with advanced technology. As early as 1859, Hong Ren'gan 洪仁玕, a Taiping leader who studied and worked with Christian missionaries before joining the rebels, produced a document that Stephen Platt describes as offering "for the very first time in a Chinese context . . . a litany of proposals that . . . would become catch-phrases for later Chinese reformers."[10] Hong's admiration for private business, democratic government, impartial news reporting, rule of law, and open trade "entitle him to a place in the front

[7] J.K. Leonard, *Wei Yuan and China's Rediscovery of the Maritime World* (Cambridge, MA, Harvard University Council on East Asian Studies, 1984), pp. 198–9.

[8] W.T. DeBary, W.T. Chan, and C. Tan (eds.), *Sources of Chinese Tradition*, vol. 2 (New York, Columbia University Press, 1964), p. 82; The Encyclopedia of Buddhism, at https://encyclopediaofbuddhism.org/wiki/Essence-Function.

[9] R. Murphey, *The Outsiders: The Western Experience in India and China* (Ann Arbor, University of Michigan Press, 1977), p. 228.

[10] S.R. Platt, *Autumn in the Heavenly Kingdom: China, the West, and the Epic Story of the Taiping Civil War* (New York, Knopf, 2012), pp. 59–61. F. Michael, *The Taiping Rebellion: History and Documents*, vol. 3 (Seattle, University of Washington Press, 1966–1971), pp. 751 ff. provides a translation of Hong's proposal.

rank of Chinese who tried . . . to commend Western ideas to the attention of their countrymen."[11]

The post-1978 reform era revived support for reduced state control, greater market orientation and increased international openness in opposition to the Mao-era tendency to repress dissent, suffocate private business, suppress market allocation, and minimize global involvement. Strong resistance to liberalizing initiatives obliged reformist Premier Zhao Ziyang to portray policies that gave "full play" to market forces, embraced "the renewed centrality" of foreign economic and technical exchange, and favored the coast as steps toward "the initial stage of socialism" and the achievement of "self-reliance."[12]

In 2013, the CCP Central Committee, seemingly accepting recommendations from a team of Chinese and World Bank researchers,[13] called for an economy "centering on the decisive role of the market in allocating resources . . . [and] greatly reducing the government's role in the direct allocation of resources."[14] At the same time, persistent concern over foreign influence triggered fierce pushback.

A 2013 circular, widely cited as "Document 9," cites a litany of "false ideological trends," including democracy, the rule of law, unfettered journalism, and market opening. It excoriates proponents of these heresies for aiming to "gouge an opening through which to infiltrate our ideology" and even "denying the legitimacy of the CCP's long-term political dominance." The authors conclude that allowing "any of these ideas to spread . . . will disturb people's existing consensus on important issues."[15]

The Conflicting Objectives of State Rebuilding Efforts

Rebuilding efforts following episodes of governmental weakness reveal the pull of traditional patterns of centralized authoritarian control. While fortifying political power, these initiatives reinforce tensions between political and

[11] K.W. So, E.P. Boardman, and C. P'ing, "Hung Jen-Kan, Taiping Prime Minister, 1859–1864," *Harvard Journal of Asiatic Studies* 20.1–2 (1957), 294.

[12] J. Gewirtz, *Unlikely Partners* (Cambridge, MA, Harvard University Press, 2017), pp. 116, 191, 196.

[13] World Bank and Development Research Center of the State Council, PRC, *China 2030* (Washington, DC, World Bank, 2013).

[14] "Decision of the Central Committee of the Communist Party of China on Some Major Issues Concerning Comprehensively Deepening the Reform," January 16, 2014, at china.org.cn/china/third_plenary_session/2014-01/16/content_31212602.htm, accessed October 10, 2017.

[15] "Communique on the Current State of the Ideological Sphere," translation at chinafile.com/document-9-chinafile-translation, accessed March 3, 2021.

economic goals inherent in the structure and operating mechanisms of Chinese political systems. Consider the initial decade of Guomindang leadership and then the PRC rebuilding efforts during the 1990s.

The Guomindang established its Nanjing government in 1927 following a fifteen-year interregnum during which regional military leaders jousted with a succession of weak administrations in Beijing. The Guomindang focused on two objectives: control and development.

Control involved external and internal dimensions. While working to regain tariff autonomy and to abolish foreign concessions, extraterritoriality, and other trappings of the nineteenth-century treaty regime, Nanjing sought to forge a military that could overcome domestic and foreign threats.

The Guomindang also set out to assemble a developmental state. While shortages of time and money, along with military exigencies, hindered implementation, detailed plans and initial achievements in multiple sectors "became available to the Communists, and many planners and technicians joined them . . . providing the nucleus for much that the Communists later accomplished."[16]

Conflict between political and economic objectives quickly emerged. Guomindang leaders sought to weaken the bankers and industrialists whose businesses had led the lower Yangzi region's considerable growth achievements. Top officials organized and invested in new companies, which often "did little more than shift commerce from . . . private merchants" to politically connected newcomers. The same officials steered official procurement toward these new firms, which they endowed with "special privileges or monopoly powers." To compete, private operators sought partnerships with officials or their relatives.[17] In the mid-1930s, monetary changes and the introduction of a fiat currency relaxed the discipline that China's private banking system had imposed on government spending and borrowing.

Sixty years later, the PRC launched its own rebuilding effort following the near-anarchy of the Cultural Revolution and a decade of decentralized development that further weakened the center. Although PRC leaders, unlike their Guomindang predecessors, faced no external military threat, the shadow of Soviet collapse hovered menacingly in the background.

During the spring of 1989, nationwide urban protests attracted support among government and Party personnel. After the Tiananmen massacre,

[16] A.N. Young, *China's Nation-Building Effort 1927–1937: The Financial and Economic Record* (Stanford, Hoover Institution Press, 1971), p. 388.

[17] P.M. Coble Jr., *The Shanghai Capitalists and the Nationalist Government, 1927–1937* (Cambridge, MA, Harvard Council on East Asian Studies, 1980), pp. 221, 232–5, 243–8.

China's leaders struggled to solidify Party cohesion and central authority. Success rested in part on resolving the frustrating imbalance between their ambitious plans and the meager funds at their disposal following "a rapid and dramatic erosion in the traditional tax base" that lowered both the GDP share of government revenues and the center's share of fiscal resources.[18]

To navigate this complex and risk-laden environment, state and Party leaders advanced a policy agenda that combined recentralization and market opening, features that appealed to multiple interest groups and therefore promoted a broad policy consensus. Deng Xiaoping's ringing endorsement of growth electrified the nation. Fiscal and banking reforms reversed the decline in resources available to the center. A succession of policies, including relaxation of controls over labor mobility, state-sector restructuring, tariff reduction, and exchange rate depreciation enlarged the scope of market forces in both domestic and international transactions. Restoration of incentives and expansion of market activity narrowed major gaps that had accumulated within China's sclerotic planned economy: domestic production rose toward potential levels, while rising technology imports extended the economy's production frontier.

As high-speed growth continued, bold measures – privatizing urban housing and many state enterprises and township and village enterprises (TVEs), pushing whole sectors into market competition, dismissing millions of state-sector workers, and ending material allocations – relieved the center of vast fiscal burdens. Rapid growth of exports and of both domestic and foreign investment further enlarged the array of resources subject to central influence.

The center, having enlarged its revenues and shed costly obligations, now possessed ample financial resources to support both domestic and international objectives. The streamlined agenda for the domestic economy focused on expanding infrastructure networks, strengthening a slimmed-down state sector, nurturing "national champions" within the ranks of centrally managed state firms, and absorbing strategic technologies. Growing fiscal capacity, foreign-exchange earnings, and financial resources enabled Beijing to expand overseas aid, outbound investment, Olympic sponsorship, and other efforts to strengthen China's international standing and, by doing so, enhance the regime's domestic legitimacy.

These measures delivered superlative results. Living standards rose. High-speed growth vaulted China into global prominence as an industrial and trade

[18] C.P.W. Wong and R. Bird, "China's Fiscal System: A Work in Progress," in L. Brandt and T.G. Rawski (eds.), *China's Great Economic Transformation* (Cambridge, Cambridge University Press, 2008), pp. 431–3.

powerhouse. Success bred confidence, encouraging the Party to relax its grip on daily life.

Beneath the surface, however, these advances rest on structures and mechanisms that recall Guomindang administration during the 1930s and nineteenth-century Self-Strengthening efforts involving official–merchant collaboration (*guandu shangban* 官督商办). Officials direct resources toward firms they can influence – often at the expense of more dynamic alternatives. Loyalty to leaders and responsiveness to official requests determine the selection of managers. Individuals shuttle between corporate and government positions.[19] Webs of personal influence muddle the interests of leaders and firms at every administrative level. Officials routinely commandeer corporate resources to support personal or policy agendas. Their relatives and cronies colonize important businesses. The need to shore up Party structures battered by Cultural Revolution turmoil and frayed by the lure of "plunging into the sea" (*xiahai* 下海) of private business dictated a relaxation of financial discipline to satisfy the expectations of modestly compensated officials and Party functionaries in a society that increasingly measures status in monetary terms.[20]

Under the PRC, the vast reach of state economic influence magnifies the impact of political intervention. After falling through the mid- to late 1990s, the state's share of GDP has remained remarkably constant at 45 percent, with nonfinancial state-owned enterprises (SOEs) consistently accounting for over 20 percent.[21] A succession of SOE mergers has consolidated central control within strategic industry and service sectors. Between 2003 and 2019, central-level enterprise groups under the State-Owned Assets Supervisory Commission (SASAC) fell from 186 to 97, while the number of subsidiaries under these groups nearly doubled and their registered capital increased more than fivefold.[22] The state continues to dominate China's financial system, which has grown rapidly relative to GDP. Much of China's rapidly

[19] F. Liu and L.L. Zhang, "Executive Turnover in China's State-Owned Enterprises: Government-Oriented or Market-Oriented?", *China Journal of Accounting Research* 11 (2018), 132–3, give examples of executives shifting between managerial and official posts and note that "most SOE executives" hold administrative ranks that allow them to occupy government positions.

[20] Wage compilations show average 1993 salaries in government and Party organizations lagging behind earnings of workers in high schools, physical education, hotels, warehouses, and construction. See 中国劳动统计年鉴 1994 (China Labor Statistics Yearbook 1994) (Beijing, China Statistics Press, 1994), pp. 109–10.

[21] A. Batson, "The State Never Retreats," *Gavekal Dragonomics*, 1 October 2020, 6–7.

[22] L. Brandt, R. Dai, and X. Zhang, "The Anatomy of China's State-Owned Enterprises," unpublished MS, 2021.

growing overseas foreign direct investment comes from state or state-connected firms.

Following two decades of transition from plan to market, liberalizing reform slowed dramatically after China's 2001 entry into the World Trade Organization. While committing enormous resources to economic development, the Hu Jintao and Xi Jinping administrations have retreated from the market opening, global co-operation, and private initiative largely responsible for China's recent prosperity. Instead, they have promoted state enterprises, top-down decision making, self-reliance, and Party involvement in business management, arrangements that past Chinese experience identifies as potent sources of inefficiency. Pursuing breakthrough innovations rather than more predictable efforts to narrow the gap separating domestic and global production frontiers heightens the risk of disappointing outcomes.

Amid continuing expansion of China's scientific, technological, and organizational capabilities, multiple studies find a steep falloff in productivity growth in the wake of the 2008 financial crisis. Deterioration in this core component of China's economic prospects underlines the continuing tension between the demands of state building and the requirements of economic growth, which we see as an inevitable consequence of the tradition of authoritarian rule to which Chinese elites remain committed.

Nineteenth-Century Developments

Internal and external shocks diminished the power and authority of the nineteenth-century Qing state. Domestic uprisings, most notably the mid-century Taiping Rebellion, drained the imperial treasury and forced the center to rely on provincial gentry to organize and finance regional armies. At the same time, growing foreign pressure, initially from the European powers and subsequently from Japan, undermined Qing sovereignty, resulting in the treaty port system described in James Kung's Chapter 11 of this volume.

Domestic rebellion in which incumbent Han elites supported imperial Manchu rulers in defense of the status quo destroyed cities, turned fertile agrarian regions into wastelands, and created waves of refugees. Foreign incursions, by contrast, injected new technologies and breached trade restrictions, thus encouraging economic growth. Telegraphic communication and steam transport lowered transaction costs and linked domestic and overseas markets. Treaties eliminating trade barriers and limiting taxation of overseas trade created new opportunities for Chinese farmers and consumers. Transit

passes intended to exempt foreign goods from internal taxes intensified domestic competition by permitting Chinese merchants to avoid transit taxes and other restrictions on internal trade.[23] High domestic interest rates encouraged foreign banks and mercantile houses to inject new funds into China's capital-scarce economy, lowering the cost of financing business within the treaty ports and along major commercial routes linked to overseas trade.[24]

The creation of semi-autonomous treaty ports unleashed a flood of innovation, especially in Shanghai, which anticipated Shenzhen's contemporary role as a magnet for ambitious and entrepreneurial migrants, an entry port for new ideas, and a hotbed of institutional innovation.[25] The relative obscurity of both locales – Shanghai as a county seat, Shenzhen as a sleepy village – limited the capacity of conservative elites – degree-holding gentry in nineteenth-century Shanghai, advocates of state-owned enterprise in late twentieth-century Shenzhen – to obstruct innovation. In both instances, local economic dynamism prompted competitive reactions elsewhere: self-initiated open ports under the Qing,[26] multiplication of special economic zones in the PRC, and relaxation of restrictions on entry and competition in both systems.

Despite their differing economic consequences, internal and external challenges to Qing rule were mutually reinforcing. Domestic turbulence limited the capacity of the Qing state to resist foreign incursions. Foreign-controlled schools, newspapers, and publishers quickly transformed Shanghai and other foreign-controlled locales into transmission belts for new ideas, technologies, and institutional arrangements.[27] The Taiping leadership, for example, included men who had lived, worked, and studied in Hong Kong, ceded to Great Britain in 1842.

This double-barreled assault on the Qing imperium opened new channels of mobility entirely separate from the long-standing paths of academic examination and mercantile degree purchase.[28] The desperate struggle to subdue the Taipings established military success as an alternate route to high

[23] E. Motono, *Conflict and Cooperation in Sino-British Business, 1860–1911: The Impact of the Pro-British Commercial Network in Shanghai* (New York, St. Martin's Press, 2000).

