40th Anniversary of
REFORM & OPENING

Still Crossing the River: Forty Years of Change, Progress, and Doubt
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INTRODUCTION

Confucius declared that when he was 40 he “had no doubts.” Yet on the eve of the 40th anniversary of China’s “Reform and Opening,” the country’s place in the world remains mired in uncertainty. But what’s clear is that few major economies have witnessed as much change and disruption over the past four decades.

A Chinese born in 1978, when Deng Xiaoping launched the Reform and Opening experiment, has seen her country rise from the ashes of the Cultural Revolution and catapult itself toward becoming a peer competitor of the United States. In her lifetime, the Chinese economy has grown more than 30-fold, leaping from eleventh to second place in global rankings.

This transformation would’ve been impossible without fundamental changes that were as much political as they were economic. At its core, Reform and Opening forced a Maoist system to accept more competition and less control as the Party-state retreated enough to let market capitalism and private enterprise take root. In short, the effect of Reform and Opening was the overwhelming democratization of economic opportunity for the Chinese people.

Anniversaries tend to elicit sweeping retrospectives. We at MacroPolo, however, will refrain from retracing the broad yet familiar arc of China’s economic development. Instead, we offer a unique analytical series that examines specific key elements that made the Chinese economy what it is today. We approach each element, whether foreign investment or industrialization, through a single case—a company, a commodity, or a bureaucracy.

Whether China’s next 40 years will be defined by economic progress or political regression depends largely on how reforms continue. We do not have all the answers but hope that this series will shed light on China’s improbable but incomplete journey from poverty to wealth.
For many multinational businesses, the launch of China’s Reform and Opening forty years ago seemed nothing short of an opportunity of the century. The potential to tap a market of nearly one billion customers, whose rising incomes invariably meant they would be able to afford more foreign products, was mind boggling. For KFC and other first movers like it, the bet on Chinese consumers paid off handsomely. Yet for other multinationals, the opportunity of the century turned out to have numerous strings attached, particularly in the realm of technology and market access.

That’s because the opening up of China’s market was never meant to be a free-for-all—it was a gambit always firmly anchored in the country’s own economic and political priorities and interests. From Beijing’s vantage point, it made perfect sense to gradually attach conditions to foreign direct investment (FDI) over time, because the underlying purpose of attracting FDI was to use it as an accelerant to catch up to advanced economies. And of course, the conditions attached to FDI changed as the Chinese economy, and its attendant priorities, evolved.

Today China is no longer a capital scarce country but a market that craves technology. This should hardly come as a surprise because it reflects dramatic changes in the Chinese economy. Of the three main inputs to economic growth—labor, capital, and technology—China has been deploying the first two to great effect. The country’s tremendous growth over the past forty years has built up an enormous capital base, even as its labor market is tightening on the back of demographic shifts. So the dividends from capital and labor are diminishing, leaving China little choice but to rely more and more on technology inputs to improve efficiency and economic productivity.

From Windfalls to Pitfalls: Qualcomm’s China Conundrum

Joy Dantong Ma
While capital and labor were comparative advantages for China, technology was, and continues to be, its notable deficiency. Recognizing its technological gap with industrialized economies, the Chinese government’s attitude on FDI increasingly turned to demanding technology and intellectual property (IP) transfers to support the next stage of growth. Such a shift has been exemplified by the insistence on joint ventures, in which the foreign partner usually had a minority stake and was expected to transfer, at a minimum, know-how and expertise that could strengthen domestic industry.

Of course, the strategy of “you can continue to profit in our market if you help us gain a technological edge” has not sat well with multinationals from the United States to Europe. When boiled down, transferring critical technology is tantamount to creating your own future competitors, and no company would willingly do that. Needless to say, China’s latest turn to focus on technology has become highly controversial and is at the heart of tensions between the United States and China.

In August 2017, the US Trade Representative Office launched a year-long investigation into China’s practices in technology transfer and IP theft. What’s more, the trade war the Trump administration launched against China is widely considered part of a strategy to get Beijing to modify its behavior on technology transfers.

These issues have seemingly come to a boil overnight. But in fact, they have percolated beneath the surface for years, if not decades. China’s fixation on gaining technological leadership is hardly new and has always been a main purpose of Reform and Opening. In fact, as early as 1987, a concerned US congress had demanded extensive studies on China’s technology transfer practices. What has changed are China’s own capabilities and its goals for technology acquisition. Not only are Chinese companies now capable of developing their own leading technologies, they are also increasingly demanding the crown jewels of foreign technology firms.

On the flip side, these longstanding concerns didn’t obscure the vast opportunities China’s Reform and Opening brought to multinationals, including technology-intensive firms. For a certain set of technology companies in particular, it wasn’t simply about the revenue potential of selling to a market that was a quarter of humanity. They also saw China as a unique opportunity to cement their technology standards to dominate global market share. These companies were playing a long game, with China being the focal point of the strategy.

One American technology giant that’s emblematic of both the enormous windfalls and eventual pitfalls of operating in China is Qualcomm. In the early days, Qualcomm had pushed its products, technologies, and standards into the China market, at times against the government’s economic agenda. Its efforts yielded tremendous commercial success and allowed the company to gain dominance in global telecommunication standards for decades.

Qualcomm’s very success, however, was also partly responsible for its own loss of momentum in the China market. It is tempting to blame Qualcomm’s recent troubles—from fighting off a hostile takeover from Singapore-based Broadcom to scrapping its attempted acquisition of NXP because the Chinese authority blocked it—as simply collateral from the ongoing US-China trade war. But that would be overly simplistic and skirts the company’s storied and complicated tenure in the China market.

Beijing’s blocking of the NXP bid was bound to happen, irrespective of the trade war. At its core, this isn’t about any single deal, but is a logical outcome of a brewing battle—between Qualcomm and China’s rising technological ambitions—over the future of international telecom standards and market leadership. Indeed, Qualcomm’s meteoric rise and gradual descent in China is emblematic of the country’s transformation from a market that passively accepted Western companies’ standards to a contender in the global technological race.

Qualcomm’s 2G Windfall in China

Zhu Rongji, China’s firebrand premier, wrote on the margins of a memo in March 1999, “Please have China Unicom consider adopting the CDMA standard and work with American companies.” This marked a major victory for Qualcomm’s seven-year push since 1992 to get a firm foothold in the China market, giving the company a significant edge in the global competition for second-generation (2G) cellular standards. To understand why that’s important, a brief detour into the development of 2G standards is warranted.

CDMA vs. GSM

The 1980s was a period in which global telecom standards were transitioning from analog to 2G. In the analog age, each user’s cell phone call was assigned a channel in which a single call could be transported. Since spectrum is a finite resource, the number of calls that can be made at the same time is limited. To put it differently, a highway is only so wide, which...
means only a certain number of cars can simultaneously fit across it before space runs out. Much like physical infrastructure, the constraints imposed by analog infrastructure meant that it could not accommodate huge volumes of calls and data.

The breakthrough in 2G technologies was that it allowed for multiple calls on the same channel, thereby circumventing the constraints of limited spectrum space. At the time, most of the world focused on a radio transmission technology called Time Division Multiple Access (TDMA). This technology improved spectrum usage efficiency by dividing the channel into multiple time slots and assigning them to different calls on the same radio channel. It was a solution to maximize the usage of channel space that was often wasted or under-utilized during a phone call. It is essentially the equivalent of allowing multiple cars to run on different schedules in the same lane on the highway, except it’s for multiple radio transmissions over a digital highway.

Qualcomm, founded in 1985 by UC San Diego professor Irwin Jacobs, pioneered another method that came to be known as Code Division Multiple Access (CDMA). This technology assigned each call with a code, and that call is then disassembled, transmitted, and then reassembled at the receiver’s end by using the code. Because of the code identifier, the call is no longer limited to stay in one channel but can hop on other channels as needed. Therefore, multiple users can speak at the same time. To use the highway analogy again, cars no longer need to stay in a single lane and can now also use other lanes whenever there is availability, allowing for more efficient use of all radio frequencies (see Figure 1).

CDMA might be more technologically fitting for cellular communication than TDMA, but it was too late to the party. By the time Jacobs successfully prototyped the standard in 1989, the telecom industry had already sunk millions of dollars into TDMA infrastructure and incorporated it into a Global System for Mobile Communications (GSM). Moreover, since GSM was developed through a collaborative effort by multiple European telecom companies, there was more buy-in of the standard from industry stakeholders.

According to International Telecommunication Union’s report, by the end of 1998, roughly 130 million phones around the world were running on the GSM standard. Almost 90% of mobile phones in Europe, 35% in Asia, and 88% in Africa subscribed to the GSM standard. In contrast, Qualcomm’s 2G standard, which came to be called cdmaOne, had only 20 million subscribers with a minimal footprint on every continent in the world except for North America.

Just as the world was becoming more connected through mobile phones, Qualcomm appeared to be on the losing end of the standards competition. This is why seizing the China market was so integral to Qualcomm’s strategy. At the time, China was a market that had very low mobile penetration, and if hundreds of millions of Chinese started adopting devices with Qualcomm hardware, that would turn the tables on the 2G standards competition. In the standards race, the name of the game is market share.

Qualcomm CEO Jacobs reached the same conclusion when he visited China for the first time in 1992, the year Deng Xiaoping embarked on his “Southern Tour” to revive flagging economic reforms. Jacobs immediately set about finding ways

![Figure 1. How CDMA Works](Source: Qualcomm)
to enter the China market. But Qualcomm’s initial overtures met resistance from a Chinese government that had already set its sights on the GSM standard.

The reason was simple. Beijing preferred GSM because it didn’t have to pay hefty royalties. Since GSM was a product of joint development among different countries, it had to be open source to enable collaboration. In contrast, the cdmaOne standard was developed virtually exclusively by Qualcomm, which meant it alone held numerous critical patents. Any manufacturer of CDMA-enabled mobile phones or network equipment had to pay for Qualcomm’s IP.