[24] Y.P. Hao, *The Commercial Revolution in Nineteenth-Century China: The Rise of Sino-Western Mercantile Capitalism* (Berkeley, University of California Press, 1986), pp. 106–10, 345.

[25] R.X. Jia, "The Legacies of Forced Freedom: China's Treaty Ports," *Review of Economics and Statistics* 96.4 (2014), 596–608.

[26] Kung, Chapter 11 in this volume.

[27] Kung, Chapter 11 in this volume.

[28] E. Kaske, "Fund-Raising Wars: Office Selling and Interprovincial Finance in Nineteenth-Century China," *Harvard Journal of Asiatic Studies* 71.1 (2011), 69–141, documents the growing sale of both degrees and offices.

office for men with little academic distinction.[29] "Modern" schools in Hong Kong and various treaty ports produced cosmopolitan graduates whose technical knowledge, language skills, and business acumen marked them as indispensable allies of the provincial magnates whose defeat of the Taipings thrust them into national prominence.

These developments initiated a gradual rise in the economic payoff to "modern" relative to Confucian education.[30] As change spread beyond the treaty ports to encompass new activities like railways, elite families began to withdraw their sons from traditional schooling. The resulting erosion in a key bulwark of the imperial system accelerated when China's crushing defeat in the 1894–1895 Sino-Japanese War, followed in 1900 by the rout of antiforeign Boxer militias at the hands of a Western military expedition, forced traditional elites to recognize the inevitability of sweeping change.

Notwithstanding the dynasty's ignominious collapse following decades of directionless economic fluctuation, the century's closing decades substantially enhanced China's longer-term potential for economic advance. Telegraphic communication, along with steam and rail transport, rested on solid beachheads.[31] Expanded access to modern education, along with the multiplication of information flows, produced a considerable group of prosperous, cosmopolitan, often Western-educated elites.[32] Domestic opposition to Chinese-owned factories crumbled after the Treaty of Shimonoseki allowed Japanese nationals and, thanks to most-favored-nation treaty provisions, other foreigners to enter manufacturing. As with international trade and domestic commerce, privileges won through foreign military pressure encouraged domestic economic growth.

Beginning around 1900, a "wave of scientific translations [most] from Japanese sources" broadcast new knowledge.[33] Conservative resistance to

[29] J.W. Esherick, *Ancestral Leaves: A Family Journey through Chinese History* (Berkeley, University of California Press, 2011), pp. 67–8; D.R. Reynolds with C.T. Reynolds, *East Meets East: Chinese Discover the Modern World in Japan, 1854–1898* (Ann Arbor, Association for Asian Studies, 2014), pp. 8, 229.

[30] N. Yuchtman, "Teaching to the Tests: An Economic Analysis of Traditional and Modern Education in Late Imperial and Republican China," *Explorations in Economic History* 63 (2017), 70–90.

[31] R. Thompson, "The Wire: Progress, Paradox, and Disaster in the Strategic Networking of China, 1881–1901," *Frontiers of History in China* 10.3 (2015), 395–427.

[32] Y.P. Hao, *The Comprador in Nineteenth Century China: Bridge between East and West* (Cambridge, MA, Harvard University Press, 1970), p. 102, for example, places the number of current and former compradors at 20,000 by 1900.

[33] D. Wright, "Yan Fu and the Tasks of the Translator," in M. Lackner, I. Amelung, and J. Kurz (eds.), *New Terms for New Ideas: Western Knowledge and Lexical Change in Late Imperial China* (Leiden: Brill, 2001), p. 235.

imported technologies, factory industry, and modern education diminished. By 1911, China's economy and society were far more open to competition and change than in 1800 or 1850. The Guangxu Emperor's 1893 edicts ordering officials to halt the prior practice of seizing assets from returning overseas migrants illustrates this growing openness.[34] The farm sector, although far from dynamic, comfortably supported growing urban and nonagricultural populations in the lower Yangzi and Lingnan regions.

Despite these gains, substantial obstacles continued to restrict China's growth prospects. Modernizing advances remained local rather than regional or national. The state, a key link in all latecomers to modernization, remained weak and unfocused. In the late 1880s, "the Japanese government's published annual budget was a matter of amazement to many Chinese."[35] Writing in 1897, William Mayers described the operation of China's central government as "registering and checking the actions of various provincial administrations [rather] than . . . assuming a direct initiative in the conduct of affairs."[36] Even for the management of currency, "the Board of Revenue couldn't be the source of a coherent monetary policy. It had no power to inspect the quality of provincial coins . . . [and] could comment on provincial memorials [to the throne] only if they were referred to the Board."[37]

The Republican Period

A tumultuous interregnum that began and ended with regime change, China's Republican era (1912–1949) witnessed extremes of political instability, cultural ferment, and openness to international exchange, along with modest economic growth, considerable expansion of state capability, and the emergence of trends that foreshadowed future developments.

Following the Qing collapse, a succession of republicans, monarchists, and military leaders failed to restore political unity. The Nanjing-based Nationalist administration under Chiang Kai-shek (Jiang Jieshi) won international recognition following the successful Northern Expedition (1927). Its sphere of actual control, however, was less than complete even before

[34] M.R. Godley, *The Mandarin-Capitalists from Nanyang: Overseas Chinese Enterprise in the Modernisation of China 1893–1911* (Cambridge, Cambridge University Press, 1981), pp. 240–1.
[35] Reynolds and Reynolds, *East Meets East*, p. 341.
[36] Quoted in F.H.H. King, *A Concise Economic History of Modern China (1840–1961)* (New York, Praeger, 1969), pp. 21–2.
[37] King, *A Concise Economic History of Modern China*, p. 34.

Japanese armies forced the shift of its capital to Wuhan and later to Chongqing.

Chinese elites, shaken by humiliating military setbacks and the Qing collapse, plunged into an intense and disputatious search for cultural renewal. Elite gentrymen who had formerly met modern innovations with visceral hostility now invested in railways and joined newly established chambers of commerce. Radical ideas, fostered in treaty port schools and championed by students returning from overseas studies, leapt to the fore. As Chapter 14 in this volume by Gao, Van Leeuwen, and Wang shows, new subjects, textbooks, and ideas spread far beyond coastal enclaves. Newspapers and radio broadcasts amplified the circulation of novelty.[38] In distant Shanxi, a school principal reprimanded a traditionally educated teacher who encouraged students to celebrate the lunar New Year.[39] Hu Shi (1891–1962), a Cornell University graduate and future Chinese ambassador to the United States, cruelly mocked the ignorance of ordinary folk.[40]

Elite preference for authoritarian politics survived this intellectual turmoil. Early English–Chinese dictionaries rendered "democracy" as "disorderly administration by the many" and "abuse of power by the mean."[41] A 1903 visit to North America convinced the influential reformer Liang Qichao that "resort to rule by . . . majority . . . would be the same as committing national suicide . . . the Chinese people must for now accept authoritarian rule."[42] Nearly a century later, Andrew Nathan observes that most Chinese intellectuals, including opponents of the Communist Party's political monopoly, continue to "fear the disorder they believe would flow from any weakening of party control . . . [and] accept the party's claim that political order . . . requires leaders with strong authority."[43]

The inflow of new ideas reflected a general climate of openness. China's share of global trade rose from 1.3 percent in 1913 to 2.1–2.3 percent during 1927–1929 and 3.7 percent in 1936; comparable PRC figures languished below 1 percent

[38] W.H. Yeh, *Shanghai Splendor: Economic Sentiments and the Making of Modern China, 1843–1949* (Berkeley, University of California Press, 2007), p. 34.
[39] H. Harrison, *The Man Awakened from Dreams: One Man's Life in a North China Village 1857–1942* (Stanford, Stanford University Press, 2005), p. 97.
[40] *Chabuduo xiansheng* 差不多先生 (Mr. Close-Enough), available at https://zh.m.wikisource.org/zh-hans/%E5%B7%AE%E4%B8%8D%E5%A4%9A%E5%85%88%E7%94%9F%E5%82%B3.
[41] G.T. Jin and Q.F. Liu, "From 'Republicanism' to 'Democracy': China's Selective Adoption and Reconstruction of Modern Western Political Concepts (1840–1924)," *History of Political Thought* 26.3 (2005), 479–80.
[42] A.J. Nathan, *Chinese Democracy* (Berkeley, University of California Press, 1986), p. 60.
[43] Nathan, *Chinese Democracy*, p. 231.

throughout 1968–1980, regaining the 1936 level only after the year 2000.[44] Throughout the early twentieth century, China was also a major beneficiary of foreign direct investment, much of it from advanced countries. By the 1930s, China held more than 10 percent of the global stock of inbound foreign direct investment and over 15 percent of the stock located in developing nations, with the largest portion directed toward (mostly rail) transportation.[45]

Openness strengthened the economy, particularly in coastal regions where modern education, returned overseas students and migrants, and frequent interaction with foreign business stoked the transfer of technologies and the spread of commercial knowledge among would-be Chinese entrepreneurs. The history of numerous industries, among them mining, railways, banking, department stores, textiles, and matches, reflects this beneficial mélange.[46]

While limited growth of fiscal revenue, much of it immediately needed for the military, signaled the continuing restriction on governmental development efforts,[47] comparing the Nanjing decade (1927–1937) with circumstances in 1880 or 1910 highlights major expansion of the state's capacity to formulate and implement effective development programs.

Unlike its imperial and Republican predecessors, the Nanjing-based Guomindang administration pursued a well-defined economic agenda centered on revenue expansion; extending control over banking, finance, and the monetary system; developing military-linked production; deepening regional and national economic integration; and building an officially directed education system.

Public administration no longer resembled the Qing Board of Revenue, which acted as a "transmission center of documents and repository for ledgers . . . [that] rarely initiated policy."[48] Central government agencies, ranging from the National Resources Commission and the Ministry of Finance to the Cotton Control Commission, their staffs now bolstered by highly trained professionals, many with advanced overseas degrees, designed and began to implement a wide array of economic-policy endeavors.[49]

[44] See the online appendix at www.cambridge.org/EconomicHistoryChina.
[45] See the online appendix at www.cambridge.org/EconomicHistoryChina.
[46] Among many others, see S. Cochran, *Big Business in China: Sino-Foreign Rivalry in the Cigarette Industry, 1890–1930* (Cambridge, MA, Harvard University Press, 1980); and E. Köll, *Railroads and the Transformation of China* (Cambridge, MA, Harvard University Press, 2019).
[47] T.G. Rawski, *Economic Growth in Prewar China* (Berkeley, University of California Press, 1989), pp. 12–32.
[48] M.B. Kwan, *The Salt Merchants of Tianjin* (Honolulu, University of Hawaii Press, 2001), p. 32.
[49] W.C. Kirby, "Engineering China: Birth of the Developmental State, 1928–1937," in W. H. Yeh (ed.), *Becoming Chinese: Passages to Modernity and Beyond* (Berkeley, University of

Although the absence of political unification, rifts within the central administration, budgetary weakness, and growing military pressure limited progress, even critics chronicle advances such as the "successful work of the National Economic Council . . . in improving the production of silk, cotton, and tea."[50] Beyond Nanjing, provincial governments and educational institutions initiated a variety of projects intended to distribute superior wheat seeds, control silkworm egg disease, improve tea garden management, upgrade equipment for handloom weavers, and so on.[51]

Political disunity did not preclude long-term policy co-ordination, in which "different levels of government, regardless of . . . political fragmentation, closely interacted" to advance shared objectives. Remarkably, by "1926, prison reform across the country was impressive enough" to merit "a positive assessment by a traveling committee of the [thirteen-country] Commission on Extraterritoriality in China," which advised that "extraterritoriality might be abolished by foreign powers."[52]

Political fragmentation and Japanese military pressure notwithstanding, domestic and international openness, expansion of new skills and capabilities, declining resistance to new technologies and ideas, and growing public sector support contributed to modest but significant economic expansion and structural change during the decades preceding the outbreak of full-scale war in 1937. Two regions experienced the full array of developments associated with modern economic growth. Chinese entrepreneurship powered growth in the Shanghai-centered lower Yangzi area, with a population of 60 million, matching Japan's. In the northeastern region of Manchuria, populated by over 30 million, foreign investment, much of it from semiofficial Japanese companies, led a broad-based expansion. In both areas, growth of aggregate and per capita output during the prewar decades approached or exceeded Japan's.[53]

California Press, 2000), pp. 137–60; M. Zanasi, *Saving the Nation: Economic Modernity in Republican China* (Chicago, The University of Chicago Press, 2006).

[50] L.E. Eastman, *The Abortive Revolution: China under Nationalist Rule, 1927–1937* (Cambridge, MA, Harvard University Press, 1974), p. 219.

[51] T.H. Shen, "First Attempts to Transform Chinese Agriculture, 1927–1937," in P.K.T. Sih (ed.), *The Strenuous Decade: China's Nation-Building Efforts, 1927–1937* (New York, St. John's University Press, 1979), p. 220; L.M. Li, *China's Silk Trade: Traditional Industry in the Modern World, 1842–1937* (Cambridge, MA, Harvard University Council on East Asian Studies, 1981), pp. 188–96; R. Gardella, *Harvesting Mountains: Fujian and the China Tea Trade, 1757–1937* (Berkeley, University of California Press, 1994), pp. 146–69.

[52] F. Dikötter, *The Age of Openness: China before Mao* (Hong Kong, Hong Kong University Press, 2008), p. 15.

[53] D.B. Ma, "Economic Growth in the Lower Yangzi Region of China, 1911–1937: A Quantitative and Historical Analysis," *Journal of Economic History* 68.2 (2008), 355–92; K. Chao, *The Economic Development of Manchuria: The Rise of a Frontier Economy* (Ann

A small but dynamic modern sector led the way in both regions, with the pace of industrial growth exceeding comparable figures for Japan, India, and Russia/the USSR during the prewar decades.[54] Although foreign firms benefited from a head start, favorable treaty provisions, and superior access to capital, Chinese-owned firms offered powerful competition: by 1933, they contributed 73 percent of nationwide manufacturing output and 78 percent in China proper.[55]

The expansion of manufacturing, with textiles and food processing in the forefront, enlarged demand for cotton and wheat. Factory interests complemented official efforts to improve rural storage facilities, promote standardized crops, and expand rural credit.[56] Transport improvements, along with a monetary revolution that substituted paper notes issued by private banks that were freely convertible to silver for unwieldy silver coins and bullion, reduced transaction costs, magnifying the spread effects of urban-based growth.[57] Rising per capita incomes may have extended beyond the coastal cities and their rural hinterlands to encompass the entire economy.[58]

While the quantitative dimensions of nationwide growth remain uncertain, two decades of Guomindang rule introduced distinctive changes that prefigured important elements of PRC economic structure, institutions, and policy. State management displaced private control in banking and in important segments of manufacturing. Industrial expansion began to shift toward military-linked producer industries even before 1937. Wartime pressures intensified these trends and widened the geographic dispersion of industrial activity.[59]

Arbor, Michigan Papers in Chinese Studies, 1983), pp. 14–15; R. Minami and F. Makino, *Asian Historical Statistics 3: China* (Tokyo: Tōyō Keizai Shinpōsha, 2014), pp. 515–16.

[54] L. Brandt, D.B. Ma, and T.G. Rawski, "Industrialization in China," in K.H. O'Rourke and J.G. Williamson (eds.), *The Spread of Modern Industry to the Global Periphery since 1871* (Oxford, Oxford University Press, 2017), p. 199.

[55] Brandt, Ma, and Rawski, "Industrialization in China," p. 208; and Rawski, *Economic Growth*, p. 74.

[56] Zanasi, *Saving the Nation*, focuses on cotton improvement.

[57] Rawski, *Economic Growth*, Chapters 3, 4; D.B. Ma, "Financial Revolution in Republican China during 1900–37: A Survey and a New Interpretation," *Australian Economic History Review* 59.3 (2019), 242–62.

[58] Rawski, *Economic Growth*, p. 342, concludes that nationwide per capita output rose by 22 to 24 percent between 1914–1918 and 1931–1936. This conclusion, however, rests on estimates of agricultural output trends, which require considerable error margins.

[59] Brandt, Ma, and Rawski, "Industrialization in China," pp. 209–12. P. Schran, *Guerrilla Economy: The Development of the Shensi–Kansu–Ninghsia Border Region, 1937–1945* (Albany, State University of New York Press, 1976), p. 153, cites contemporary accounts indicating that armaments production in the Communists' Shaanxi base area represented "crude work" that turned out limited quantities of "inferior arms."

While government operations reflected the efforts of "the Guomindang elite ... to reform China's administrative bureaucracy by adopting and adapting American theories of public administration,"[60] policy objectives and industrial organization converged toward the preferences of the post-1949 PRC administration. The organization and even the terminology (*danwei* 单位) developed around state-owned industrial firms in wartime China remain in daily use eighty years later.[61] William Kirby describes the Guomindang's prewar efforts as the "birth of the developmental state," and notes that, following the emergence of the PRC, the Nanjing regime's "main industrial planning committee did not disband ... [but] simply reported to a new government."[62] Guomindang determination to subordinate banking to the financial requirements of the ruling government and party and to limit the scope of independent action on the part of leading enterprises, business owners, and corporate managers foreshadows government–business relations in today's China.[63]

The Guomindang years also witnessed a dramatic change in economic ideology. Although many prominent officials and researchers – among them T.V. Soong, H.H. Kung, Franklin Lien Ho, and H.D. Fong – boasted economics degrees from prominent US universities, expert opinion turned against market outcomes. A 1941 account noted that "the urgent need for creating a planned economic system has almost become a consensus both within and outside the government." A review of 574 essays published between 1938 and 1944 in "a leading economic journal" found "'unanimous agreement' on the desirability of creating a planned economic system in China."[64]

The Era of the Planned Economy

The establishment of the People's Republic in 1949 ended a century marked by multiple episodes of warfare, regime change, and monetary chaos that severely limited economic growth. The new government installed a Soviet-

[60] M.L. Bian, "Building State Structure: Guomindang Institutional Rationalization during the Sino-Japanese War, 1937–1945," *Modern China* 31.1 (2005), 38.
[61] Bian, "Building State Structure," 66.
[62] Kirby, "Engineering China," 137; W.C. Kirby, "Continuity and Change in Modern China: Economic Planning on the Mainland and on Taiwan, 1943–1958," *Australian Journal of Chinese Affairs* 24 (1990), 135. After severing China's northeast region and establishing Manchukuo as a separate state, the Japanese authorities developed a Soviet-style five-year plan for 1937–42; see Minami Manshū tetsudō kabushiki kaisha chōsakai 南滿洲鐵道株式會社調查課 (ed.), 滿州五カ年計画概要 (Summary of Manchukuo's Five-Year Plan) (Dairen, 1937).
[63] Coble, *Shanghai Capitalists*. [64] Bian, "Building State Structure," 60.

inspired plan system that governed China's economy for three turbulent decades.

Rapid Removal of Long-Standing Constraints on Growth

Firm nationwide political control, reinforced by universal presence of Communist Party branches, provided the new government with an unprecedented capacity to implement policy even at the village level with minimal reliance on unofficial intermediaries. Sweeping and often violent campaigns stifled potential resistance from landed and mercantile interests.

Fiscal expansion demonstrated the new regime's control. The ratio of government revenue to GDP, which had languished below 10 percent for centuries, exceeded 20 percent throughout the planned-economy period.[65] Growth initiatives benefited from political unity, the cessation of internal warfare, and the return of monetary stability following destructive wartime hyperinflation.

Beginning in 1953, a succession of five-year plans pushed investment to new heights. Focusing on upstream sectors linked to industrial expansion and military hardware, new developments extended trends established during the Guomindang regime's final decade.[66] Support from the Soviet bloc, which provided the largest ever transfer of technology along with technical advice and short-term loans, facilitated the emergence of new industries. Soviet support clustered around 150 major projects, which absorbed nearly one-fifth of overall investment spending under the First Five-Year Plan (1953–7).[67]

These plans combined the expansion and upgrading of production capabilities with major investments in human resources. Local governments worked to universalize primary-school enrollment. Literacy and vocational programs improved adult skills. Publishing houses distributed cheap technical manuals. Despite limited food supplies during and after the 1959–1961 Great Leap Famine, improvements in sanitation, nationwide immunization programs, and campaigns to improve maternal and infant health reduced mortality rates and increased life expectancy.[68]

[65] *China Compendium of Statistics 1949–2008* (Beijing, China Statistics Press, 2010), pp. 9, 18.
[66] Brandt, Ma, and Rawski, "Industrialization in China," 199–200, 209–12.
[67] Z.K. Dong 董志凯 and J. Wu 吴江, 新中国工业的奠基石 156项建设研究 (1950–2000) (Foundations of New China's Industry: A Study of 156 Projects (1950–2000)) (Guangzhou: Guangdong jingji chubanshe, 2004), p. 333; and Guojia tongjiju gudingzichan touzi tongjisi 国家统计局固定资产投资统计司 (ed.), 1950–1985 中国固定资产投资统计资料 (Statistical Materials on China's Fixed Asset Investment, 1950–1985) (Beijing, China Statistics Press, 1987), p. 50.
[68] R. Hayhoe (ed.), *Contemporary Chinese Education* (Armonk, NY, M.E. Sharpe, 1984); D. M. Lampton, *Health, Conflict and the Chinese Political System* (Ann Arbor, Michigan Papers in Chinese Studies, 1974); K.S. Babiarz, K. Eggleston, G. Miller, and Q. Zhang,

Economic Outcomes: Growth, Incomes, and Productivity

Notwithstanding setbacks from the 1959–1961 famine and, on a lesser scale, from the Cultural Revolution, GDP expanded briskly, with industry occupying a growing share of total output. China's growth exceeded results in other large, low-income nations, with real per capita output growing at an estimated annual rate of 1.8–2.3 percent, which cumulates to a rise of 60 to 82 percent between 1952 and 1978.[69]

This growth, however, occurred primarily at the extensive margin, with expansion powered by rising investment. Three decades of planning failed to deliver productivity growth – the central ingredient in sustained economic modernization. At the aggregate level, Perkins and Rawski find positive annual growth of total factor productivity (TFP) during 1952–1957,[70] after which the trend turns negative, with an average annual decline of 0.5 percent during 1957–1978.[71] Sectoral studies show consistently poor productivity results. For industry, authors whose work produces the most favorable outcomes find the small increases during 1957–1978 "disappointing both in comparative terms and in relation to the massive injections of technology and human capital characteristic of Chinese industrial development."[72] Two careful studies of plan-era agriculture arrive at similar outcomes: decline or small gain during 1952–1957, long-term decline thereafter.[73]

In the absence of productivity growth, the rising share of investment in overall expenditure restricted consumption opportunities, especially for the

"An Exploration of China's Mortality Decline under Mao: A Provincial Analysis, 1950–80," *Population Studies* 69.1 (2015), 39–56; A.L. Piazza, *Food Consumption and Nutritional Status in the PRC* (Boulder, Westview Press, 1986).

[69] D. Morawetz, *Twenty-Five Years of Economic Development, 1950 to 1975* (Baltimore, Johns Hopkins University Press, 1977), p. 5; per capita income estimates, both in international dollars, from Penn World Tables, v. 9.1, accessed June 23, 2020, and from A. Maddison, *Chinese Economic Performance in the Long Run* (Paris, OECD, 1998), p. 40.

[70] TFP is the quotient of separate indexes of output (usually GDP or value-added) and a combined input measure. Rising (falling) TFP reflects increases (reductions) in average output per unit of combined capital, labor, and materials.

[71] D.H. Perkins and T.G. Rawski, "Forecasting China's Economic Growth over the Next Two Decades," in Brandt and Rawski (eds.), *China's Great Economic Transformation*, p. 839.

[72] K. Chen, G.H. Jefferson, T.G. Rawski, H.C. Wang, and Y.X. Zheng, "Productivity Change in Chinese Industry, 1953–1985," *Journal of Comparative Economics* 12 (1988), 587; see also R.M. Field, "Slow Growth of Labour Productivity in Chinese Industry, 1952–81," *China Quarterly* 96 (1983), 641–64.

[73] S.G. Fan and X.B. Zhang, "Production and Productivity Growth in Chinese Agriculture: New National and Regional Measures," *Economic Development and Cultural Change* 50.4 (2002), 833; A.M. Tang, "Food and Agriculture in China: Trends and Projections, 1952–77 and 2000," in A.M. Tang and B. Stone, *Food Production in the People's Republic of China* (Washington, DC, International Food Policy Research Institute, 1980), p. 28, using his adjusted TFP measure.

80 to 85 percent living in the countryside. Nicholas Lardy finds, "Except for a few years . . . average per capita food consumption [between 1949 and the late 1970s] . . . does not appear to have reached the prewar level."[74] Urbanites, most employed in the state sector, received benefits denied to villagers: employment security, pensions, and subsidized food, health care, housing, education, and transport. The historically modest gap between urban and rural living standards – Charles Roll places per capita rural consumption at "about 81–88" percent of the urban average during the 1930s and "approximately the same" in 1955 – subsequently widened dramatically.[75] Yang and Zhou cite a National Bureau of Statistics working paper showing that urban per capita incomes in 1980 were more than triple the rural average.[76] Mobility restrictions and food rationing protected higher urban living standards by limiting migration into the cities.

Explaining Productivity Stagnation

The PRC's plan system ramped up investment outlays, but the new regime created distortions and inefficiencies that completely offset anticipated productivity benefits arising from national unity, monetary stability, strong government, growth-oriented policies, new technology, and improved human capabilities. Why did three decades of economic planning fail to deliver the anticipated material benefits?

The new system severely curtailed the engines of prewar growth: private entrepreneurship, commercial competition, and market integration that allowed growing circulation of commodities, information, capital, technology, and individuals within and across China's national boundaries. The planned economy's crude instruments – state-owned enterprises, inflexible prices, and government-mandated production quotas, supply links, investment projects, and job assignments – sufficed for fulfillment of official targets, but only at the cost of creating large pools of underutilized resources.

The planned economy's corrosive effect on individual incentives was particularly damaging to the rural economy. The collectivization of agriculture frayed the connection between personal effort and reward for three-quarters of China's workforce. This encouraged widespread shirking, as

[74] Nicholas Lardy, "Food Consumption in the People's Republic of China," in R. Barker and R. Sinha (eds.), *The Chinese Agricultural Economy* (Boulder, Westview Press, 1982), p. 159.

[75] C.R. Roll Jr., *The Distribution of Rural Incomes in China: A Comparison of the 1930s and 1950s* (New York, Garland, 1980), p. 124.

[76] D.T. Yang and H. Zhou, "Rural–Urban Disparity and Sectoral Labour Allocation in China," *Journal of Development Studies* 35.3 (1999), 112.

individuals and households diverted resources toward private plots, which, beginning in 1958, occupied less than 10 percent of cultivated acreage. A Guangdong team leader explained, "People aren't lazy all the time, just when they do collective labor. When they work on their private plots, they work hard," adding that a task that formerly required six man-days of household labor might consume sixteen man-days of collective effort.[77]

Incentive problems also limited industrial advance. Socialist planning, discussed at length in Chapter 16 in this volume by Dwight Perkins, imposed a framework of rigid prices, mandated production quotas, and state control over the distribution of materials as well as intermediate and final products. This system generates a panoply of dysfunctional responses observed in all centrally planned economies. Neither firms nor individual workers benefit from exceeding minimum requirements. Improvements in cost, product quality, or customer service become uncompensated gifts to buyers or to the state, which absorbs all profits. Factory managers prioritize physical output targets at the expense of quality, cost, and customer service.

Unprecedented Gap between Actual and Potential Output

Divergence between rising capabilities and stagnant productivity signaled an unprecedented gap between actual production and the level of output that existing resources, technologies, and skills could deliver. The unexpected growth explosion following the onset of reform in the late 1970s illuminates the enormous scale of this latent potential. We focus on three areas: trade, agriculture, and industry.