So in 1994, when the Chinese government decided the country needed to advance from analog to 2G standards like the rest of the world, it studied both GSM and cdmaOne as potential candidates and eventually decided to go with GSM for commercial applications.

Even so, that didn’t stop Qualcomm from testing the waters. The company recognized early on that it needed to enlist a key domestic constituency in China to support its efforts. It found an unconventional partner: the People’s Liberation Army (PLA). Although China had selected the GSM standard for commercial use, the PLA at the time was searching for a radio transmission technology that would be secure for military communication. Because Qualcomm’s CDMA technology was based on coded radio transmissions, it seemed like a good fit for what the PLA wanted.

While such a partnership would be unthinkable and forbidden today, the 1990s was a period in which the PLA had more latitude to engage in commercial activities that ranged from automobile manufacturing to pharmaceuticals and hotels.

In the Qualcomm case, the Ministry of Post and Communication (MoPC), the predecessor to the powerful Ministry of Industry and Information Technology (MIIT), ordered its local bureaus to set up a joint venture (JV) with local PLA divisions called “Great Wall.” The JV was granted a civil-military dual use license to experiment with cellular networks with the cdmaOne standard on the 800Mhz spectrum in four major cities: Beijing, Shanghai, Xi’an, and Guangzhou. By 1997, Qualcomm’s 2G networks for both commercial and military applications in these cities were up and running, with the potential to expand into other Chinese cities.

But the JV collapsed almost as soon as it was formed. Just a year after the 2G network went live, Chinese President Jiang Zemin issued an order that forbid the PLA from engaging in any commercial activities. The experimental CDMA network remained in place, however, though it never grew to cover more than half a million users, all of whom were later transferred to other networks.

The timing of this episode was peculiar. Some observers even suspected that the MoPC was anticipating this outcome all along and was setting up the JV to fail just to kill the CDMA standard in its infancy. In fact, while granting the CDMA dual-use license to Great Wall, the MoPC simultaneously accelerated the approval of a national GSM license on the 900MHz band to China Telecom, one of the national champions. MoPC’s true motivations will never be known, but one thing was clear enough to Qualcomm’s Jacobs, who said on the record that because the MoPC fully owned the 900 MHz band used for GSM, the ministry favored GSM.

These early setbacks didn’t dissuade Qualcomm from continuing its pursuit of the China market. The environment was different in 1999, when Beijing was wrapped up in intense negotiations to enter the World Trade Organization (WTO), which required winning Washington’s acceptance. Qualcomm, like many companies at the time, saw an opportunity to ramp up the pressure on China to open its market. From the Chinese vantage point, liberalizing the telecom sector could go a long way toward mollifying the United States and securing its support for WTO entry. And so, Premier Zhu inked his support for Qualcomm on March 2, 1999 as detailed above and gave his promise to the US delegation, led by Commerce Secretary Bill Daley, that was soon to arrive in Beijing.

Even with Zhu’s support for Qualcomm, negotiations were far from over. That’s because MoPC’s head at the time Wu Jichuan, a major proponent of China’s decision to adopt the GSM standard in 1994, was a hard-nosed negotiator. Wu wasn’t about to give in until Qualcomm met three demands: develop a new mobile phone model that can run on both CDMA and GSM networks; lower the royalty fees; and share the design of Qualcomm’s CDMA chipset. In other words, Wu wanted options to abandon CDMA at will, use the technology cheaply, and own the IP so that China can make its own chipsets.

Wu’s demands were of course a non-starter, and he probably knew it but wanted to play hardball anyway. These demands were viewed by the US government as China’s disingenuous attitude toward WTO entry. Daley raised the issue multiple times during broader talks with Chinese leaders. While underscoring the White House’s determination to push through key trade legislation that will support Beijing’s WTO entry, Daley

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also made it very clear that “among our commercial interests, this [Qualcomm] was a very important one.”

With US government support and intensive efforts, Qualcomm finally secured an in-person meeting with Premier Zhu. On October 6, 2000, Jacobs, Wu, Brent Scowcroft (former National Security Advisor who heads the consultancy The Scowcroft Group), and Yang Xiaozu (Chairman of China Unicom) all met in a conference room at Tsinghua University. Zhu was there to broker a compromise among the competing interests. He demanded all the parties present to write down a list of demands and disagreements and to “sort it out.”

At this critical juncture, China’s quest to enter the WTO was the priority, which meant Wu’s ambitious demands had to take a back seat for the time being. The impasse was broken: Qualcomm was allowed in the China market. In March 2002, a decade after Jacob’s first trip to China, China Unicom announced its commitment to deliver CDMA services to more than 350 cities.

**When Success Comes Back to Bite**

In the decade after Zhu lent his support to Qualcomm on the ledge of a memo, the American tech giant’s revenue stream from China grew from virtually nil to $2.4 billion, more than twice the amount from its home market and accounting for one-fifth of its global revenue (see Figure 2). Yet that very success led to two unintended consequences that would eventually turn the tables on Qualcomm: 1) It prompted China to nurse a grudge against the company, particularly toward its fee structure; 2) It clarified for Beijing that it needed to raise its game in global standards setting or else accept ponying up licensing fees in perpetuity.

But Qualcomm wasn’t done with profiting from 2G. It was hoping to extend its windfall in China to the 3G era, which officially commenced in January 2009 when Li Yizhong, the head of MIIT, announced China’s transition from 2G to 3G. In the months leading up to this announcement, MIIT had already been laying the groundwork by consolidating the state telecom industry from six major carriers to just three: China Mobile, China Unicom, and China Telecom. This “big three” competitive landscape, much like China’s state oil industry, is the one that endures today.

One of the rationales behind the industry restructuring was that each state giant would be awarded one of three competing 3G standards: WCDMA that evolved from GSM (license granted to China Unicom); CDMA2000 that evolved from Qualcomm’s own cdmaOne (license granted to China Telecom, which took over China Unicom’s CDMA network for $16 billion during the restructuring), and China’s homegrown Time Division Synchronous Code Division Multiple Access (TD-SCDMA) (license granted to China Mobile).

**The “Double Dipping” Fee Structure**

However you sliced it, this 3G standards landscape would significantly benefit Qualcomm. That’s because with anything that had the acronym “CDMA” in it, chances are Qualcomm owned some of the core IP since it was the original developer of the CDMA technology. According to Qualcomm’s 2009 financial report, both the WCDMA and CDMA2000 technologies were derived from CDMA and “are covered by our patents.” The company also claimed to hold critical patents for the TD-SCDMA standard.

With a firm grip on the core IP of the 3G era, Qualcomm made money by both licensing the IP and directly selling its own 3G-enabled chips to mobile phone vendors, who would still need to pay a royalty. Selling its own 3G chips may have been a larger contributor to the company’s revenue stream, but Qualcomm’s real profits were made from its licensing fees. By amassing hundreds of thousands of patents in cellular communication standards, Qualcomm’s fingerprints were virtually everywhere in the telecom industry. For years, the telecom industry had a running joke that while death and taxes are two certainties in life, paying royalties to Qualcomm was another certainty in the wireless industry.

![Figure 2. Qualcomm’s Revenue Stream from China](source: Qualcomm’s annual reports (1999 – 2008); author calculations.)
Maintaining what amounted to a patent monopoly on 3G standards enabled Qualcomm to leverage a unique and highly lucrative licensing fee structure that is still largely in place today. It basically works like this: mobile phone manufacturers license Qualcomm’s technologies and pay the company royalties that are as much as 5% of the final sale price of the phone. This means the royalties increase with the phone price, even if Qualcomm’s technology inside the phone remains unchanged. In contrast, other telecom companies, such as Ericsson and Nokia, charge a flat fee for the specific technologies that licensees actually use.

To illustrate, if a basic mobile phone costs $400, then Qualcomm gets 5% of that in royalties, or $20 per phone. If the manufacturer decides to add a high-resolution camera, a bigger screen, or a sleeker case to soup up the phone, the price doubles to $800. Now the manufacturer has to pay $40 in royalties to Qualcomm even though the technologies licensed have not changed.

On top of paying royalties, as a 3G mobile phone manufacturer, you would either need to make your own 3G chips or buy from other chip makers. More likely than not, manufacturers end up buying chips from Qualcomm, so they have to pay the company again. This fee structure came to be known as “double dipping” and, needless to say, has irked many manufacturers.

Figure 3. Evolution of China’s Mobile Standards Adoption (1994 – 2014)

<table>
<thead>
<tr>
<th>Time</th>
<th>Carrier</th>
<th>Standard</th>
<th>Standard Set by</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994 - 2002</td>
<td>China Mobile</td>
<td>GSM</td>
<td>Foreign</td>
<td>Buy foreign</td>
</tr>
<tr>
<td>2002 - 2006</td>
<td>China Unicom</td>
<td>GSM, CDMA</td>
<td>Foreign</td>
<td>Buy foreign</td>
</tr>
<tr>
<td>2002 - 2006</td>
<td>China Mobile</td>
<td>GSM</td>
<td>Foreign</td>
<td>Buy local, reduce foreign</td>
</tr>
<tr>
<td>2006 - 2014</td>
<td>China Unicom</td>
<td>GSM, CDMA</td>
<td>Foreign</td>
<td>Buy local, reduce foreign</td>
</tr>
<tr>
<td>2006 - 2014</td>
<td>China Mobile</td>
<td>TD-CDMA</td>
<td>Local</td>
<td>Buy local</td>
</tr>
<tr>
<td>2006 - 2014</td>
<td>China Unicom</td>
<td>WCDMA</td>
<td>Foreign</td>
<td>Mostly local</td>
</tr>
<tr>
<td>2006 - 2014</td>
<td>China Telecom</td>
<td>CDMA2000</td>
<td>Foreign</td>
<td>Mostly local</td>
</tr>
</tbody>
</table>

Source: Jefferies Equity Research.

This pricing strategy was also applied to the China market. But initially, it was foreign manufacturers that felt the brunt of Qualcomm’s fee structure. That’s because when the company entered China in 1999, the country was still a technological backwater incapable of producing quality mobile phones. Major carriers like China Unicom had to sign contracts with foreign manufacturers, such as Nokia and Ericsson, to import the phones. (Those manufacturers also relied on Qualcomm chips and IP, so were paying the company.)

It would take about another decade for Chinese manufacturers to acquire the capability to produce low end to “good enough” 3G mobile phones (see Figure 3). And that was when Chinese producers started to directly feel the pinch of Qualcomm’s double dipping strategy. Since Qualcomm held patents for all three 3G standards in China, manufacturers had little choice but to pay licensing fees. In addition, few Chinese manufacturers had the ability to make their own 3G chips, so they had to rely on foreign imports, including Qualcomm’s.

Demand for 3G mobile phones skyrocketed in China after 2009, and has grown 15 times in the 15 years since Qualcomm’s official entry into the China market. This led to another windfall for Qualcomm. By 2010, Qualcomm’s revenue from China reached $3 billion, surpassing that of South Korea. Just four years later, the company’s China market revenue for the first time exceeded combined revenue from the rest of the world, including the United States.

Yet as Qualcomm’s profit margins widened, Chinese mobile phone makers’ margins were being squeezed. Domestic original equipment manufacturers (OEMs) already had to keep prices low because of fierce competition that often resulted in price wars. Meanwhile, as Chinese manufacturers started to make more expensive phones with better displays and high-end cameras, they discovered that Qualcomm’s licensing fee kept on increasing, even though they were using the same IP.

Unsurprisingly, this did not sit well with Chinese OEMs nor with the Chinese government. What’s more, it wasn’t exclusive to China. The fee structure irritated many global mobile phone makers, especially as they were under the pressure of product cycles to constantly deliver new and more expensive
features such as larger and better displays and fancier cameras. The price of their products went up, and like Chinese manufacturers, they also suddenly found themselves paying Qualcomm double or even triple the royalties for licensing essentially the same technologies.

In subsequent years, Qualcomm’s double dipping strategy would become a major source of conflict, not only in the China market but also in the broader telecom industry. Qualcomm has long argued since the 1990s that no matter what went in the phones, it was their technology that enabled them all. But this argument gained less traction in the 2000s. In the eyes of Qualcomm’s customers, the company’s technology was contributing less value to mobile phones yet the licensing fees kept on rising.

By 2015, Qualcomm was embroiled in controversies or being fined by regulators in Taiwan ($773 million), South Korea ($1.23 billion), and Europe ($853 million). Even Apple jumped on the bandwagon and fought multi-year legal battles with Qualcomm over this issue, arguing that it was engaged in “illegal practices.” By mid-2018, Apple announced that it would manufacture its own chips for the iPhone, completely moving away from Qualcomm’s chips.

It didn’t help matters that Qualcomm, at times, may have rubbed salt in the wound. In its 2014 annual financial report, the company noted, “particularly in China, certain licensees have disputed or underreported royalties owed to us under their license agreements with us, and certain companies have yet to enter into or delayed entering into license agreements with us for their use of our intellectual property, and such licensees and/or companies may continue to do so in the future.” While some Chinese manufacturers certainly found ways to circumvent royalty payments, Qualcomm still had all the chips in its corner.

Complaints in China grew louder and became harder to ignore for Chinese regulators. So they sprang into action. In November 2013, months before the issuance of 4G licenses, the National Development and Reform Commission (NDRC) initiated an investigation into whether Qualcomm’s licensing practices violated China’s Anti-Monopoly Law, which took effect in 2007.

As the investigation proceeded, Qualcomm was preparing for a fine of 1% to 10% of its previous year’s revenue and other remedies.

After the 14-month investigation concluded, Chinese regulators slapped a $975 million fine, equivalent to 3.7% of the company’s 2014 revenue, the largest fine ever in China for monopolistic practices. On top of the fine, Qualcomm agreed to lower its royalty rates on 3G devices to 5% and 3.5% for 4G devices, using a royalty base of 65% of the final sale price as opposed to 100%. So the company effectively lowered its royalty rates to 3.3% and 2.3%, respectively, on 3G and 4G devices, lower than in other foreign markets including India. In response, Qualcomm’s annual dividend saw a $0.60 cents per share reduction.

**China’s first failed attempt on standards setting**

What resulted was beyond Qualcomm’s expectations, but such an outcome should not have been a surprise. The writing was already on the wall four years before the investigation, when MIIT in 2009 unveiled its grand designs on promoting 3G standards.

The lack of domestically developed IP in mobile standards has clearly frustrated Chinese regulators to no end. They learned first-hand from Qualcomm how having a near monopoly on core technology patents is directly linked to market position and profits. From Beijing’s perspective, why should China passively accept standards when it had the market size to come up with competing standards to Qualcomm’s?

MIIT’s answer to that question was to order the China Academy of Telecommunications Technology (CATT) to collaborate with Germany’s Siemens to develop a new 3G standard that would come to be known as TD-SCDMA. In 2001, backed by all three Chinese carriers, TD-SCDMA was approved to join the global 3G standards governing body, the 3G Partnership Project (3GPP). However, it was China Mobile that was granted the TD-SCDMA license. Of the three state carriers, China Mobile was MIIT’s favorite and had dominated the 2G market (see Figure 5). But being the favorite also meant that China Mobile had the unenviable task of ensuring that the indigenous but commercially unproven 3G standard becomes a success.

Except the opposite happened. TD-SCDMA turned out to be far less developed than the prevailing 3G standards WCDMA or CDMA2000, both of which had proven to be commercially viable for years. No carrier outside of China ever used TD-SCDMA and even Chinese carriers, including China Mobile itself, sought to disassociate themselves with it.
But MIIT didn’t want to give up hope and ordered China Mobile to develop an entire 3G network based on TD-SCDMA. This was ostensibly a last-ditch effort to bolster the homegrown technology, but instead, China Mobile lost 10% of its market share over the four years it was being forced to support the weaker standard. “Other people had a head start and were running ahead of you on the main road. You can’t just give up, turn around and dig a separate lane,” as a Chinese telecom industry expert commented. “China’s TD-SCDMA led Chinese telecom companies to a detour from the mainstream.”

China’s effort to introduce a domestic 3G standard ended in failure, but its appetite for reducing dependence on foreign core technologies remained as strong as ever. The Chinese government had learned a hard lesson, but did not exactly hide its ambition to have another go at setting standards. It bided its time and largely went with the flow as the world moved to 4G standards.

But even then, two Chinese companies, Huawei and ZTE, had started to make some waves. According to Jefferies Equity Analysis, ZTE held 6% and Huawei 1% of all patents in 4G standards. That would change quickly as Huawei matured and trained its sights directly on Qualcomm. If Huawei’s effort to lead in global 5G standards succeeds, it will prove disruptive for Qualcomm’s business in China.

**The 5G Race Is On**

On July 26, 2018, China’s telecom giant Huawei presented a medal to Dr. Erdal Arikan, a Turkish expert in polar coding theory. The medal was designed and crafted by Monnaie de Paris with a Baccarat crystal. As extravagant as the medal was, its value was negligible compared to the royalties Huawei was about to collect by developing its own IP based on Arikan’s theory.

Huawei had been quietly pouring 15% of its annual revenue, or more than $61 billion, over the past decade to develop technologies that have the potential to become global 5G telecom standards. One such technology is based on Arikan’s polar coding theory. To understand why that’s important, a brief explanation of 5G standard development is needed.

Just like in the 2G and 3G eras, delegates from the world’s major telecom operators, networks, terminals and chipset vendors, and internet companies regularly met at 3GPP, the international governing body of telecom standards, to pitch technical solutions to various 5G challenges. One of the main problems that needed to be solved was reducing data transmission errors as the volume of data grew exponentially. More errors have crept into large volumes of data due to noise, interference, and fading.

A method called channel coding—which is basically repeating a piece of data to reduce errors—was developed to overcome the problem. To oversimplify, channel coding according to MIT basically works like this: if you were trying to transmit a message with only three bits, like 001, you could send it three times “001001001”. If an error crept in, and 001011001 was received instead, you could be reasonably sure that the correct string was 001.

Arikan’s polar coding theory is one such channel coding method that could be applied to improve data accuracy. So Huawei decided to back polar coding and invested billions into its commercialization. Within the course of eight years, this relatively new theory had become a viable solution in practice, surprising even Arikan.
The direct competitor to polar coding technology is, no surprise, Qualcomm’s low-density parity check (LDPC) technology. Compared to polar coding, LDPC has a much longer track record of commercial viability. The theory of LDPC was first introduced in 1963, 45 years earlier than polar coding. In subsequent decades, Qualcomm pioneered LDPC’s commercial application and developed critical patents. By the time polar coding was introduced in 2008, applications of LDPC had already been deployed in the real world.

The contest over whether LDPC or polar coding would become the global 5G standard for channel coding erupted on November 14, 2016 in Nevada, where 3GPP held meetings to vote on accepting a channel coding solution.

Debate was intense at the meeting, with companies picking sides. Western companies, led by Qualcomm, largely fell in line behind LDPC while numerous Asian manufacturers favored Huawei-backed polar coding. In an interview to the Wall Street Journal, an expert who was at the meeting recalled, “the Chinese decided this was important. This was one of the biggest political battles we’ve ever seen.”

Eventually, the two sides reached a compromise: both polar coding and LDPC would be adopted as part of the channel coding standard. This was a victory for Huawei as it gained a critical patent in the 5G global standard.