Latent Potential in International and Domestic Exchange

Except for the transfer of Soviet technology during the 1950s, China's plan-era economic strategy promoted self-reliance at the expense of participation in domestic and international commerce. While a US-led boycott limited China's global trade options, all restrictions on domestic commerce and much of China's international isolation reflected the commitment of China's leaders to self-reliance and local self-sufficiency. Hostility to foreign involvement terminated China's prewar standing as a substantial recipient of overseas investment. Curtailment of fruitful opportunities for domestic and international exchange imposed major economic costs.

[77] S.W. Mosher, *Broken Earth: The Rural Chinese* (New York, The Free Press, 1983), pp. 39–40.

During China's absence from active engagement with global trade and investment, which extended for nearly fifty years from 1937, rising post-World War II direct investment from advanced nations, steep reduction in transaction costs, and major increases in trade flows, including exports of labor-intensive manufactures from low-income countries, offered opportunities that China ignored. China's long withdrawal from international exchange deprived the economy of benefits from imported technology and from efficient utilization of available resources. Shifting to domestic suppliers of capital equipment following the 1960 break with the Soviet Union had a "catastrophic effect on the quality of equipment."[78] Clinging to self-reliance also ignored a potential export bonanza in labor-intensive manufactures arising from the availability of vast numbers of literate, underemployed rural youths at wages far lower than in overseas rivals.[79]

Restricting domestic trade unraveled long-standing patterns of regional specialization. Costs were particularly high in the farm sector, as limited availability of outside grain supplies necessitated the conversion of fields best suited to growing sugar, peanuts, rape, soybeans, and other commercial crops to grain cultivation. These shifts reduced incomes for former producers of cash crops and for their former customers, who mounted inefficient efforts to replace cash crop purchases with local production.[80]

Latent Potential in Agriculture

Historically, Chinese agriculture operated close to the production frontier determined by available land, labor, water, fertilizer, and technology. With no "artificial barriers" to the diffusion of "new seeds, new crops, and better cropping patterns . . . there was no great back-log of advanced but essentially 'traditional' technique . . . that could be exploited readily."[81] From the start of the PRC, investment and new technology rather than land reform or collectivization held the key to future agricultural growth. Collectivization initially

[78] P. Zeitz, "Trade in Equipment and Technological Development: Evidence from the Sino-Soviet Split" (unpublished, 2010).

[79] Even though average Chinese industrial wages in 1991 reached 3.8 times the 1978 level, a multinational comparison found 1991 hourly labor costs in China's increasingly export-oriented textile and garment sectors to be less than one-tenth of comparable costs in Japan, Hong Kong, and Taiwan. See 中国统计年鉴 (China Statistics Yearbook) (hereafter *Yearbook*) 1992, Table 4-33; and L. Moore, "The Competitive Position of Asian Producers of Textiles and Clothing in the US Market," *World Economy* 18.5 (1995), 589.

[80] N.R. Lardy, *Agriculture in China's Modern Economic Development* (Cambridge, Cambridge University Press, 1983), pp. 48–82.

[81] D.H. Perkins, *Agricultural Development in China, 1368–1968* (Chicago, Aldine, 1969), p. 53.

sought to increase farm output and resource transfers out of agriculture without diverting investment from industry to agriculture. But its adverse side effects – erosion of incentives and "technological commandism" – delayed effective implementation of major advances in new high-yielding seed varieties and promoted uneconomic expansion of triple-cropping and agricultural mechanization prior to the revival of household farming in the late 1970s.[82]

The immediate post-reform surge in rural output and TFP beginning in the late 1970s demonstrates the "gigantic waste of labor and resources" resulting from plan-era rural policy.[83] Extraction of resources from the agricultural economy to support industrial production and investment occupied the core of China's plan-era growth mechanism. Sluggish farm performance tied the bulk of China's workforce to the land, slowing the transfer of labor to higher-productivity occupations. Slow growth of food output limited the farm sector's capacity to feed China's cities, necessitating the diversion of scarce foreign exchange to support grain imports. Undernutrition further slowed the growth of farm output.

As China entered the 1970s, deteriorating agricultural conditions threatened to upend the delicate balance among food production, grain procurement, and rural nutrition. The procurement system, essential to feeding China's cities, showed increasing disarray. Sichuan, China's most populous province and a major victim of the 1959–1961 famine, lurched from grain surplus to deficit amid the threat of renewed food shortages.[84] Net procurement, the grain available for transfer from rural to urban areas, declined in most years, as did grain stockpiles, forcing a discomfiting choice between higher grain imports and further reduction of reserves.[85]

Beyond its economic implications, the deteriorating extraction mechanism reflected a severe erosion of central authority. Lax controls enabled rural officials to divert grain to local advantage: Politburo member Li Xiannian 李先念 complained that collectives reported rising grain requirements for seed and feed despite the absence of increases in cultivated acreage or meat production.

[82] T.B. Wiens, "Technological Change," in Barker and Sinha, *Agricultural Economy*, pp. 110–20; and Wiens, "The Limits to Agricultural Intensification: The Suzhou Experience," in US Congress, Joint Economic Committee, *China under the Four Modernizations* (Washington, DC, US Government Printing Office, 1982), pp. 462–74.

[83] W.J. Shan, *Out of the Gobi: My Story of China and America* (Hoboken, NJ, Wiley, 2019), p. 240.

[84] F.S. Zhao 赵发生 et al. (eds.), 当代中国的粮食工作 (Grain Work in Contemporary China) (Beijing, Zhongguo shehui kexue chubanshe, 1988), p. 145. Provincial Party secretary Li Jinquan's 李井泉 September 1975 submission to the State Council demanded prompt attention to Sichuan's request for procurement relief to avoid "repeating the mistake of 1959."

[85] Zhao et al., 当代中国的粮食工作, pp. 166–7.

Latent Potential in Industry

In addition to the weak incentives mentioned earlier, the chief source of latent industrial production potential stems from the plan system's rigidity. Even without considering planners' limited access to timely and reliable information, the primitive calculators available to Mao-era planners limited the feasible number of product categories.[86] Fine-tuning production quotas to include, for example, assortment requirements for metal fasteners or shoes, was impractical. The difficulty of modifying complex production arrays meant that successive annual plans rarely incorporated major adjustments. Frequent supply lapses encouraged firms to accumulate inventories. In the late 1970s, "China . . . carried a much larger volume of inventories and incomplete construction than . . . the Soviet Union," where stockpiles were far greater than in market economies.[87]

Both during the plan era and today, widely varying capabilities across firms in specific industries amplify inefficiencies arising from weak exit mechanisms for poor performers, a problem that persists today.

Industrial policies generated additional sources of latent capacity. During 1953–1978, "heavy" industry absorbed 43 percent of overall state-sector basic construction expenditure and 90 percent of outlays for industry.[88] This approach lavished resources on capital-intensive operations that often churned out low-quality products. Although coastal producers generally delivered superior performance in terms of quality, cost, and productivity, planners directed the bulk of investment toward interior regions. This reached a peak under the "Third Front" program, which channeled over 40 percent of national investment during 1963–1975 to a massive and largely uneconomic heavy industry complex in China's central and western regions intended to guard against possible invasion.[89] Emphasis on local self-sufficiency encouraged the proliferation of inefficient local production.[90]

[86] China's material allocation system, which included fewer than 600 items, was "much less extensive than the Soviet" system, which spanned "as many as 65,000" items. C.P. W. Wong, "Ownership and Control in Chinese Industry: The Maoist Legacy and Prospects for the 1980s," in U.S. Congress, Joint Economic Committee, *China's Economy Looks toward the Year 2000*, vol. 1, pp. 577, 603.

[87] B. Naughton, *Growing Out of the Plan: Chinese Economic Reform 1978–1993* (Cambridge, Cambridge University Press, 1995), p. 49.

[88] Guojia tongjiju gudingzichan touzi tongjisi, 1950–1985 中国固定资产投资统计资料 (Statistical Materials on Chinese Fixed Capital Invesment in 1950–1985), pp. 43, 44, 97.

[89] B. Naughton, "The Third Front: Defence Industrialization in the Chinese Interior," *China Quarterly* 115 (1988), 351–86.

[90] A. Donnithorne, "China's Cellular Economy: Some Economic Trends since the Cultural Revolution," *China Quarterly* 52 (1972), 605–19.

Even as food supply issues stalled China's economic growth, the widening gap between actual and potential output both within and beyond the farm sector offered the possibility that suitable reforms could rapidly generate large increases in output. In addition to directly raising agricultural production, rural reform promised to promote economy-wide growth by accelerating the reallocation of labor into nonagricultural activities in which returns were even higher. This is exactly what happened.

The Reform Era

China's economy entered the reform era in difficult straits. Three decades of socialist planning had expanded the scale and scope of industry and upgraded its technical capabilities; the new system also delivered notable advances in education, public health, and life expectancy. Despite these gains, massive inefficiency kept the economy far below its potential. Lagging food production left hundreds of millions underfed and threatened to destabilize key flows underpinning the economy's advance.

In sharp contrast, four decades of reform have brought a remarkable transformation. Some metrics now identify China's economy as the world's largest. Rapid structural change has steeply reduced the importance of agriculture, with the primary sector's share of aggregate output falling from 27.7 percent in 1978 to less than 10 percent beginning in 2009. Official estimates show that primary-sector employment has fallen even faster, from 83.5 percent in 1978 to half or less beginning in 1997 and 26.1 percent in 2018. Industry and services have moved to the forefront, with services gradually taking the lead, surpassing industry's share of employment in 1994 and output in 2012. Massive population shifts have raised the urban share of China's population to 60 percent.[91] China has emerged as a great trading nation, a global science and innovation powerhouse,[92] and both a leading recipient and a major source of overseas investment.

Our analysis emphasizes the twin processes of economic transition – the shift from plan to market in the allocation of resources, and structural transformation, most notably the movement of people and resources out of agriculture and into industry and services. Along with productivity

[91] *Yearbook* 2019, Tables 2-7, 3-2, 4-2. Official sources overestimate employment in the primary sector, which includes forestry and fisheries as well as agriculture.

[92] R.B. Freeman and W. Huang, "China's 'Great Leap Forward' in Science and Engineering," in A. Geuna (ed.), *Global Mobility of Research Scientists: The Economics of Who Goes Where and Why* (London, Academic Press, 2015), pp. 155–75.

improvements within individual sectors, the transfer of resources along productivity-enhancing paths toward nonagricultural activity, non-state enterprises, and coastal locations delivered more than three-fourths of the increase in per capita incomes during the first three decades of the reform era, with the rest coming from capital deepening and rising education levels.[93]

The central role of productivity growth and resource reallocation during China's long boom conceals deep-rooted tensions between economic advance and the state's noneconomic objectives. Rapid productivity growth in non-state industry and services has elevated returns to investment and thus sustained the incentives for high rates of capital formation. By the start of the global financial crisis in 2008, the non-state sector's share of investment had increased from slightly more than 10 percent in 1978 to nearly half.[94] The rest went to the state sector, where returns to capital were often negative and productivity growth was only a third or a quarter of what the non-state sector delivered. Despite these dismal economic returns, China's leaders continue to promote state-sector investment, which over the last decade has averaged roughly 20 percent of GDP, to advance multiple noneconomic objectives – patronage and network building, national security, and demonstrations of national might. In the wake of the 2008 crisis, policies that steer resources toward the state sector and extend official intervention in private-sector management threaten to curtail China's economic growth.

We divide the reform era into three phases: reform from below, extending into the early 1990s; the following decade and a half of more organized, centrally directed reform initiatives; and the current period, beginning with the global crash, dominated by top-down innovation plans.

Stage 1: Reform from Below – Decentralized Initiative and Central Reaction

Reform commenced in the villages. While scholars dispute the relative importance of spontaneous grassroots action and local government decisions in the rapid shift from collective to household cultivation, the impotence of central leadership is indisputable. Major documents issued by central CCP bodies in 1979 and 1980 bristle with calls for restoring rural workers'

[93] X.D. Zhu, "Understanding China's Growth: Past, Present, and Future," *Journal of Economic Perspectives* 26.4 (2012), 108.

[94] L. Brandt and X.D. Zhu, "Accounting for China's Growth," University of Toronto Department of Economics Working Paper 394 (2010), Figure 2.

production enthusiasm (*shengchan jijixing* 生产积极性), while prohibiting household cultivation, lauding collectives as the "unshakable foundation" of agrarian progress and denying that household activity could support "the establishment of modern agriculture."[95]

Subsequent developments highlight the center's irrelevance. Noting that contracting to households had aroused "great enthusiasm among the masses," the summary of a 1981 agricultural reform conference notes that "since reality has already outrun the [1980] directive . . . delegates suggested that the Center promptly formulate new documents reflecting the new circumstances."[96]

Restoration of household farming, along with partial decontrol of rural marketing and individual entrepreneurship, propelled swift increases in both agricultural output and productivity,[97] even as millions abandoned farming for newly emerging opportunities in industry and services. Sichuan and Anhui, provinces that had suffered the most during the Great Leap Famine, led these rural reforms.[98] The suddenness of the ensuing shift from near-stagnation to rapid growth, which generated nationwide improvements in rural incomes and food availability, reveals the centrality of institutional changes that simultaneously restored incentives, encouraged greater work effort, and allowed agriculture to exploit the untapped potential of new seeds, chemical fertilizer, and expanded irrigation accumulated under the collective regime.[99]

Alongside these rural developments, growing awareness that prolonged isolation had stranded Chinese industry and technology far behind its East Asian neighbors, as well as North America and Western Europe, inspired plans for a big push to upgrade domestic technology and equipment.[100] The

[95] 中国农业年鉴 1980 (Beijing, Nongye chubanshe, 1981), pp. 57–8; 中国农业年鉴 1981 (Beijing, Nongye chubanshe, 1982), pp. 409–10.

[96] "全国农业经济问题讨论会纪要" (Summary of the National Symposium on Agricultural Issues), 农业经济问题 (Agricultural Economic Issues) 10 (1981), 2. Also A. Watson, "Agriculture Looks for 'Shoes That Fit': The Production Responsibility System and Its Implications," *World Development* 11.8 (1983), 713.