More such battles have been fought, and Chinese telecom companies have made considerable strides in establishing a foothold in 5G standards. According to technology research firm LexInnova, Huawei and ZTE today hold about 10% of critical 5G patents, compared to 15% for Qualcomm (see Figure 6).

To some extent, the global standards race is a zero sum game in that only one technology will be ultimately suited to addressing one critical technical challenge. And the incentives are such that, like Qualcomm, each company is aiming for market dominance, not just market share. Therefore, the very nature of this competition means that Qualcomm increasingly finds its own dominance being chipped away by the emergence of formidable rivals—some of which are Chinese manufacturers who were once Qualcomm’s customers but are now using what they learned to compete with it.

As if fending off new competitors isn’t tough enough, Qualcomm also had to face pressure from the Chinese government to transfer its knowledge to Chinese companies. Although the government has long dangled the carrot of market access to get foreign companies to share certain technologies, the difference today is that the relative leverage has shifted.

Qualcomm still carries a lot of weight, but it is no longer the only player in town. Beijing has choices now, and if Qualcomm isn’t willing to play ball, the market share will go to a competing European firm or better yet, a rising Chinese company. This makes the trade-off challenging for Qualcomm: lose market share to Western tech giants today or lose market share to Chinese upstarts tomorrow.

Competition is also taking place in the area of hardware, namely advanced chipsets that are capable of supporting 5G data processing speeds. In fact, Moore’s Law’s famous prediction of computing speed doubling every two years was predicated on fitting ever more microscopic transistors on a chip. That’s because computing power is positively correlated with the number of transistors that can be piled onto a chip. The current generation of advanced mobile chipsets use 14-nanometer transistors.

But few Chinese companies have the ability to manufacture such chips. So eight months after NDRC slapped the fine on Qualcomm, the company agreed to form a JV with Huawei and China’s Semiconductor Manufacturing International Corp. (SMIC) to develop 14nm chips. This move was widely interpreted as a way to patch up relationships with the Chinese government, with little upside for Qualcomm otherwise.

These chips, however, quickly became obsolete. A true 5G network would enable users to download a full movie in 15 seconds, compared to 6 minutes in 4G. This means that the data processing capacity required for a 5G chip is much higher than that of 4G. The chips need to fit even more
transistors, which means their size had to be reduced to at least 10nm.

Even global giants like Intel struggle with developing 10nm chips, let alone Chinese semiconductor fabricators. But Qualcomm in 2017 again decided to help SMIC’s subsidiary SiSemi to start the qualification of wafer bumping, a technique in chip manufacturing, to produce 10nm chips. This made SiSemi the first ever chip manufacturer in mainland China to enter the 10nm arena. Qualcomm at the time said that such collaboration “shows our commitment to support the upgrade of China’s local IC manufacturing industry and to better serve our Chinese customers.”

Currently, Samsung, Huawei, and Qualcomm are leading the pack in developing 5G chipsets. Huawei started its R&D efforts into 7nm processors in 2015 and has invested over $300 million in developing a prototype. On August 15, 2018, Samsung launched the first 10nm 5G chipset that’s fully compliant with 3GPP standards. Huawei immediately responded by announcing that it would launch its own 7nm 5G chipset Kirin 980 on August 31. Qualcomm, however, quietly launched its own 7nm Snapdragon chip ahead of Huawei on August 22.

New Battles on the Horizon

Qualcomm brought CDMA to China in the early days of Reform and Opening, even as the Chinese government had already decided to go in a different direction. But the American tech giant wasn’t defeated, using various leverage points like negotiations over China’s WTO entry to get into a market that was crucial to its long-term strategy.

Qualcomm’s persistence paid off handsomely: Beyond the billions of profits, without the China market, it would not have been able to dominate two generations of telecom standards. By having China adopt the 2G and 3G CDMA standards, Qualcomm’s market position in global telecom standards was cemented.

The American company’s success, however, left lasting impressions on the Chinese government and companies about the importance of leading in global telecom standards primarily through the development of indigenous IP. Qualcomm also didn’t help itself by alienating Chinese manufacturers and the telecom industry writ large with its lucrative fee structure that many viewed as unfair. In fact, China’s effort to set its own 3G standard with TD-SCDMA, albeit one that ended in failure, was a response to widespread domestic frustration over not having any influence in global standards.

After a stellar run of 15 years in the China market, Qualcomm’s rise may be interrupted. As China’s telecom firms and mobile phone manufacturers have matured, and having absorbed the previous lessons of failure, they appear ready to challenge the industry leaders. For Chinese companies, Qualcomm’s experience taught them that if you win the patents race, you win the standards war. This is reflected in a Chinese company like Huawei, which has taken chapters from the Qualcomm playbook and has been obsessively filing patents (see Figure 7).

Qualcomm’s future prospect is arguably more uncertain than it has been in decades. It is stuck in a paradoxical position: the market that today contributes more than 60% of Qualcomm’s global revenue also happens to be the market that is most likely to challenge its dominant position. To make matters worse, this is coming at a crucial period of transition to the next-gen 5G standards in which no clear winner has been crowned.

This race is set to intensify, and so will the politics around it because technology is the main source of current US-China tensions. But ultimately, this is a competition between multinational companies—they are both proxies of respective national ambitions and potential collateral in the escalating conflict between their home countries. For Qualcomm, the battles it has fought and won so far in the China market appear to pale in comparison to the new battles on the horizon.
Leaping Backward and Reforming Forward: China’s Transformation into a Steel Superpower

Houze Song

Perhaps no single commodity exemplifies China’s industrialization as much as steel. Per capita steel production in China ballooned from less than 20% to more than 260% of the global average between 1978 to 2017. The steel sector has played an instrumental role in China’s economic development since Reform and Opening began in 1978. For most of the ensuing forty years, China’s economic growth has been propelled by the secondary industry, of which steel is a significant component. This growth would not have been possible if not for the sweeping reforms that took place in the steel sector.

It wasn’t always so. Steel had also occupied an exalted place in Mao Zedong’s China. To the Chairman, this commodity was a symbol of political progress and a top economic priority. But Mao’s attempt in the late 1950s to mobilize the country to surpass Great Britain in steel production in just three years would end in disastrous failure. It would take another 16 years before Chinese steelmakers outpaced the British.

Steel, then, offers an important illustration of China’s industrial development and the nature of its growth over the decades of Reform and Opening. But, more importantly, an analysis of how the steel industry has evolved and stagnated also offers perspectives on China’s past reforms and its prospective future growth.

From Spectacular Failure to the World’s Largest Steel Producer

Since 1978, China’s steel production has risen from just 4.4% of global production to a staggering 49.7% in 2016 (see Figure 1). Such an accomplishment has far exceeded Mao’s dreams.
when he launched the catastrophic Great Leap Forward (GLF) in 1958.

The main goal of the GLF was to dramatically increase steel production in an impossibly short period of time. To meet unrealistic production targets, in 1959 about 100 million people, or 40% of China’s labor force at the time, were mobilized to make steel. Prior to the GLF, China’s steel sector employed fewer than four million. Most of the steel was being produced by unskilled labor in shoddy facilities, including in the so-called “backyard furnaces,” much of which could not be used for industrial purposes.

Not only was the campaign unsustainable, it also resulted in one of the gravest tragedies in recent Chinese history. The GLF’s fixation on steel diverted a large portion of the rural labor force into steel production. This caused a dramatic reduction in food production, which was very labor-intensive in 1950s China, and led to perhaps the worst policy-induced famine in the 20th century.

Domestic Appetite for Steel Drove Production

The GLF came to an end in 1960, but not before laying waste to the steel industry. In fact, China’s steel production didn’t recover to its 1959 level until 12 years later in 1971 (see Figure 2). It would be another 20 years before China’s steel production began to skyrocket.

Immediately following Deng Xiaoping’s famous 1992 Southern Tour that renewed confidence in economic reforms, domestic steel demand shot up by more than 50% in 1993, and 30% of steel consumption had to be met through imports. Far from an exporter of excess capacity, in the 1990s, China was actually a net importer of steel (see Figure 3). In fact, China only became a net exporter of steel in 2006, a decade after it surpassed Japan to become the world’s top steel producer.

What caused this unprecedented expansion? In short, China’s urbanization and industrialization. The top three sectors that drove steel consumption since Reform and Opening have
been construction, machinery, and autos, with construction accounting for more than half of China’s domestic steel demand.

All these sectors benefited from massive urbanization. Between 1978 and 2017, more than 600 million Chinese moved from the countryside into cities. Over the same period, average per capita residential area increased from 6.7 m² to 36 m². As a result of this large-scale urbanization, even after China became a net exporter of steel in the mid-2000s, on average, more than 90% of its steel production has been consumed domestically (see Figure 4). Therefore, unlike the supply-side dictates of the GLF, it was the rapid increase of organic domestic demand since the 1980s that drove steel production growth.

Expanding the domestic supply of steel to meet growing demand required building a formidable steel industry, one that had been wrecked by the GLF. As will be demonstrated below, market reforms played a significant role in unleashing the industrial potential that would eventually turn China into a steel superpower.

**Getting the Price Right**

Dismantling the centrally planned pricing system had an enormous impact on bolstering steel production. In the early days of Reform and Opening, steel prices, like those for most industrial goods, were fixed and were not responsive to market changes in demand. But by the 1980s, China began to liberalize prices under the so-called “dual-track” system. It was a deliberate and gradualist approach to adopting market pricing that would deliver similar outcomes without the disruptions that came with “shock therapy” methods advocated by Western liberal economists.

Under the dual-track system, industrial firms were allowed to sell incremental production above the official target at a price that was higher than the fixed price, though still within a set range. Over time, that range would get wider until eventually prices were basically fully liberalized.

That process would take nine years for the steel industry. Starting in 1984, steel producers were allowed to sell their incremental production within a 20% range of the planned price, a price ceiling that was lifted the following year. By 1987, more than 20% of steel production was sold at market prices, a share that reached over 90% in 1992. Price controls on steel were completely removed in 1993—the same year that price reforms were completed for many other industrial and consumer goods, including the abolition of food stamps.

The dual-track approach not only incentivized steel producers to raise production, it also helped to shelter state firms from the full effect of reforms. For instance, state firms that needed to purchase industrial goods were still entitled to continue buying a certain amount of goods, including steel, at the planned price—the equivalent of a subsidy. Therefore, end users of industrial goods could weather price increases. This approach reduced resistance from state-owned enterprises (SOEs), an important political constituency of the Chinese Communist Party (CCP).

In addition, pricing reform also weakened opposition to subsequent market reforms. For example, the former State Planning Commission (SPC), whose role was to design and implement price controls, was an obvious opponent to reform policies. But Zhao Ziyang, at the time China’s liberal-minded premier, blurted out in a private meeting that “economic reform is about dismantling the planning commission.”

In 1998, five years after dual-track pricing ended for most industrial and consumer goods, the SPC was replaced by the National Development and Reform Commission, whose new mandate was to focus on macro, rather than micro, economic management.

**Private Sector Players Rise**

By the mid-1990s, market pricing, rather than a central planning agency, determined the production and consumption of industrial goods. But another major hurdle to reforms remained, namely how to deal with the concentration of SOEs in industry. This was especially salient for the steel sector, where SOEs still accounted for more than 90% of output as recently as 2000.

Yet since the turn of the century, the share of steel production by China’s private sector rose from less than 8% to 56% in 2015 (see Figure 5). To put it differently, private steel producers contributed 65% of China’s total steel production over those 15 years.

The rise of private steel producers needs to be understood within the context of broader reforms that occurred in the previous decades. Like pricing reforms, unleashing the private sector came gradually and was embroiled in politics.
It’s perhaps unthinkable today, but up until the mid-1980s whether to even allow private entrepreneurs to hire more than seven employees was one of the most hotly debated issues at the highest echelon of Chinese politics. Conservatives opposed to reforms, for example, cited an endnote in Marx’s Das Kapital to argue that hiring more than seven employees is in fact labor exploitation and would be considered an unacceptable capitalist practice.

The political opposition was actually effective, as Beijing didn’t formally abandon this hiring constraint on the private economy until 1987, almost a decade after Reform and Opening had been launched. By the mid-1990s, things were looking up for private firms, which finally received formal recognition of having equal status as SOEs during the 15th CCP Congress in 1997. Private firms, alongside state firms, were now considered an indispensable part of the Chinese economy.

This set the stage for breaking the longstanding CCP taboo on private firms once and for all. It came on July 1, 2001, when Party Secretary Jiang Zemin’s speech celebrating the CCP’s 80th anniversary declared for the first time that private entrepreneurs could join the CCP. The enfranchisement of the private sector was part of Jiang’s “Three Represents Theory” that sought to rebrand the CCP as an establishment governing institution that embraced private businesses and tolerated capitalism.

In the meantime, the basic strategy on reforming the state sector was captured in the phrase “grab the large and abandon the small” (抓大放小). Beijing wanted to preserve central and strategically important SOEs because they held significant state assets and were directly linked to political power. As for the rest of SOEs, the vast majority of which were owned by local governments, Beijing’s attitude toward them was rather lax, willing to let them exit the market, get bought out, or even privatize.

As a result of these reforms, the 2000s were a great decade for private sector expansion, while the state sector shrank as a proportion of the overall economy. Between 2000-2017, the number of non-state industrial firms more than doubled, while the number of SOEs declined by 60% (see Figure 6).

The steel sector was particularly affected by these reforms because of the high concentration of SOEs. According to the National Bureau of Statistics, some 3,000 new non-SOE steel producers have been created since 2000, while the number of SOE producers dropped by more than 300. Some of those SOEs simply folded, but many others, like China’s largest private steel maker, Sha Steel, were privatized during the early 2000s. Even accounting for the conversion of former SOEs into private firms, the 2000s nonetheless saw thousands of private steel makers emerge.

The unprecedented expansion of private steel producers led to one of the fastest growth periods for China’s steel sector. Between 2001 and 2013, not only did China cement its position as the world’s largest steel producer, in multiple years during that period, China’s annual incremental steel production exceeded the total production of Russia, the world’s fourth-largest steel producer.

**Evolution of the Steel Industry and China’s Economic Future**

From the epic failure of the GLF to becoming the largest steel producer in the world, China’s steel industry is a testament to how market reforms, not political mobilization, can transform scarcity into abundance. The Chinese steel industry is one that is now dominated by the private sector and produces...
more than it can consume domestically. Although Chinese steel exports have been caught regularly in trade tensions, particularly with the United States, this is a relatively recent phenomenon as China’s steel boom was fundamentally driven by domestic demand and economic growth.

But all booms eventually peter out. And starting in 2013, China’s steel production has become divorced from overall economic growth and has plateaued at around 80,000 tons/year (see Figure 7). Even as China’s GDP has expanded by more than 25% since 2013, its total steel production and demand has barely budged. The main reason is because the key drivers of steel demand, the industrial and construction sectors, are no longer the main source of China’s economic growth. These sectors’ contribution to overall GDP growth has been declining since 2013 and is currently around 36%—the second-lowest level of contribution since 1978.

In fact, the experience of other countries undergoing economic transition suggests that the decline of the industrial and construction sectors is likely to continue, largely because China has entered a new stage in which services is expected to be the key engine of growth. Since 2012, the services, or tertiary, sector has accounted for more than half of China’s growth, and its share has been increasing every year since then (see Figure 8).

The declining position of industry in the Chinese economy doesn’t mean lessons from China’s steel industry are no longer pertinent. In fact, many of the challenges that beset the steel industry can be applied to the services sectors. Like steel, it appears that certain services in high demand, such as education and healthcare, are already experiencing shortages (see Figure 9).

Similar to steel, this current imbalance between domestic supply and demand is partially being met through imports—for example, Chinese students studying abroad in the case of education and the growing popularity of medical tourism in the case of healthcare. Addressing this scarcity in services depends on multiple factors, including the removal of certain price controls and discrimination against private suppliers—policies and barriers that once also constrained the steel industry.

Industrialization in China and the growth of the steel sector would not have been possible without sweeping reforms that created the conditions for that growth. The results are beyond what any central planner in the 1950s could have imagined. Now that China is indisputably a global industrial powerhouse, it may need to apply some of the same lessons and approaches to the services sector that made steel such a roaring success over the last forty years.
Coffee is a widely traded commodity with a global market estimated at around $20 billion. But to most Chinese, coffee is a curious drink that signifies many things. It is both a status symbol of modernity and a reflection of intensifying social stratification, an importation of the Western lifestyle and an opportunity to build a globally recognized domestic industry.

For the vast majority of Chinese, a “Grande” Starbucks black coffee that sells for more than $3 in Beijing is an unaffordable luxury, considering the average household’s monthly disposable income is equivalent to just 90 cups of Starbucks coffee. In 2011, an intensely personal essay titled “I fought for 18 years just to have a coffee with you” went viral on the Chinese internet. The author was a migrant who had finally made it into the Shanghai elite and who used Starbucks as both a proxy of social status and a poignant symbol of the gulf between the haves and have-nots. At the time, China’s Gini coefficient, a widely used measure of inequality, hovered around 0.47 (the US sits at 0.42), one of the highest among major economies.

Nevertheless, a new generation of aspirational Chinese consumers has helped coffee boom across the country for more than a decade. And from 2011 to 2017, the coffee market (both roasted and instant) saw average revenue growth of 37% over that period. As the number of Chinese coffee-drinkers is estimated to be 200 to 250 million and rising, it is no surprise that Starbucks, which entered China in 1999, plans to nearly double the number of stores there to over 6,000 by 2022.

But coffee in China isn’t just about the collision between contemporary café culture and traditional tea culture nor the reliance on imports and mega-franchises like Starbucks. It is
also anchored in the ambition of a single province—Yunnan—to sell Chinese coffee to the world by adopting foreign practices, tapping into mature markets overseas, and embedding domestic producers in a global industry of seasoned coffee purveyors and Western consumers.

China’s coffee industry is still relatively small and immature compared to coffee superpowers like Brazil and Vietnam, but it has grown tremendously from virtually nil 30 years ago (see Figure 1). This growth, and coffee’s future potential, is emblematic of how Chinese consumers have been reshaped by, and how this domestic industry depends on, globalization.

None of this would’ve been possible without both parts of “Reform and Opening” operating in parallel—that is, domestic agricultural reforms and a surprising willingness by the Chinese government to open up this consumer market to massive foreign investment.

Latecomer to the Caffeine Rush

Coffee arrived in Yunnan—literally “south of the clouds” in Chinese—in 1892 via a French missionary who brought seeds for the locals in Binchuan County. The commodity was new to this poor agrarian province in southwest China, but the seeds of the global coffee industry had been planted as early as the 9th century, when it was first discovered in the Kaffa region of Ethiopia (the origin story of coffee is murky, however). Even in Asia, China’s neighbors got the taste of coffee earlier, when the Dutch introduced coffee to Indonesia in the 1600s and later to Taiwan.

Not only was China a late adopter of the product, its government also allowed the coffee industry to languish for nearly a century after its introduction in the late 19th century.