[97] J.Y. Lin, "Rural Reforms and Agricultural Growth in China," *American Economic Review* 82.1 (1982), 46, attributes 48.69 percent of the output growth during 1978–19884 to decollectivization. Fan and Zhang, "Production and Productivity Growth," Table 5, find that, with 1952 = 100, TFP in agriculture (based on constant 1980 prices) jumped from 67 in 1978 to 82 in 1982 and 129 in 1992.

[98] D.L. Yang, *Calamity and Reform in China: State, Rural Society, and Institutional Change since the Great Leap Forward* (Stanford, Stanford University Press, 1996).

[99] J.K. Huang and S. Rozelle, "Technological Change: Rediscovering the Engine of Productivity Growth in China's Rural Economy," *Journal of Development Economics* 49.2 (1996), 337–69.

[100] D.H. Perkins, "Reforming China's Economic System," *Journal of Economic Literature* 26.2 (1988), 618.

collapse of this effort, which quickly outran China's puny export earnings, prompted hesitant urban reforms aimed at "enlivening" operations within the plan system by modestly extending state enterprise managers' decision-making authority and expanding opportunities to buy and sell industrial materials and products.

The dual-track system, which preserved administered prices for plan-related distributions while allowing market sales of above-plan output, broadened market opportunities and sharpened incentives within the state sector.[101] It also encouraged the growth of more efficient producers, particularly benefiting TVEs clustered in coastal provinces. Dual pricing created market-based price signals in nearly every sector, a critical step in expanding market-oriented reform, and modestly sharpened incentives within the state sector. At the same time, the arrangement preserved rents accruing to plan participants. This reduced opposition to market reform, but created lucrative opportunities to resell underpriced goods acquired through plan allocations at higher market prices.

Expansion of overseas trade and investment, led by the creation of special economic zones, added an international dimension to China's boom. China's opening coincided with efforts by Taiwan and Hong Kong entrepreneurs, responding to rising wages in their home markets, to find low-cost venues for labor-intensive export production. The combination of local land and labor along China's coast with the market knowledge, manufacturing experience, and financial resources of these operators shifted growing numbers of rural workers into manufacturing jobs and brought rapid growth of factory exports.

Although the initial reforms affected the entire economy, the largest impact occurred outside the cities and beyond the state sector. Unlike rural reform, which often involved little more than lifting restrictions that had suppressed long-standing patterns of production and marketing, urban reform required the construction of new and unfamiliar institutions, to which state enterprises, managers, and workers, many with no experience of market discipline,[102] would have to adapt. Such changes inevitably encountered opposition from entrenched interests.

Not surprisingly, individuals and firms on the fringes of the plan system took the lead. Rural incomes jumped upward, narrowing the gap with city

[101] W. Li, "The Impact of Economic Reform on the Performance of Chinese State Enterprises, 1980–1989," *Journal of Political Economy* 105 (1997), 1080–1106.

[102] State-owned industrial firms numbered 15,190 in 1955 and 83,400 in 1980; see N.R. Chen, *Chinese Economic Statistics* (Chicago, Aldine, 1967), p. 182; and *Yearbook* 1981, 204.

folk.[103] Rural firms soon penetrated urban markets, slashing the profits of state-owned rivals.[104] Collective and privately owned firms gained a foothold in the new export sector. Relaxation of mobility restrictions sparked the initial phase of what later developed into a tidal wave of migration into China's cities; the late 1970s and early 1980s saw the return of many urbanites "sent down" to rural villages, while villagers sought opportunities to fill gaps created by the plan system's repression of retail and service businesses.[105]

With increases in output, productivity, profits, and revenues clustered in rural areas and in non-state enterprises under the supervision of local governments, the center found itself scrambling to fund its priorities. Both the ratio of government revenue to GDP and the center's share of overall revenue, much of it derived from SOE profits, declined.[106] The center's unwillingness to reduce urban real incomes by imposing higher grain prices saddled the state budget with growing outlays to bridge the gap between rising grain costs and lower fixed retail prices. A further obstacle arose when state-owned commercial banks, responding to reform-enhanced profit motives, steered resources to emerging non-bank financial institutions (NBFIs) that extended credit to fast-growing collectives and private firms.

The state now lacked sufficient budgetary and banking support to implement plans for expanding employment, wages, and investment in the lagging state sector. Urban SOE employment increased more than 50 percent during 1978–1994. The center turned to the People's Bank of China (PBOC), China's central bank, to extend lending to the commercial banks, which used these additional resources to implement the credit plan's provisions for "state sector working-capital and fixed investment needs."[107] This short-term response proved costly, as PBOC intervention caused increases in money supply and prices, rekindling memories of wartime hyperinflation – a key

[103] D.Y. Yang and F. Cai, "The Political Economy of China's Rural–Urban Divide," Stanford Center for International Development, Working Paper No. 62, 2000, p. 32, find that in real terms the urban–rural ratio for consumption (not income) dropped from 2.9 in 1978 to 1.9 in 1985, then rebounded to 2.5 in 1992.

[104] B. Naughton, "Implications of the State Monopoly over Industry and Its Relaxation," *Modern China* 18.1 (1992), 14–41.

[105] D.J. Solinger, *Chinese Business under Socialism: The Politics of Domestic Commerce, 1949–1980* (Berkeley, University of California Press, 1984), p. 325, notes that the number of shops, restaurants, and commercial centers "under commercial departments, in urban and industrial and mining areas," dropped from 1 million to 180,000 between 1957 and 1978.

[106] Wong and Bird, "China's Fiscal System," 433.

[107] L. Brandt and X.D. Zhu, "China's Banking Sector and Economic Growth," in C. W. Calomiris (ed.), *China's Financial Transition at a Crossroads* (New York, Columbia University Press, 2007), p. 97.

ingredient in the CCP's victory over the Guomindang.[108] Official intervention to limit monetary growth by constricting the supply of credit to the dynamic non-state sector restrained inflation, but also lowered the overall growth rate. The result was a series of stop–go cycles in which periods of accelerated growth led by non-state firms alternated with intervals of reduced credit and output growth.[109]

Despite these tensions, which helped to spark the unrest that culminated in top-level purges and violent suppression of mass protests in 1989, this initial stage of reform delivered an astonishing turnaround that accelerated the growth of overall output. In stark contrast to the plan era, the initial reforms increased personal incomes and released several hundred million villagers from the scourge of absolute poverty.[110]

For the first time, China experienced widespread productivity growth, reflecting the joint impact of transition and development. Transition partially restored market exchange, market prices,[111] personal mobility, and openness to entry and competition from both domestic and overseas firms and products. This enabled China's first ever large-scale shift out of agriculture, as non-primary employment more than doubled, adding over 150 million workers between 1978 and 1992.[112]

Deng Xiaoping's endorsement of growth and rejection of long-standing egalitarian emphasis highlighted an unprecedented alignment of incentives,[113] as a widely shared preference for growth now united villagers seeking to escape collective control, workers hungry for bonuses, managers and bankers pursuing profits, and officials whose career prospects and informal incomes now rested increasingly on raising output.[114]

[108] K.N. Chang, *The Inflationary Spiral: The Experience in China, 1939–1950* (Cambridge, MA, MIT Press, 1958).

[109] L. Brandt and X.D. Zhu, "Redistribution in a Decentralized Economy: Growth and Inflation in China under Reform," *Journal of Political Economy* 108.2 (2000), 422–39.

[110] M. Ravallion and S.H. Chen, "China's (Uneven) Progress against Poverty," *Journal of Development Economics* 82.1 (2006), 1–42.

[111] By 1990, market prices governed just over half of retail transactions and exchange of agricultural products; for production materials, the share of market pricing was 36.4 percent. H. Dinh, T.G. Rawski, A. Zafar, L.H. Wang, and E. Mavroeidi, with X. Tong and P.F. Li, *Tales from the Development Frontier: How China and Other Countries Harness Light Manufacturing to Create Jobs and Prosperity* (Washington, DC, World Bank, 2013), p. 77.

[112] *Yearbook* 2019, Table 4–2.

[113] E.F. Vogel, *Deng Xiaoping and the Transformation of China* (Cambridge, MA, Harvard University Press, 2011), 242, dates this from 1978, when "allowing some regions and enterprises to get rich first" was a major theme of Deng's December 13 speech to the Central Party Work Conference.

[114] H.B. Li and L.A. Zhou, "Political Turnover and Economic Performance: The Incentive Role of Personnel Control in China," *Journal of Public Economics* 89 (2005), 1743–62.

Along with remarkable economic advance, China's initial reforms exposed a fundamental duality between the economy's dynamic segments, which clustered outside the cities and beyond the state sector,[115] and the lagging, resource-hungry state sector. A stark performance gap separated the two: between 1980 and 1992, growth of output, labor productivity, and TFP in state-owned industries was only a half to a third of that in collective and private firms.[116] Even so, Beijing continued to see the state sector as central to its pursuit of multiple objectives, many extending beyond narrowly economic outcomes, and as a portfolio of resources available to supplement state appropriations and to reinforce loyalty within the ruling coalition.

Heavy reliance on the state sector explains why, despite its evident economic weakness, the annual "flow of resources through the financial system making its way to the state sector" during 1978–1994 amounted to 15 to 20 percent of GDP.[117] As China gradually recovered from the tempestuous events of 1989, further reform seemed essential to resolve a fundamental conflict between the desire for continued rapid growth and the drain from large-scale transfers to underperforming segments of the economy.

Stage 2: Major Reform Initiatives Extend Market Forces and Restore Central Control

Suppression of the June 1989 Beijing protests left China's central leadership badly shaken. Ousting CCP general secretary and former premier Zhao Ziyang and his allies while mobilizing the army to terminate public protests fractured the top echelons of power and blurred lines of control over routine economic administration.

The economy stumbled: employment growth during 1988–1989 dropped to less than one-third of the average over the preceding decade, while nominal investment outlays declined for the first time since 1980–1981.[118] The GDP share of government revenue and expenditure, which had stabilized at the end of the 1980s following a decade of decline, resumed its downward march.

[115] Y.S. Huang, "How Did China Take Off?", *Journal of Economic Perspectives* 26.4 (2012).
[116] G.H. Jefferson and T.G. Rawski, "Enterprise Reform in Chinese Industry," *Journal of Economic Perspectives* 8.2 (1994), 48, 56.
[117] Brandt and Zhu, "China's Banking Sector and Economic Growth," 96–9. Over this period, more than 60 percent of capital formation, and two-thirds of all new banking loans, went to the state sector.
[118] Employment data from *Yearbook* 1991, Table 4-8; investment data from *Yearbook* 1991, Tables 5-20, 5-35; and from 1950–1985 中国固定资产投资统计资料, pp. 49, 216.

Despite this unlikely start, Deng Xiaoping's 1992 "Southern Tour" ignited an avalanche of growth that outstripped the impressive early reform achievements. This renewed growth rested, in turn, on constructive actions that swept aside multiple constraints and further expanded the influence of market forces, while restoring the power and authority of the CCP and the central state. Major reforms affected public finance, banking, state enterprises, and market opening.

Fiscal Restructuring

Tax reform implemented in 1994 reversed the long decline in the GDP share of fiscal revenue, increased the central government's claim on overall revenue, and, perhaps most important for re-establishing central authority, ensured that province-level units, "including Shanghai and Beijing," became "dependent on central transfers to finance expenditures."[119]

Bank Reform

During the 1980s, the main source of investment funding shifted from budgetary grants to bank loans. State enterprises, the main recipients, "turned increasingly to bank credit without much concern about their future ability to repay."[120] This led to an epidemic of payment arrears: estimates show that, by 1998, half or more of bank loans were "non-performing."[121]

During the late 1990s, the central government took major steps to rectify this dangerous situation. Newly created asset management companies purchased vast tranches of bad loans, thereby recapitalizing the floundering state-owned commercial banks. The center increased its control over the financial system: shuttering weak financial firms, closing down most NBFIs, reorganizing the central bank's subnational branches to reduce the influence of provincial and local leaders, and increasing the influence of high-level officials in the appointment and promotion of bank executives.

The removal of bad loans, coupled with the establishment of policy banks to shoulder the burden of noncommercial finance, greatly strengthened the lending capacity of China's four giant commercial banks. Although politically directed lending continued, the commercial element in bank operations deepened.[122]

[119] Wong and Bird, "China's Fiscal System," 437.
[120] B. Naughton, *The Chinese Economy: Transitions and Growth* (Cambridge, MIT Press, 2007), p. 306.
[121] Brandt and Zhu, "China's Banking Sector and Economic Growth," 128.
[122] J. Stent, *China's Banking Transformation* (New York, Oxford University Press, 2017). A textile executive commented, "Banks are not the same as before. Now if you have no money and can't repay, they won't lend to you" (May 1996 interview).

State Enterprises

The focus of reform shifted from flows (of new workers, new investments, and above-plan output) toward more complex realignments affecting embedded resource stocks, including workers and entire firms. Beijing's vision of the state sector's role narrowed, with textiles, food processing, and other industries now classed as "competitive," implying that preservation of state-sector dominance, and even the survival of individual firms, were no longer essential.

Privatization, often via management buyouts, multiplied, as did bankruptcies and closures. The overall number of state-owned enterprises plunged from 262,000 to 112,000 between 1997 and 2007; for industry, the total declined from 103,300 in 1992 to 20,680 in 2007.[123] Severe culling eliminated over one-third of state-sector personnel, formerly endowed with (often heritable) lifetime tenure; between 1996 and 2000 alone, the state-sector headcount plunged from 113 million to 67 million.[124]

Bottom-up initiatives originating with provincial and local authorities, which had gained control over large segments of state-owned industry following decentralization programs in 1957 and 1970,[125] dominated these downsizing efforts. Subnational governments welcomed opportunities to shed the burden of maintaining weak enterprises, including TVEs and other collective enterprises as well as state-owned firms, that could not withstand intensifying market pressures.

The center, by contrast, acted to strengthen enterprises under its direct control. Following the 2003 creation of the State-Owned Assets Supervisory Commission (SASAC), policy effort focused on the complex and rapidly expanding operations of roughly 100 giant state-owned enterprise groups in key commodity (petroleum, grain), manufacturing (steel, aluminum, aircraft), infrastructure (railroads, electricity, telecoms), and financial (banking, insurance) sectors. These efforts helped to maintain the state's share in GDP while increasing the share of the state sector under central government control.

[123] K.J. Lin, X.Y. Lu, J.S. Zhang, and Y. Zheng, "State-Owned Enterprises in China: A Review of 40 Years of Research and Practice," *China Journal of Accounting Research* 13 (2020), 34; *Yearbook* 1995, Table 12-1; *Yearbook* 2008, Table 13-8 (including state-controlled industrial units).

[124] *Yearbook* 2005, Table 5-4. [125] Wong, "Ownership and Control."

Market Opening

The scope of market-based transactions continued to expand. Rapid growth of highway and water transport, much of it in the hands of unregulated private operators, contributed to the erosion of local protectionism and interprovincial trade barriers.[126] Analysis based on monthly data for ninety-three products in thirty-six major cities found that "prices did converge" during 1990–2003, and that "the patterns of convergence ... were highly comparable" to observations from "the United States, Canada, and European countries" – all indicating the powerful influence of market forces.[127]

Employment became increasingly market-based. The former system of job assignments faded, as graduating students and employers sought mutually advantageous matches. Market expansion unleashed a torrent of internal migration – a familiar phenomenon in China's modern history.[128] In 2001, Premier Zhu Rongji bluntly advised "laid-off workers ... to find jobs on the private labor market."[129]

SOE reform and sweeping privatization of collective enterprises, together with modest improvements in the legal protections surrounding private ownership and Jiang Zemin's 2001 decision to admit entrepreneurs to Communist Party membership, improved the position of private business. These changes, along with widespread privatization of collective firms, spurred explosive growth in the private sector's share of output and especially employment. Between 1992 and 2007, urban private employment rose from 10.6 million to 78.9 million; in the countryside, 2007 private-enterprise employment surpassed 110 million.[130] These trends benefited from

[126] *Yearbook* 2010, Tables 16-4, 16-8, 16-24, shows that between 1990 and 2007, China's truck fleet increased from 3.7 to 10.5 million vehicles; during the same period, the length of highways as well as the annual volume of freight carriage along inland waterways more than tripled.

[127] C.S. Fan and X.D. Wei, "The Law of One Price: Evidence from the Transitional Economy of China," *Review of Economics and Statistics* 88.4 (2006), 694.

[128] In addition to overseas migrations, major domestic population movements include Qing-era migration into Sichuan, the resettlement of lands devastated by the Taiping wars, and large-scale population movement into Manchuria during the late nineteenth and early twentieth centuries. See M. Bastid-Bruguiere, "Currents of Social Change," in J.K. Fairbank and K.C. Liu (eds.), *The Cambridge History of China*, vol. 11, *Late Ch'ing, 1800–1911*, part 2 (Cambridge, Cambridge University Press, 1980), pp. 582–6; T. R. Gottschang and D. Lary, *Swallows and Settlers: The Great Migration from North China to Manchuria* (Ann Arbor, University of Michigan Center for Chinese Studies, 2000).

[129] Q.W. Zhu, "Domestic Market Fuels Growth," *China Daily*, August 6, 2001, 4.

[130] Yearbook *2011*, Table 4-2; 中国乡镇企业及农产品加工业年鉴 2008 (electronic edition, no page or table numbers, accessed June 29, 2020). Both urban and rural employment include individual proprietorships.

"extremely rapid growth of credit to private and individual businesses" following the 1994 implementation of China's Company Law.[131]

In the late 1990s, sweeping privatization of urban housing created a property market that hugely increased the wealth of urban households, creating opportunities for new owners to finance private businesses and overseas education for their children.[132]

Along with domestic opening, China moved to rejoin the global economy. Hesitant initial steps, notably the opening of tiny special economic zones, developed into a powerful push to regain and then surpass China's prewar footprint in global trade and investment. Tariff reductions and other measures implemented ahead of China's 2001 accession to the World Trade Organization created "one of the developing world's most open trade and FDI regimes," highlighting China's growing involvement in cross-border flows of commodities, investment, technology, information, and individuals.[133]

Rapid expansion of international trade and investment added momentum to domestic growth. China's share of global merchandise trade grew from 0.9 to 2.2 percent between 1980 and 1992 – neither exceeding the prewar figures noted above – to 2.7, 3.6, and 7.7 percent in 1995, 2000, and 2007. China's trade share overtook Japan's in 2004.[134] Rising foreign direct investment (FDI), much of it from Taiwan and Hong Kong, and often directed toward export-oriented manufacturing, along with authorization of growing numbers of domestic firms to conduct international trade,[135] brought considerations of cost and profit to the fore, shifting trade patterns toward the underlying structure of comparative advantage. Chinese firms began to join international supply chains, accelerating the spread of management skills.

Beginning in the 1990s, large FDI inflows enabled China to recover its prewar standing as a major destination for overseas investment. China's share of the global FDI stock housed in developing nations, which exceeded

[131] Lardy, *Markets over Mao*, p. 102.
[132] H.M. Fan, G.L. Gu, W. Xiong, and L.A. Zhou, "Demystifying the Chinese Housing Boom," in M. Eichenbaum and J.A. Parker (eds.), *NBER Macroeconomics Annual 2015* (Chicago, University of Chicago Press, 2016), pp. 105–66.
[133] L. Branstetter and N.R. Lardy, "China's Embrace of Globalization," in Brandt and Rawski, *China's Great Economic Transformation*, p. 676.
[134] Post-1949 figures from https://data.wto.org, accessed July 14, 2020.
[135] Branstetter and Lardy, "China's Embrace of Globalization," p. 635, note the number of companies authorized to conduct international trade: twelve in 1978, 800 in 1985, and 35,000 in 2001.

15 percent during the 1930s, achieved similar levels again by the late 1990s.[136] While China has consistently been among the top three recipients of FDI since the early 1990s, its share of the worldwide FDI stock in 2019 remains below half of the 1930s figure of 11 percent.[137]

Outcomes

Market opening encouraged accelerated structural change that moved resources toward more productive uses. The primary sector's GDP share dropped from one-fifth to one-tenth between 1992 and 2007, while the tertiary (service) sector's share jumped from 36 to 43 percent. The official measure of China's primary-sector labor force peaked in 1991; by 2007, it had declined by 83.7 million. Employment growth clustered in the service sector, which added 113 million workers during the same years.[138]

The growing influence of market forces pulled resources into coastal regions, which increased their weight in overall production and investment while dominating export production and absorption of incoming foreign investment.[139] The share of China's eastern region in overall fixed investment jumped from about one-third prior to 1975 to over 60 percent during the mid-1990s.[140] A 2008 survey clearly demarcated the geographic locus of economic dynamism: of 140 million internal migrants who had left their home counties, 70 percent originated in China's central or western regions, and 62 percent had moved to eastern provinces, which housed 43 percent of the national population.[141]

Growing internationalization intensified the impact of domestic-market opening on competition, cost reduction, and quality improvement. Tariff reductions and other liberalization measures implemented ahead of China's

[136] The Asian financial crisis temporarily lowered China's FDI inflows and its share of the global FDI stock.

[137] Calculated from UNCTAD, *World Investment Report 2020*, Annex Table 1; these data exclude FDI flows into Hong Kong.

[138] *Yearbook* 2019, Tables 3-2, 4-2.

[139] X.J. Jiang, *FDI in China: Contributions to Growth, Restructuring and Competitiveness* (New York, Nova Science Publishers, 2004), p. 82, notes that, as of late 2001, 86 percent of FDI had located in China's eastern region.

[140] NBS, "固定资产投资水平不断提升对发展的关键性作用持续发挥" (The Ongoing Rise in the Level of Fixed Asset Investment Continues to Play a Key Role in Development), at 70prc.cn/2019-09/19/c_138404706.htm, posted September 19, 2019, accessed June 29, 2020.

[141] *Yearbook* 2009, Table 3-4; 2008 年末全国农民工总量为 22542 万人 (At the End of 2008, the Total Number of Migrant Workers Nationwide Was 225.42 Million), at stats.gov.cn/ztjc/ztfx/fxbg/200903/t20090325_16116.html, accessed July 13, 2020. The data on regional origins and destinations are limited to migrants with fixed employment.

WTO accession represented "a watershed" that forced widespread cost reductions.[142] Growing competition from imports and from an expanding array of domestic producers created pressures that increased productivity and reduced both the level and the dispersion of sales markups.[143]

Foreign-invested firms occupied a "vital role . . . [in] transfers of technology, production and organizational skills, managerial know-how, and marketing expertise" that powered "robust progress" in China's "capacity to manufacture a growing array of internationally competitive products."[144] Overseas firms, eager to capitalize on low Chinese costs, promoted domestic supply chains to feed their Chinese assembly plants. Along with the arrival of overseas component manufacturers, these supply networks absorbed thousands of local firms: by the year 2000, "of Motorola's 700-odd suppliers in China . . . more than 400 are domestic."[145]

These changes generated striking economic results. Following a brief slowdown in the wake of the 1989 disturbances, rapid growth resumed: measured at international prices, per capita income rose at an annual rate of 6.4 percent during 1992–2007.[146] As in the initial reform phase, productivity growth, dormant prior to 1978, continued as the primary driver of expansion for the entire economy and for industry, the largest sector.[147]

The period between 1992 and the 2008 global financial crisis represents an interlude of relative political calm in which contentious debate about the long-term objective of economic policy continued even as major reforms delivered large and tangible benefits to advocates of both market transformation and state-led development.

Liberalizing reformers rejoiced as openness, entry and competition swept across large swathes of China's economic landscape. Jiang Zemin's dual 2001 initiatives, first opening the CCP to private entrepreneurs, and then proposing a "socialist market economy with Chinese characteristics," fanned expectations of gradual convergence to market outcomes. Beyond economics, the broad liberalizing agenda of disgraced former CCP general secretary Zhao Ziyang "happened by evolution," with growing "separation of

[142] Branstetter and Lardy, "China's Embrace of Globalization," p. 656.
[143] L. Brandt, J. van Biesebroeck, L.H. Wang, and Y.F. Zhang, "WTO Accession and Performance of Chinese Manufacturing Firms," *American Economic Review* 107.9 (2017), 2784–820; Y. Lu and L.H. Yu, "Trade Liberalization and Markup Dispersion: Evidence from China's WTO Accession," *American Economic Journal: Applied Economics* 7.2 (2015), 221–53.
[144] L. Brandt, T.G. Rawski, and J. Sutton, "China's Industrial Development," in Brandt and Rawski, *China's Great Economic Transformation*, pp. 622–3.
[145] Jiang, *FDI in China*, 29. [146] Calculated from Penn World Tables v. 9.1.
[147] Perkins and Rawski, "Forecasting," 839; Brandt et al., "WTO Accession."

responsibilities and spheres of authority," leaders chosen "for their policy-relevant expertise . . . economic policy-makers at all levels suffer less and less frequently from intervention by the ideology-and-mobilization specialists," while "neither the top leader nor the central Party organs interfere as much in the work of other agencies" as in the past, and "ideological considerations have only marginal, if any, influence on most policy decisions."[148]

Developments between 1992 and 2007 equally reinforced the position and prospects for state-led development. The collapse of the Soviet Union alarmed Chinese elites. Fears that China might experience similar centrifugal pressures reinforced CCP claims that it alone could ensure national unity and guide China to a position of global prominence. Patriotic education campaigns promoted "national greatness," echoing early twentieth-century political discourse. A string of diplomatic triumphs – the 1997 return of Hong Kong, 2001 entry into the World Trade Organization, and the selection of Beijing to host the 2008 summer Olympics – highlighted the CCP regime's capacity to deliver benefits extending far beyond economic growth.

In tandem with growing market influence, developments between 1992 and 2007 multiplied the power of the central state. Beijing maintained strong control over large segments of the economy, including major upstream industries (petroleum, electricity), railroads, and large segments of the service sector (finance, telecoms). Fiscal and banking reforms massively enlarged the central state's command over resources, while state-sector downsizing, urban housing privatization, and the termination of urban food subsidies eliminated large fiscal burdens. Economic success created vast pools of discretionary funds: between 1992–1993 and 2007, central government revenue, state enterprise assets and profits, nationwide financial deposits, and foreign-exchange reserves each rose far more rapidly than China's GDP.[149] Giant centrally supervised enterprise groups, some with thousands of subsidiaries, amassed 2007 profits equivalent to 4 percent of GDP.[150] Their opaque corporate structures, along with booming infrastructure spending, multiplied opportunities to distribute rents, a key link in maintaining elite support, on a grand scale. One account describes state-directed investment as "the prime enabler of corruption."[151]

[148] A.J. Nathan, "China's Changing of the Guard: Authoritarian Resilience," *Journal of Democracy* 14.1 (2003), 11–13.

[149] All measured at current prices. See the online appendix referenced in note 44 above.

[150] B. Naughton, "SASAC and Rising Corporate Power in China," *China Leadership Monitor* 24 (2008), 2.

[151] J. Du, Y. Lu, and Z.G. Tao, "Government Expropriation and Chinese-Style Firm Diversification," *Journal of Comparative Economics* 43 (2015), esp. 166–8; J. Osburg,

Deep resource pools enabled the implementation of large, top-down development projects, notably a major initiative to develop China's western region, begun in the year 2000, and the initial phase of building national networks of expressways and high-speed rail lines. Beyond these specific programs, the incoming leadership group headed by Hu Jintao and Wen Jiabao abandoned former premier Zhu Rongji's downsizing of central government scale and functions in favor of a more activist approach. Beginning in 2003, the new leaders shifted technology upgrading "expenditure . . . towards domestic research and development . . . and away from technology import," raised "direct government expenditure on techno-industrial projects," and instituted a steep rise in "the number of industrial policies" that supported "specific sectors, firms, or technologies."[152]

The fifteen years prior to the 2008 financial crisis witnessed rapid evolution of China's economy. Growth flourished, largely driven by rising productivity. Domestic and international opening enlarged the influence of market signals and pressures. Reforms also expanded the state's command over resources, encouraging a turn toward governmental activism. With movement toward marketization "stalled out" following the 2003–2004 turn toward governmental activism, the overall weight of market elements in China's economy began to recede in advance of the 2008 global crash.[153]

Stage 3: Toward State Capitalism

The 2008 global financial crisis enhanced state influence in China, as in all major economies. Beijing responded to the steep downturn with a blizzard of new credit, most channeled through state-controlled entities and directed toward urban infrastructure. Following a rapid recovery, growth continued, although at considerably reduced rates that some analysts view as exaggerated.[154]

"Global Capitalisms in Asia: Beyond State and Market in China," *Journal of Asian Studies* 72.4 (2013), 824.