Several factors likely explain this initial neglect. For one, coffee arrived in China just 20 years before the Qing dynasty’s collapse, which was followed by 65 years of unrest, revolution, civil war, and a command economy. Cultivating a crop that was beloved by Westerners and that locals couldn’t afford nor desired simply wasn’t on the agenda. In addition, the strong and enduring Chinese preference for tea means that coffee is a niche beverage (see Figure 2). Finally, although Yunnan sporadically experimented with coffee starting in 1914, by the 1950s, its beans were struck by disease, which dramatically shrunk the acreage of coffee planted.

Reviving Domestic Coffee

But not all was lost. In fact, not only does Yunnan share a border with Vietnam, a major coffee producer in its own right, the province is one of the few in China that could actually support a coffee industry. Although the province sits

### Coffee 101

In its original state, coffee is a reddish berry that requires picking like grapes for wine. The processing of the fruit involves separating the seeds, usually through a wet washing process (some farming practices let the fruit dry naturally). The seeds of the fruit are the actual coffee beans, which appear greenish and are then shipped around the world, typically in 60kg bags. It is for this reason that the standard unit of measurement for coffee is “60kg bags.”

Coffee is divided into two main categories: Robusta and Arabica. The former is of lower quality but commands a larger market share globally because it is the type used in instant coffee or mass market brands like Folger’s. The latter is of higher quality and is the preferred bean for specialty and artisan coffee, which usually involves careful processing and fresh roasting. Arabica requires fairly specific temperature ranges and conditions to flourish, typically at an elevation of 2,000 to 6,000 feet.

Latin America is home to some of the biggest coffee exporters in the world, though Southeast Asia has also developed a sizeable coffee industry, particularly Vietnam and Indonesia. However, Vietnam mainly exports Robusta, whereas China’s Yunnan province almost exclusively produces Arabica, specifically the catimor variety that is relatively more resistant to leaf rust, a common disease that afflicts coffee plants.

### Figure 1. Coffee Production of Select Countries 2005-2015 (in 60kg bags)

Sources: International Coffee Organization; Yunnan Statistical Yearbook; Xinhua; author calculations.

### Figure 2. Catimor Coffee Plant
just above the “Bean Belt”—the band between the Tropic of Cancer and the Tropic of Capricorn where conditions are ripe for growing coffee—Yunnan’s micro-climates and elevation are conducive to the plant.

The revival of coffee production cannot be separated from the broader rural reforms that launched Reform and Opening in 1978. Indeed, economic reforms began on the farm, as the massive communes formed under Mao Zedong were abandoned in favor of a “household responsibility system” in which farming collectives had more control over their own plots of land. The Chinese government also changed incentives by allowing farmers to sell surplus production above a state quota at higher market prices, thereby significantly bolstering national production.

In agricultural provinces like Yunnan, local governments played a large role in determining the flexibility of the land use policy and also in supporting particular industries. About a decade after Reform and Opening began, the Yunnan government in 1988 took a gamble and embarked on a joint UN Development Program project with Nestlé and the World Bank to lay the groundwork for the expansion of domestic coffee production. From the get-go, salvaging China’s coffee industry required a joint venture because major conglomerates like Nestlé had the knowledge and resources that Chinese farmers needed to jumpstart a dying industry.

Local government resources, coupled with continued progress in agricultural land use policy, created dramatic results. With only about 4,000 hectares of coffee in the 1950s, Yunnan by 2013 had planted 43,000 hectares, a ten-fold jump. Today, Yunnan produces 99% of China’s coffee (the remainder is concentrated in Hainan and Fujian and is entirely Robusta). In short, the Chinese coffee industry is Yunnan, literally.

From Tea to Coffee

Perhaps the biggest irony is that the region in Yunnan that now accounts for about 60% of China’s total coffee production is Pu’er, known to many as the home of perhaps one of the most unique and supposedly healthy Chinese teas. The other two regions of coffee production are Baoshan and Dehong, where China’s largest private coffee producer, Dehong Hogood Coffee, is based (see Figure 3). The three regions combined now generate output that’s estimated to be worth nearly $500 million.

It’s not that Yunnan has given up on tea, which continues to be a major local industry. Rather, local farmers are voting with their wallets, as coffee has fetched good money in recent years. Yunnan coffee prices had risen to as high as 40 yuan/kg.
in 2011 before falling back to around 15 yuan/kg in 2016. This appears to follow global coffee price fluctuations that peaked around 2011 and is near bottoming out again in 2018 to just above $1/pound (see Figure 4). When it comes to the single-origin coffees that pervade high-end cafes in the West—a small percentage of overall production—producers reportedly can still get 40 yuan to 50 yuan/kg.

Still, coffee is prone to price volatility, and it’s always a risk for farmers to switch to coffee from tea or rubber, both of which are major cash crops in Yunnan. This uncertainty has led to fluctuations in coffee production in various years, as farmers tend to chase the most profitable crop of the moment. In a bid to become more of a price-maker in coffee, Chongqing has decided to establish itself as a trading hub for coffee—in part because it borders Yunnan—and had cleared some $2 billion of trades at its coffee exchange as of 2017.

Yet China is still a long way from becoming a price-setter when volumes being traded in London and New York are much larger. In addition, the International Coffee Organization, which issues daily price indicators, is also based in London.

While some Chinese farmers have become dedicated to sustaining the coffee industry in Yunnan, whether the industry as a whole moves more aggressively into specialty coffees depends largely on foreign demand. However, shifts in domestic consumption patterns may increasingly play a role.

When it comes to domestic consumption, tea still overwhelmingly dominates, with more than 626,000 tons consumed in 2015 compared to just 68,000 tons of coffee. But its low base also means that coffee, unlike tea, is far from a saturated market in China. And a Chinese middle class that is projected soon to become bigger than the entire US population seems to promise future demand growth for the bean.

Putting Yunnan Coffee on the Map

A display of freshly roasted and carefully packaged whole beans sits along the counter in La Colombe Coffee Roasters in Manhattan’s “Noho” neighborhood. Among the Central American and African beans that dominate the counter nestles a coffee from Yunnan. This is both surprising and significant.

La Colombe, like its peers, counts itself part of the so-called “third wave” of coffee that has elevated the coffee experience as comparable to that of wine. A new generation of coffee traders, roasters, and artisans now scour the world for the best beans, perfect roasting and brewing techniques, and
advocate fair compensation for coffee farmers. Consumers in the West, meanwhile, have by and large bought into the notion of coffee as an experience rather than a mere commodity, demonstrated by their willingness to pay premiums for higher quality.

Indeed, coffee has always been an industry in which most of the consumption takes place in developed countries and where the supply comes almost exclusively from developing countries. That a Chinese coffee has risen to meet the standards of a leading American artisan coffee roaster is somewhat curious. It reflects both the changes in the domestic industry and among Chinese consumers over the last few years—it is one of the few countries in which domestic production of high-quality coffee could tap increasingly sophisticated and wealthier domestic consumers.

Japanization of Chinese Coffee?

To see a potential future for coffee in China, one could look to its East Asian neighbor Japan. Like China, Japan has an entrenched tea culture yet also boasts one of the most sophisticated coffee cultures in the world. That culture began developing in the 1930s as thousands of kissaten (traditional Japanese cafes) popped up around the country. In short, Japan was making artisan coffee long before it was considered “cool” in the United States, which is why most of the hand-pour brewing equipment in high-end cafes in America is imported from Japan.

But, unlike China, Japan does not produce coffee. And given that its annual consumption is significant, it has no choice but to rely entirely on imports (see Figure 5).

Many Japanese kissaten have disappeared since their peak in the 1980s, partly due to urban gentrification and partly to the rising market share of large chains. But these dynamics seem to be occurring in reverse in China. That is, the Starbucks and Nestlé gained dominant positions in the China market first, but it is only now that Chinese consumers, as well as a growing crop of local purveyors, are entering the market—at a time when the global coffee industry is shifting to specialty beans and higher quality.

Foreign incumbents are also facing new challenges from local upstarts such as Luckin Coffee, which has been valued at more than $2 billion after its latest fundraising. These emerging dynamics may be a turning point for a Chinese coffee industry that is poised to become increasingly global just as its consumers become aligned with the coffee culture of the moment.

To be sure, China still has a long way to go simply to reach the consumption level of Japan, and it is this overwhelming gap that implies an enormous potential windfall for coffee remains unfulfilled (see Figure 6). For instance, Chinese coffee consumption has been growing at about 15% a year, much higher than the global average of 2%.

China now consumes roughly 3.7 million bags of coffee annually, still less than half that of Japan. In essence, China resembles late-1970s/early-1980s Japan when it comes to total coffee consumption. The difference is even more striking on a per capita basis: for China, it’s only about 4.5 cups per year; for Japan it’s about 360 cups and for the United States it’s roughly 400 cups. Even back in the 1980s, the Japanese were already consuming an average of seven cups a week. That is to say, if China reached just a quarter of Japanese per
capita consumption in the 1980s, the coffee market would see tremendous growth.

While instant coffee still dominates Chinese consumption (see Figure 7), there appears to be plenty of room for both foreign brands to entrench their positions and for the emerging legion of domestic artisan purveyors to establish themselves as industry leaders.

One such domestic retailer is Seesaw Coffee, a specialty purveyor not so dissimilar from La Colombe. According to the company, over the last four years, it has become the largest domestic buyer of specialty beans from Yunnan and has employees based in the province who work directly with farmers. The owner and baristas take their inspiration from the Chicago-based Intelligentsia café chain and from Japanese coffee culture, and the company also offers training to local farmers on coffee processing and sustainable practices.

Seesaw is hardly alone. New Chinese artisans are connecting with the global coffee culture. Even incumbents like Starbucks are adapting and jumping into the fray. It too has debuted its first single-origin Yunnan coffee, and has invested in training centers to help local farmers improve the quality of their beans. The American company has also been increasing its purchases from the province in recent years. In 2014, Starbucks bought 14,000 bags of Yunnan coffee for export, up from 2,600 bags in 2013. Though this is a blip in Starbucks’ global purchases, it nonetheless represented over 50% of Chinese coffee exports to the United States.