[152] L. Chen and B. Naughton, "An Institutionalized Policy-Making Mechanism: China's Return to Techno-industrial Policy," *Research Policy* 45 (2016), 2141.

[153] B. Naughton, "The Return of Planning in China: Comment on Heilmann–Melton and Hu Angang," *Modern China* 39.6 (2013), 651.

[154] Y.Y. Hu and J.X. Yao, "Illuminating Economic Growth," IMF Working Paper 19/77 (2019); W. Chen, X.L. Chen, C.T. Hsieh, and Z.M. Song, "A Forensic Examination of China's National Accounts," *Brookings Papers on Economic Activity* 1 (2019), 77–141.

State Control to the Fore

Economic policy redoubled the emphasis on state leadership and adopted a new trajectory in which cutting-edge innovation supplants technological catch-up as the key driver of expansion. President Xi's "China Dream" sees domestic prosperity and technical advance as twin springboards for a nationalist agenda targeting regional and global leadership across multiple arenas: innovation, trade, investment, diplomacy, science, and the military. Two signature policies, "Made in China 2025" and "One Belt, One Road" illuminate current economic priorities. Both contrast sharply with the recommendation of greater openness, entry, competition, and market allocation in *China 2030*, a major 2013 study by the Development Research Center under China's State Council and the World Bank.

Made in China 2025, a long-term program developed by the Chinese Academy of Engineering, a bastion of top-down planning, establishes timetables for attaining an array of advanced manufacturing milestones, often including specific figures for output volume and domestic or even global market share.[155] With its focus on quantitative targets and neglect of competition, prices, and costs, this program, while dealing with a new set of industries and technologies, embodies a top-down, nonmarket strategy that echoes China's plans of the 1950s. Its nonmarket approach resembles subsequent initiatives, especially the 2006 "National Medium- to Long-Term Plan for the Development of Science and Technology" and the 2010 "Decision of the State Council on Accelerating the Fostering and Development of Strategic Emerging Industries."

The Belt and Road program proposes a vast network of energy and infrastructure facilities spanning the entire Eurasian land mass, with extensions to Africa and Latin America. This initiative, which combines aid, lending, trade, and diplomacy, seeks to deepen China's ties with low- and middle-income nations, in part to offset weakening demand growth for Chinese products in advanced markets.[156] This agenda showcases Chinese capabilities in design, finance, management, construction, and hardware manufacture linked to an array of upstream industries, many awash in excess production capacity. While China continues as a leading global destination

[155] J. Wübbeke, M. Meissner, M.J. Zenglein, J. Ives, and B. Conrad, "Made in China 2025: The Making of a High-Tech Superpower and Consequences for Industrial Countries," MERICS Papers on China No. 2, 2016.

[156] The share of China's exports to advanced nations declined from 54.6 to 47.7 percent between 2007 and 2018. *Yearbook* 2008, Table 17-8; *Yearbook* 2019, Table 11-5.

for foreign investment, Belt and Road projects spearhead its emergence as a major source of outbound international investment.

These huge programs represent the leading edge of official economic intervention, which has achieved a scale without historical precedent. China's government spending exceeds its US counterpart.[157] Beijing's control over financial resources extends far beyond official budgets. China's state-dominated financial system remains responsive to official directives, as do managers of China's world-leading foreign-exchange reserves and the leaders of nonfinancial state enterprises, whose combined assets eclipse those of the 500 largest US companies.[158]

This multiplex arsenal supports outlays of astonishing breadth and scale. Some 90 percent of companies with A-shares listed on the Shanghai exchange received government subsidies in 2016. The China Integrated Circuit Industry Investment Fund, established in 2014, "invested in more than 70 projects and companies" following initial fund-raising. Subsequent contributions lifted funding to US$51 billion. China's shipbuilding industry, which reported 2005 output of RMB 125.7 billion, received "policy support" valued at RMB 550 billion between 2006 and 2013.[159]

Government intervention extends beyond China's national borders. UNCTAD data show that China's stock of outbound FDI, much of it in the hands of state enterprises, now exceeds the stock of inward FDI. Overseas lending, partly in support of Belt and Road projects, represents a further extension of official activity: year-end 2018 debts of "73 of the world's poorest countries" held by the Chinese state and state-owned financial institutions amounted to US$104 billion, matching the total ($106 billion) owed to the World Bank.[160]

Chinese advances in multiple segments of technology-intensive activity – Internet software, supercomputers, electric vehicles, high-speed rail, green energy, high-voltage power transmission, artificial intelligence, and genetics,

[157] See the online appendix referred to in note 44.
[158] See the online appendix referred to in note 44.
[159] D.H. Xu 徐东华 (ed.), 中国装备制造业发展报告 2017 (Report on the Development of Equipment Manufacturing Industry in China 2017) (Beijing, Shehui kexue wenxian chubanshe, 2017), p. 87; B. van Hezewijk, "Big Fund = Big Impact? 'Winning the Future' of the Semiconductor Industry," August 24, 2019, at www.linkedin.com/pulse/big-fund-impact-winning-future-semiconductor-industry-van-hezewijk; TX Investment Consulting Co., Ltd., "全求船舶制造业特续景气,国内造船企业加速整合" (Accelerate the Consolidation of Domestic Shipbuilding for the Continued Prosperity of the Shipbuilding Industry) (February 28, 2007), 7; P.J. Barwick, M. Kalouptsidi, and N.B. Zahur, "China's Industrial Policy: An Empirical Evaluation," NBER Working Paper 26075, 2019, 2.
[160] "The Debt Toll," *The Economist*, July 4, 2020, 63.

among others – demonstrate the new strategy's capacity to promote innovation. At the same time, multiple constraints limit the effectiveness of the vast resources deployed in pursuit of innovation.

Constraints: Ongoing, New, and Resurrected

China's economic system channels vast resource flows into unproductive activities. Top-down selection of priorities steers investment in directions that often clash with domestic capabilities and with China's international comparative advantage. Politics pervades the allocation process, delivering resources and opportunities into the wrong hands, while bypassing worthwhile industries, projects, and proprietors.

SOE priority status has survived decades of underperformance. From 1978 to 2007, the state sector "contributed essentially zero to aggregate growth in total factor productivity."[161] Additional evidence confirms the deleterious impact of state ownership on growth, profitability, and structural change. Entry barriers and subsidies allow plodding, overstaffed state firms to remain profitable;[162] at the same time, soft budget constraints exempt long-time money losers from financial discipline, dragging returns downward.[163] The growing complexity of SOE structures conceals payoffs to allies, wealth extraction, and waste. Negative consequences of state ownership extend beyond the SOEs themselves to encompass the sectors and regions they inhabit: "in almost every dimension – the rate of start-up of new firms, size of firms, TFP, and wages . . . new firms are weaker where the SOEs are more dominant."[164]

Announcement of official priorities sparks rampaging investment as officials, agencies, companies, and organizations pursue the anticipated cornucopia of financial and reputational bounty. In 2016, a "robot craze" prompted local governments to announce 2020 output targets that amounted to a considerable multiple of overall demand projections.[165] Inflated R & D

[161] Zhu, "Understanding China's Growth," 119.
[162] Insiders at one of China's largest energy firms regard two-thirds of the company's workforce as superfluous (personal communication).
[163] N.R. Lardy, *The State Strikes Back: The End of Economic Reform in China?* (Washington, DC, Peterson Institute for International Economics, 2019), pp. 52, 55, 89, shows declining return on assets for state firms after 2007, with the share of loss makers regularly exceeding 40 percent.
[164] L. Brandt, G. Kambourov, and K. Storesletten, "Barriers to Entry and Regional Economic Growth in China," University of Toronto, Department of Economics, Working Paper 652, January 5, 2020.
[165] Wübbeke et al., "Made in China," 25.

spending,[166] low-quality patents,[167] phantom companies,[168] unaudited venture funds,[169] and dubious projects burden Chinese industrial policy with long tails of excess.

The ubiquity of procedures that allow "particularistic bargains" rather than "universal rules" enables officials to distort seemingly market-based transactions to benefit favored participants.[170] Officials can readily manipulate government-managed auctions and supplier certification processes to steer business opportunities toward preferred clients.[171] In return for access to urban real estate at discounted prices, companies associated with relatives of top leaders accelerate the promotion of provincial officials.[172] Similarly privileged "princelings" orchestrate lesser rivulets of efficiency-sapping resource diversion in every locality and sector.

Xi Jinping's emphasis on top-down strategizing and enthusiasm for the "dominance" (*zhuti diwei* 主体地位) and "leading role" (*zhudao diwei* 主导地位) of public ownership and state-controlled enterprises enlarges these costs. Casting state-owned enterprises as lead actors in national economic strategy diminishes prospects for favorable outcomes. The growing sway of official mandates over financial resources, investment opportunities, and approval mechanisms stifles decentralized experimentation and limits private-sector options.[173] New constraints, beginning with the installation of frontier innovation as the centerpiece of China's policy agenda, expand the burden of system costs.

[166] "中国科研经费水分大:'节省'经费发'福利' 经济参考报," June 3, 2007, at techweb.com.cn/news/2007-03-06/162748.shtml; Y.T. Sun and C. Cao, "China's Research Is Work in Progress," *China Daily*, May 11, 2015.

[167] A.G.Z. Hu, P. Zhang, and L.J. Zhao, "China as Number One? Evidence from China's Most Recent Patenting Surge," *Journal of Development Economics* 124 (2017), 107–19; P. Boeing and E. Mueller, "Measuring Patent Quality: Development and Validation of ISR Indices," *China Economic Review* 57 (2019), available at https://browzine.com/articles/332678339.

[168] R.C. Dai, X.Y. Liu, and X.B. Zhang, "Detecting Shell Companies in China," presentation at ASSA annual meeting, January 4, 2020.

[169] N. Xiang, "Rise of Trillion-RMB Government Funds Reshapes China's Investment Landscape," January 13, 2017, at chinamoneynetwork.com/2017/01/13/rise-of-trillion-rmb-government-funds-reshapes-chinas-investment-landscape, accessed September 11, 2017.

[170] S.L. Shirk, *The Political Logic of Economic Reform in China* (Berkeley, University of California Press, 1993), p. 336.

[171] H.B. Cai, J.V. Henderson, and Q.H. Zhang, "China's Land Market Auctions: Evidence of Corruption?", *RAND Journal of Economics* 44.3 (2013), 488–521.

[172] Chen and Kung, "Busting the 'Princelings'." The authors note that recent anticorruption efforts appear to have reduced these discounts by 40–50 percent.

[173] S. Heilmann, *Red Swan: How Unorthodox Policy Making Facilitated China's Rise* (New York, Columbia University Press, 2018).

Current policy replacing market-propelled catch-up with officially mandated innovation targets adds both cost and risk. Investing in activities that enjoy a comparative cost advantage is widely seen as a key contributor to China's recent boom. This has meant that Chinese firms, often working within the anonymity of global supply chains, have pursued incremental advances rather than "'moonshot innovations' – not for them 'iPhone envy'."[174] With "Made in China 2025" in the forefront, current policy stands this approach on its head, focusing precisely on "moonshot innovations" spanning a vast spectrum from large-scale passenger aircraft and space exploration to genetics and nanotechnology.

Attempting frontier innovation in a middle-income economy with a limited command of the human, industrial, and organizational resources that underpin innovation systems in advanced nations multiplies the risks associated with any such effort. Surveys of China's engineering industries highlight weaknesses in precision, durability, quality control, software development, and commercialization of research results – all critical to innovative success.[175] Growing hostility to foreign involvement, especially in strategic and advanced sectors, invites premature import substitution, further compounding the dangers surrounding the main thrust of China's current economic agenda.

Structural change has added constraints in two areas: services and urbanization. The tertiary or service sector, now the largest contributor to both output and employment, includes retail, hospitality, and other low-skill, labor-intensive industries. The technology-intensive service segment includes entrepreneurial and innovative operators such as Baidu, DRI, and Huawei, along with state-owned financial and telecom giants whose main asset is the official umbrella that protects them from competition.

Despite the achievements of a few globally competitive firms, weak performance predominates. Exclusion of private operators limits competition and raises costs in air and rail transport, finance, insurance, and telecommunications, among others. The protectionist nature of China's innovation policy is evident in digital services, where China ranks as the global leader in restricting cross-border trade.[176]

[174] G.S. Yip and B. McKern, *China's Next Strategic Advantage: From Imitation to Innovation* (Cambridge, MA, MIT Press, 2016), pp. 82–3.

[175] Annual issues of D.H. Xu 徐东华 (ed.), 中国装备制造业发展报告, address these issues in considerable detail.

[176] *OECD Services Trade Restrictiveness Index: Policy Trends up to 2020* (Paris, OECD, 2020), pp. 12–13.

Massive internal migration reflects both the attraction of vibrant urban economies and the distortions associated with decades of policy discrimination against rural areas. National policy often appears to conflate cause and effect, anticipating that enlarging city boundaries, reassigning farmland to nonagricultural pursuits, and relocating villagers into high-density housing clusters will somehow elevate productivity. Municipal governments, reflecting concern over the cost of providing health and education benefits as well as urban contempt for migrants' low cultural level, hesitate to absorb these newcomers, and sometimes seek to drive them away.

Revival of pre-reform obstacles to growth completes the roster of constraints that limit China's growth prospects.

China's current leader has resurrected the pre-reform personality cult. As under Mao, many actions must once again await the leader's personal decision. Deng Xiaoping's pragmatism fades as specialized bureaucracies give way to party loyalists. China's constitution now decrees that "east, west, south, north, the party leads on everything."[177]

These changes add fresh burdens to the economy. Party review of business decisions in state and even private firms will complicate already labyrinthine decision mechanisms. Growing pressure on private firms "to set up party committees with an increasing say over strategy" steers activities in directions that deliver political rather than commercial returns. Not surprisingly, available data show declining profitability for non-state industrial and service firms.[178] Educational quality must suffer as teachers shelter behind rote learning and academics give way to "Xi Jinping thought." As in the past, increased emphasis on orthodoxy and suppression of dissent, the bedfellows of politics in command, will attenuate the critical thinking essential to innovation.