Embracing Globalization

Starbucks is a behemoth, but it once was the pioneer in selling coffee as an experience rather than a mere caffeinated commodity. Rather than deviating from that strategy, the Seattle coffee giant has doubled down on it by investing in flagship roasteries around the world, with the largest in Shanghai.

That kind of experience may not be within reach for most Chinese, yet without the likes of Nestlé and Starbucks, China today may not have had a coffee industry to speak of. It was foreign knowhow and direct linkages to a global market of consumers that resuscitated a dying industry (see Figure 8). Yunnan coffee has found a second life, one that is highly encouraged by the local government. Its recent success has brought the world to this southwest corner of China in search of the next big thing in coffee.

Unlike the Chinese wine industry, largely composed of state-owned firms, the coffee business relies on a tapestry of private domestic firms, major foreign-invested ventures, a hodgepodge of independent local purveyors, and access to global markets and culture. All of which are results of accommodative agricultural reforms and the enormous openings that took place over the last 30 years, particularly in consumer markets.

Yunnan coffee would not have ended up in American cafes without this combination of factors that allowed an immature industry to punch above its weight and earn recognition via ambassadors in coffee-consuming, wealthy countries. Starbucks may have trailblazed the “coffee as an experience” concept, but it no longer has a monopoly on it in China. ■
Since the Mao Zedong era, five-year plans (FYPs) have been a defining feature of China’s political economy. That FYPs still guide the country’s macroeconomic priorities today reflects Beijing’s enduring preference for control and the perpetuation of one of its most important institutions: the central planning agency.

But the fact that China has prospered both in spite of and sometimes because of the influence of the planning agency has surprised many free-market economists. The very existence of such an institution is anathema to market dogma.

While the Chinese economy was never as planned as that of the Soviet Union, “planning” has served a key role in the structure and operation of the country’s growth. From its origins as the State Planning Commission (SPC) in 1952 to its current incarnation as the National Development and Reform Commission (NDRC) since 2003, the central planning agency has been adapted in response to China’s economic transformations.

The planning agency’s power has waxed and waned under different administrations. But it was often considered as “first among equals” in the bureaucratic pecking order of ministerial-level agencies. Because of the Chinese Communist Party’s (CCP) continued belief in state-directed growth—also a crucial source of its political legitimacy—the dissolution of the NDRC seems unlikely.

Still, Beijing has seen the necessity of progressively curtailing the agency’s authority by overhauling its core mandate. In the four decades since the sixth FYP in 1981, the NDRC’s focus has shifted markedly from microeconomic control to macroeconomic coordination, mainly manifest in the management
of the FYP process that guides nationwide economic programs. The cyclicality of NDRC influence has in many ways reflected the gradual yet uneven retreat of the state and the rise of more market-oriented policies.

The NDRC has played both hero and villain in the winding course of China’s 40 years of reform and still serves as a proxy for tensions between the state and market. Grappling with the role of the Party-state in the Chinese economy is now more important than ever as Xi Jinping’s “new era” seems to argue for a strong CCP role in the economy and for hybrid economies as a “new choice” for other developing nations.


Nicknamed the “mini State Council,” the NDRC’s sprawling responsibilities have long included industrial policy, price setting, and administrative approval of state investment projects. Some of those mandates are still in place, albeit in attenuated form, while others have been eliminated. But to understand the extent of the changes brought by Reform and Opening, one must consider the NDRC’s progenitor, the SPC.

The genesis of the SPC was China’s attempt to emulate Soviet-style economic planning. Mao was attracted to the Soviet model for ideological but also practical reasons, chief among them being how the Soviet Union had achieved rapid economic growth while preserving tight political control.

After World War II and the Chinese Civil War, Mao’s new People’s Republic of China inherited a devastated agrarian economy with weak production and high unemployment and inflation. The Soviet economic framework of “five-year plans,” which dated back to 1928, offered a strategy to transform China into a self-reliant industrial powerhouse. CCP propaganda from the time often praised China’s “Soviet big brother” and declared that “The Soviet Union’s today is our tomorrow.”

In November 1952, after several years of consultation with Soviet advisers, the SPC was formed in large part to administer China’s first FYP (1953-1957). That first FYP was “the apex” of central planning in China’s economic history. Even Deng Xiaoping, the architect of Reform and Opening, helped to design it.

The plan’s basic strategy was to deploy agricultural surpluses to achieve rapid growth in urban industry. Toward that end, the plan included thousands of specific output targets for industrial products, manufactured goods, agricultural crops, public services, and even the number of theatrical troupes. It designated enterprises that would be responsible for certain targets and specified the land, capital, and labor resources they would receive to achieve these objectives.

The SPC controlled inputs, prices, and credit—in other words, it basically oversaw the entire economy—and cadres and managers would be punished or rewarded based on whether they met FYP targets.

Yet Mao grated at the power of both the planning bureaucracy and the Soviet Union. His personal power and extreme suspicion meant that even the best-laid plans would often be abandoned on his whim. This had tragic consequences when the second FYP (1958-1962) was sidelined by Mao’s insistence on grassroots mobilization under the Great Leap Forward (GLF). In a delusional bid to surpass Britain in steel production in five years, the GLF instead contributed to a famine that killed tens of millions of Chinese.

The third and fourth FYPs did not fare so well either, as Mao’s preoccupations lay elsewhere. He rejected the third plan by declaring the creation of a “Third Front” with the relocation of industries to China’s interior. (The SPC estimated that this policy wasted $50 billion of investment funds and caused indirect losses of $100-$150 billion.) The fourth FYP was also
marginalized as the decade-long Cultural Revolution undermined governance.

Politics hijacked well-intentioned planning after the first FYP, as Mao’s economic ideas relied more on ideological vigor than empirical input-output calculations. A small silver lining of this era was that Mao’s efforts to mobilize the masses and purge the SPC did decentralize economic decision-making to some extent. Nonetheless, political volatility significantly weakened the SPC and the bureaucracy writ large.

**Prying Open the Bird Cage (1976-1998)**

After Mao’s death in 1976, the SPC emerged back into the spotlight. That’s because Deng Xiaoping, who took the reins of power in 1978, began a decisive break with Maoist policies at the Third Plenum of the 11th Central Committee in December that year. The process of Reform and Opening that Deng initiated at that meeting heralded a pragmatic approach to development that focused on economic rather than ideological metrics of success.

One of Deng’s key early supporters was Chen Yun, a powerful economic planning veteran who became one of the “eight immortals” of the CCR. The SPC became his power base within the central bureaucracy after 1980 when Deng helped Chen install one of his political allies as the head of the SPC—which was then led by Chen loyalists until 1993.

Chen did not want to see reforms proceed as fast or as far as Deng wanted. His more statist inclinations precipitated a political war of attrition between “reformers” and “conservatives” over how China’s economy ought to evolve. Chen and his conservative allies argued that rapid marketization and foreign money would destabilize the country and make China dependent on capitalist powers.

Chen instead advocated a “bird cage” approach that allowed market forces to operate only within the confines of the plan. On the reform side stood liberals like Hu Yaobang and Zhao Ziyang, both Deng protégés, who wanted markets to supersede most planning and sought to curtail state intervention, decentralize economic decision-making, and bolster foreign investment. In short, the fundamental tension was over whether to let market forces drive rapid growth or to pursue steady expansion based on enhanced central planning.

The SPC was a natural base for Chen as its core mandate is planning after all, and therefore, relinquishing planning to market-based allocation would be tantamount to driving a nail into one’s own coffin. So, while the commission had to go along with much of Deng’s reform agenda, it used its considerable clout to staunchly protect its own turf.

Indeed, under Chen’s patronage from 1980 to 1993, the SPC remained “the largest, most powerful and most comprehensive Chinese economic policymaking organ.” It retained control of many purse strings, numerous project approvals, the management of SOEs, and kept on its payroll thousands of staff.

Resistance from conservatives meant that reformers had to figure out ways to get around the SPC to modernize the economy, particularly as the sixth FYP (1981-1985) continued to set investment projects, output targets, and prices in broad swathes of the economy. Even a local planning official grumbled later that “there was nothing they didn’t cover, down to the smallest thing, like how many staples to produce in a year.”

Starting in the late 1970s, reformers had begun the offensive with the “household responsibility system” to decollectivize agricultural production, “township and village enterprises” to effectively enable private commerce in rural areas, and other market experiments far from the official “bird cage” of Beijing. The creation of Special Economic Zones in southern China, led by Xi Zhongxun (Xi Jinping’s father), was a particularly bold move that proved successful in attracting foreign investment and opening trade relations.

One of the areas on which reformers focused their attention were prices. From 1981, China adopted a “dual-track pricing” system—first covering agriculture, then consumer goods, and finally, industrial goods. Despite Chen’s opposition, these reforms were carried out to improve the efficiency of the economy. The dual-track pricing system allowed for a more flexible market-based pricing mechanism, which helped to correct the inefficiencies that resulted from the planned economy. 

This period saw a significant shift in China’s economic policies, moving away from the pure idealism of Mao’s era towards a more pragmatic and market-oriented approach. The SPC, despite its resistance, was unable to halt the momentum of these reforms, which ultimately laid the foundation for China’s rapid economic growth in the decades that followed. 

Change of Plans: Making Market Capitalism Safe for China

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and finally industrial goods—whereby producers had to meet output quotas at fixed prices but could sell any surplus at higher market prices.

This policy turned out to be an ingenious play to chip away at the influence of the SPC and its target-obsessed planners. The incentive to sell to the market caused firms to ramp up production and contributed to impressive growth, allowing China to essentially “grow out of the plan.” By the mid-1980s, it was clear that market pricing raised output significantly, and, as the SPC increased procurement prices and cut output quotas in the mid-1980s, the market came to determine decision-making more than SPC targets.