Strident emphasis on "autonomous" (*zizhu* 自主) innovation built upon "independent Chinese intellectual property" illustrates how growing nationalist preoccupation has curtailed involvement with foreign firms, technologies, and components. Enhanced focus on security and on civil–military

[177] N. Grünberg and K. Drinhausen, "The Party Leads on Everything," *Merics China Monitor*, September 24, 2019, 10.

[178] "The New State Capitalism: Xi Jinping Is Trying to Remake the Chinese Economy," *The Economist*, August 15, 2020. NBS data show the return on assets for above-scale private industry falling from 12 to 14 percent during 2010–2012 to just over 7 percent in 2018–2019. For services, see L. Brandt, "Policy Perspectives from the Bottom Up: What Do Firm-Level Data Tell Us China Needs to Do?", in R. Glick and M.M. Spiegel (eds.), *Policy Challenges in a Diverging Global Economy* (San Francisco, Federal Reserve Bank of San Francisco, 2015), p. 297.

integration sharpens this nationalist policy edge. With foreign businesses complaining that "strong-arm tactics . . . marked difficulty in getting licenses" and deportation of foreign managers make them "feel unwelcome in China," it is hardly surprising that the number of foreign-invested enterprises and their share in both output and exports began to decline well in advance of the abrupt deterioration of US–China relations in 2020.[179] Rising barriers led the European Commission to identify China as "the EU's most restrictive trading partner."[180]

Trade disruptions involving rare earths, cars, beef, barley, medical supplies, sports, and tourism, among others, have become a routine instrument of China's foreign policy, encouraging foreign partners to diversify away from China. Domestic activities suffer as well: even in scientific fields, researchers face restrictions on participation in international projects and conferences. Foreign textbooks now arouse suspicion: in an apparent exception, business schools are "mostly spared from curbs on the use of imported textbooks."[181]

Strong conflict between the vast resources mobilized to support China's innovation ambitions and the daunting obstacles hindering China's economic progress invites a review of recent productivity trends, which combine multiple factors into a single measure of economic advance.

Productivity

Ongoing decline in the size of the labor force and in the share of GDP going to investment dictates the dependence of future growth on increases in TFP, which measures the level of output per unit of combined inputs. Socialist planning raised output amidst stagnant productivity. Reform abruptly reversed this failure. Multiple studies track China's transition to "intensive" growth – with the majority of output expansion attributable to higher productivity rather than increased quantities of labor and capital inputs – for three decades from 1978.

[179] R. Legaspi, "More U.S., Foreign Businesses Feel Unwelcome in China," *China Topix*, January 9, 2015 at chinatopix.com/articles/31659/20150109/more-us-foreign-businesses-feel-unwelcome-in-china.htm, accessed July 25, 2020. *Yearbook* 2019, Tables 13-3, 13-9, show sharp reduction in foreign-invested industrial firms along with employment and share of overall industrial output after 2007. L. Brandt and K. Lim, "Accounting for Export Growth in China," MS, 2020, use China's trade transactions Customs data to show a decline in the share of exports by foreign firms.

[180] "Report from the Commission to the Parliament and the Council on Trade and Investment Barriers 1 January 2018–31 December 2018," Brussels, n.d., 28.

[181] "MBAs with Chinese Characteristics," *The Economist*, February 15, 2020, 57.

Beginning in 2008, however, we see a return to "extensive" growth powered by larger inputs. A succession of studies using national, provincial, and enterprise-level data point to a marked decline in productivity growth since the eve of the global financial crisis.[182] The size of the private sector and the scale of productivity deterioration suggest that declining performance encompasses both private and state enterprise, with areas of stagnant or declining productivity dwarfing pockets of dynamism.

China enters the reform era's fifth decade with its economy far larger and more sophisticated, its people more prosperous and better educated, its command of modern technology far greater, and the expertise of its policy makers far deeper than in 1978. Despite these astonishing advances, the revival of plan-era policy approaches and political strategies now confronts China's economy with the same challenge it faced in the 1970s: how to overcome self-imposed obstacles that prevent improvements in knowledge and capabilities from generating intensive growth that outruns the accumulation of resources.

Conclusion

China's boom, a major event in global economic history, has transformed a poor, backward, isolated economy into a prosperous and dynamic global giant. This stunning departure is no miracle, but rather the consequence of readily understandable changes in core elements of China's economy. The restoration of economic incentives, reflecting Deng Xiaoping's call to "let some people get rich first," invited every individual, enterprise, and official to pursue income-enhancing opportunities. Gradual opening of domestic and international markets, along with partial relaxation of long-standing restrictions on entry, competition, and mobility, expanded the universe of available choices.

Modest institutional opening prompted a rush to exploit the untapped potential accumulated under socialist planning. Initial opportunities clustered in the countryside, where thousands of enterprises and millions of villagers, freed from the shackles of collective farming and enforced self-sufficiency,

[182] D. Dollar, "China's New Macroeconomic Normal," unpublished, 2016; C.E. Bai and Q. Zhang, "Is the People's Republic of China's Current Slowdown a Cyclical Downturn or a Long-Term Trend? A Productivity-Based Analysis," Manila, Asian Development Bank Institute Working Paper No. 635, 2017; S.J. Wei, Z. Xie, and X. B. Zhang, "From 'Made in China' to 'Innovated in China': Necessity, Prospect, and Challenges," *Journal of Economic Perspectives* 31.1 (2017), 549–70; Brandt and Lim, "Accounting for Export Growth in China."

streamed into long-forbidden markets and occupations. Decentralized movement of labor, materials, and capital toward financially rewarding activities brought massive change: hundreds of millions left farming, millions of new firms emerged, and vast resources poured into China's coastal provinces.

Long before the recent boom, Qing-era Chinese society harbored elements favorable to economic growth. Wide dispersion of entrepreneurship, commercial acumen and sophistication, universal regard for education, informal contract enforcement mechanisms, and competent local administration all contributed to the initial reform response and its subsequent extension. These growth-enhancing features supported Qing-era prosperity and commercialization, but, enmeshed in tightly interlinked economic, political, and social institutions, lacked the capacity to generate an economy-wide response to the appearance of new markets and new technologies in the nineteenth and early twentieth centuries.

During the twentieth century, growing state strength and the gradual buildup of physical and human capital eroded long-standing obstacles to growth. Wartime disruption and then the deficiencies of the PRC plan system delayed the realization of these gains. Beginning in the late 1970s, the combination of reforms that broke both old and new barriers to growth and Deng Xiaoping's effort to harmonize the incentives of government and citizens unleashed a boom that revealed the full power of China's economic system.

Remarkable economic gains have not eliminated the tension between the demands of political stability and economic development that pervades China's governance arrangements. Systematic misallocation via networking cements elite loyalty and promotes critical support for regime survival, but the long-term economic cost is staggering. The rent seeking that honeycombs policy implementation propels high levels of income inequality and causes massive waste[183] – as when large shares of funds awarded for constructing public projects vanish into private pockets before work commences.[184]

[183] Analyses of contemporary inequality find that the top 1 percent of households receive roughly 15 percent of overall income. See https://wid.world/country/china, focused on 2005–2015; and T. Piketty, L. Yang, and G. Zucman, "Income Inequality Is Growing Fast in China and Making It Look More Like the US," at https://blogs.lse.ac.uk/businessreview/2019/04/01/income-inequality-is-growing-fast-in-china-and-making-it-look-more-like-the-us. These estimates resemble those for the late Qing: C.L. Chang, *The Income of the Chinese Gentry* (Seattle, University of Washington Press, 1962), pp. 327–8, finds that gentry families comprised 2 percent of China's population and received 24 percent of overall income during the 1880s.

[184] Participants indicate that skimming may absorb 30 percent of costs for airports or stadiums and mention higher figures for road building (personal communication).

Long before China's post-1978 growth explosion, Qing territorial expansion, suppression of mid-nineteenth-century rebellions, and the PRC's recovery from both self-inflicted and external shocks demonstrated the durability and resilience of Chinese authoritarian systems. The most dynamic episodes of change and growth, however, cluster around interludes of state weakness, when ruptures in the carapace of restrictions surrounding elite interests enable China's populace to deploy its remarkable commercial talents.

Shanghai's pre-1937 development into Asia's premier financial complex, as well as a commercial hub and manufacturing center, illustrates this potential. Several decades later, post-Cultural Revolution erosion of central authority enabled nationwide rural reforms. The astonishing boom that followed demonstrated the capacity of unheralded "peasants" to lift China's vast countryside onto an elevated growth trajectory that liberated hundreds of millions from absolute poverty even as crumbling commune finances reduced funding for social welfare. The subsequent surge in private entrepreneurship extended "development from below" into the urban economy, where private firms garnered large shares of output and employment wherever they managed to gain a foothold.

The 1990s spawned a unique concatenation of expanded market opening with massive growth and centralization of state-controlled fiscal and financial resources. SOE reforms decanted tens of thousands of enterprises and tens of millions of workers into the grip of market discipline, while sweeping reductions in barriers to international trade and investment intensified domestic competition, elevated quality standards and forced widespread reductions in profit margins. While the multiplication of state-controlled resources stabilized a regime shaken by Tiananmen, the economic benefits of market opening extended robust productivity growth until the 2008 global financial crash.

Long-standing tension between market- and state-led economic strategies resurfaced following China's 2001 WTO entry. Unlike the 1990s, there is little sign of mutually acceptable initiatives. The market economy vision, most clearly articulated in the 2013 document *China 2030*, anticipates a retreat of the state, and especially of state-owned enterprises, from the "commanding heights" of an open economy led by private business – changes that would sharply reduce the resources available to state and Party leaders.

Aside from a brief flurry in 2013, when a Central Committee decision endorsed the notion of building an economy in which "market forces dominate," the rival vision of state economic leadership has captured the imagination of China's ruling elites. Support for state direction over market

dominance came from many sources. The economic success of Japan, Taiwan, and South Korea has built a global constituency promoting government entrepreneurship as the wellspring of technological development. Many Chinese viewed the absence of globally prominent Chinese firms, brands, and technologies as signaling the failure of openness to end China's economic subordination to former colonial powers. Concern about China's need to develop its own military technology bolstered nationalist objections to economic opening. Unavoidable reliance on state intervention to alleviate the 2008 financial crisis reinforced this view of market frailty and deepened support for increased government management of the economy.

The administration of Xi Jinping has moved decisively toward state control. Core elements extend practices familiar from seventy years of Chinese economic planning. Policy directives, notably Made in China 2025, set overall strategy and lay out investment priorities. State-owned enterprises take the lead in implementing top-down initiatives. The current policy constellation incorporates new dimensions and revives former practices.

Reflecting China's recent economic advance, the current array of strategic industries and technologies includes many new entrants. Recent plans for both well-established and novel sectors revolve around bold plans to reach and then extend global technological frontiers.

China's effort to redirect development from widespread, decentralized incremental efforts that add value through improvements in cost, quality, and design to more concentrated pursuit of targeted innovations in a narrow range of products and technologies faces formidable challenges. Extending technological frontiers is always a high-risk proposition. Launching a "breakthrough" strategy from a middle-income platform beset by weaknesses in key domestic supply chains and limited downstream demand adds fresh layers of risk.

Assigning vast resources to a talented and highly motivated corps of domestic researchers will surely deliver successes – already visible in State Grid's technical advances in high-voltage electricity transmission and in the commercial achievements of firms like Alibaba, Pinduoduo, and Tencent.[185] When measured against the enormity of the world's largest economy, however, even considerable numbers of isolated breakthroughs may fail to

[185] Y.C. Xu, "The Search for High Power in China: State Grid Corporation of China," in L. Brandt and T.G. Rawski (eds.), *Policy, Regulation and Innovation in China's Electricity and Telecom Industries* (Cambridge, Cambridge University Press, 2019), pp. 221–61.

deliver economy-wide productivity increases, leading to a Soviet-style outcome in which the occasional sputnik illuminates galaxies of mediocrity.

Looking beyond efforts to scale the heights of advanced technology, the absence of major reforms during the two decades following China's 2001 entry into the WTO has burdened the economy with an immense backlog of costs. Excess capacity in steel, electricity, and many other industries; state-sector firms often bulging with surplus employees; and zombie companies held together with patchworks of subsidies, loans, and tax concessions exemplify the distortions that permeate every corner of China's vast economic landscape. Past outcomes invite expectations that strengthening Party control and promoting self-reliance will accelerate the pace of cost accretion.

The decade following the global financial crisis has seen a return to the plan-era pattern in which growth arises almost entirely from the accumulation of labor and capital. Mounting signs of a steep fall-off in productivity growth warn that the current state-led economic strategy may prematurely terminate China's remarkable growth explosion.

Some will see this skepticism as "misleadingly wrong" and "encouraging a complacent and dangerous underestimate of China's potential trajectory."[186] China's growth potential is indeed large. With its remarkable human resources, competent public administration, and per capita income roughly one-fourth the US level, China faces an unmistakable opportunity to navigate a lengthy runway of intensive growth.

For the moment, however, China's leaders have turned away from openness and competition, the conventional tools for traversing the path from middling to high levels of productivity and income. China's current policy constellation ignores abundant evidence, much of it from China itself, highlighting the benefit of shifting from plan to market, redistributing resources from state to private firms, and allowing increased access to foreign firms, imported products, and external technologies. Unless China's leaders once again demonstrate that they are "imaginative and flexible" and can "shift policy decisively, comprehensively, and without regard to procedural or legal niceties,"[187] disappointment seems more likely than triumph.

Whatever the outcome and whatever its future course, China will continue to grapple with dilemmas that have bedeviled two centuries of modernization efforts. How can China embed a creative, freewheeling culture of

[186] "The New State Capitalism."
[187] T. Orlik, *China: The Bubble That Never Pops* (New York, Oxford University Press, 2020), pp. 198–9.

economic and technical innovation within an authoritarian system whose leaders feel threatened by unorthodox thinking? How can China resolve the concern arising from fears that indiscriminate opening to Western technology and ideas endangers the edifice that Confucian and Communist thinkers have long seen as the foundation of authoritarian rule and social stability?

Further Reading

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