The early success of such policies lent Reform and Opening greater legitimacy (see Figure 1). Over the course of the 1980s, planning bureaus in ministries were closed down, provincial planners became more independent of the SPC, and “mandatory targets” (zhilingxing zhibiao) were reduced and replaced with less rigid “guidance targets” (zhidaoxing zhibiao). In October 1984, the central government decided to expand the scope of reforms from rural to urban areas, introduced economic incentives for state-owned enterprises (SOEs), and redefined China as a “planned commodity economy” (you jihua shangpin jingji).

Unshackling prices certainly gave economic actors more freedom, but it also led to a perennial problem of rapidly-developing economies: inflation. Inflation and social instability tend to be strongly correlated, and marketization risks triggering rampant price increases if not well managed. The SPC’s administrative levers often provided a much-needed economic brake for Deng to fall back on, but sometimes he pushed too far.

Many factors contributed to the Tiananmen Square protests of April-June 1989. In addition to desires for political liberalization and anger at government corruption, another cause of social discontent was excessive inflation (see Figure 2). Deng unintentionally helped create this situation when, during an economic uptick in 1988, he insisted on liberalizing a large number of consumer prices, which predictably triggered an inflationary spike.

The Tiananmen massacre was a political boon to conservatives at the end of a decade in which they lost influence in economic policymaking. Yet they failed to capitalize on this opportunity because growth faltered post-Tiananmen and the SPC unveiled a haphazard eighth FYP (1991-1995) that was unambitious, internally inconsistent, and failed to identify clear priorities. This mixture of policy failures and a sluggish economy discredited the SPC and produced an atmosphere conducive to Deng’s 1992 Southern Tour to revive reforms.

That October, the 14th CCP Congress formally endorsed the market by declaring that China was a “socialist market economy” (shehuizhuyi shichang jingji). By August 1993, the SPC’s power to directly allocate resources was removed. Three months later at the Third Plenum in November, the CCP issued a watershed resolution on the “Establishment of a Socialist Market Economic System” that required cadres in effect to “take markets as the foundation” of policymaking.

What the socialist market economy meant was that Beijing embarked on an ambitious plan for market reforms that included overhauling SOEs, unifying prices and exchange rates, and modernizing China’s tax code, business regulation, and financial system. It aimed to create markets that operated with neutral regulation, fairer competition, and better market access without much need for direct administrative measures.
The first two decades of Reform and Opening, then, came at the expense of the SPC, as it became a shadow of its former self and experienced something of a “legitimacy crisis” (see Figure 3). Indeed, some cadres even began to question whether it should continue to exist. The SPC survived, but the economic reforms of the early 1990s heralded a fundamental shift in its core mandate from dictating microeconomic behavior to broader policy coordination, resource mobilization, and ensuring stability.

In short, the CCP maintained control of the “commanding heights” of the economy, but the SPC would now focus mostly on “macro-coordination” (hongguan tiaokong), leaving most decisions to the market.

**Ceding Control (1998-2003)**

In 1998, the SPC’s name was changed to the State Development and Planning Commission (SDPC) to further reflect its new mandate. And the agency’s industrial policy mandates were transferred to the State Economic and Trade Commission (SETC), which absorbed ten industrial agencies as state bureaus.

The SDPC existed for five years under a State Council that was headed by Premier Zhu Rongji, the firebrand official and reformer who oversaw sweeping privatization of the state sector, steered China through the Asian Financial Crisis, and negotiated China’s accession to the World Trade Organization.

The fact that Zhu wanted the state to retreat meant that he was no friend of the SDPC. Despite having served many years at the planning agency early in his career, Zhu was purged twice for his progressive views on structural reforms. During his tenure as vice premier and then premier from 1993 to 2003, Zhu never once visited the planning agency.

Neither was the political environment especially kind to the SDPC’s influence, as General Secretary Jiang Zemin’s theory of “Three Represents” in 2002 formally welcomed capitalists into CCP ranks. Since then, the value of state-controlled entities has continued to decline (see Figure 4).

Zhu oversaw a number of moves in the ninth FYP and tenth FYP to whittle away the SDPC’s power. These included, among others, abolishing mandatory economic targets, eliminating national-level investment projects from the FYP, and downgrading legacy ministries like the Ministry of Metallurgical Industry. Moreover, Zhu also redirected the focus of the Tenth FYP to addressing the costs and negative externalities of China’s breakneck growth, including lowering the official GDP target from 8% to 7% and striving for more sustainable growth through structural reforms.
Planning Revived (2003-2012)

As Zhu exited the political stage, many of his policy goals remained. Key issues of balancing economic growth with environmental protection, moving up the value chain, and reducing social inequality, defined the tenures of President Hu Jintao and Premier Wen Jiabao from 2003-2012. But Zhu’s campaign to weaken the planning agency was reversed as the Hu-Wen administration gave it something of a second life.

The National People’s Congress (NPC) in March 2003 renamed the planning agency again to become today’s NDRC, thereby eliminating the word “planning” from government nomenclature. The official reason for the change was because planning “is no longer able to exercise sufficient controlling power” in an economy where market forces are “the main engine determining economic growth.” But the overhaul actually strengthened the planning agency by dissolving rival agencies and giving the NDRC responsibility for industrial policy, enterprise guidance, technology investment, and system reform.

The Hu-Wen administration revitalized planning because the leadership believed that to achieve its objective of a “harmonious society,” the state had to address market failure with policies for “scientific development.” Everything from environmental degradation and inadequate social welfare to rising inequality and regional disparities all required urgent state intervention.

In essence, the new administration wanted more socialism in the socialist market economy. State planners in the new NDRC were poised to recover some of their lost powers over markets. In fact, early in his tenure, Premier Wen issued a confidential instruction at a State Council meeting that approvals should only be given to investment projects that were incorporated into official plans (meiyou guihua jiu bu pi xiangmu).

This statist tilt became more evident after significant overheating in early 2004 created a pressing need for macroeconomic stabilization. Vice Premier Zeng Peiyan, who had been promoted from being head of the SDPC, dealt with the problem through an NDRC-led intervention that decided which lower-level investment plans should be discontinued.

Still, economic reforms did not come to a halt. The overall shift in China’s economic policymaking from microeconomic mandates to macroeconomic coordination remained in place, and was further reinforced in the 11th FYP (2006-2010)—its name in Chinese was also tweaked from jihua (plan) to just guihua (guidance).

This FYP also introduced hard and soft targets (yuexuxing zhibiao and yuqixing zhibiao), signaling to lower-level cadres which central priorities were “must haves” and which were “nice to haves.” The former category determined cadres’ career prospects, while the latter were important but not essential.

Most of the hard targets aligned with Hu-Wen objectives to increase environmental protection and improve social welfare, reflecting a resurgent but more focused planning that would carry though to subsequent FYPs, which allowed localities to make major decisions about how to best meet their targets (see Figure 5).

Figure 5. Number of FYP Quantitative Targets Increased from 22 to 33 since 2001

Source: CSIS, ‘National Targets,’ Perfecting China, Inc.
The NDRC’s more prominent role in the “state capitalism” of the Hu-Wen era produced significant blowback from rival ministries and liberal economists. For instance, the head of the National Audit Office said the NDRC was the part of government “most in need of reform,” while a Chinese scholar complained that “From national strategy to county-level development, there’s nothing with which the NDRC doesn’t get involved.” Indeed, the NDRC’s intimate involvement in industrial policy contributed to cycles of damaging overcapacity in sectors ranging from steel to solar panels.

But nothing would accelerate the agency’s ascendancy as much as the Global Financial Crisis (GFC) of 2007-2009. The crisis not only helped delegitimize free markets in the eyes of Chinese policymakers but also prompted the CCP to radically readjust its economic plans to accommodate a steroidal 4 trillion yuan ($590 billion) stimulus package, inspired partly by a 1998 stimulus plan the SDPC formulated in response to the Asian Financial Crisis.

In the face of this exogenous shock, the CCP feared the worst and resorted to its old playbook of empowering planners in the NDRC to administer the stimulus by directly approving local, SOE, and ministerial investment projects. Various agencies, for instance, would have a corresponding NDRC department that had to approve their plans.

The stimulus did stave off a severe economic recession, but came at the expense of letting the state encroach on microeconomic decisions in ways that it had not done in many years. Industry observers complained that “Even price increases for instant noodles and the models produced by car manufacturers needed an approval from the NDRC.”

The post-GFC resurgence of the NDRC cemented its reputation as a “super ministry” that was effectively “one half-step above” other peer agencies. Such a status emboldened the NDRC to develop “a high propensity to intervene in market operations and outcomes,” extending its tentacles into areas that increasingly overlapped with the responsibilities of other agencies. This overreach invariably caused bureaucratic turf battles, led to inefficient policy implementation, and incentivized rent-seeking behavior by bureaucrats involved in project approvals.

The NDRC was regularly at loggerheads with the People’s Bank of China and the Ministry of Finance, both of which were headed by more liberal-minded officials that advocated more market-based approaches. But with champions at the highest level of government, including Wen himself, the NDRC was riding higher than it has been for decades.

**Down But Not Out Yet (2012-Present)**

The NDRC fiefdom was but one aspect of criticisms lodged at the Hu-Wen administration for progressively losing the Party center’s grip over policy outcomes. When Xi became CCP leader in November 2012, the new General Secretary’s immediate priorities were to centralize decision-making power and embark on an intense anti-corruption campaign to pressure the state apparatus to fall in line behind CCP edicts.

Neither of these priorities worked in the NDRC’s favor. Although the agency emerged unscathed from the March 2013 ministerial reshuffle, it was one of the first major bureaucracies to fall under Xi’s anti-corruption radar. Dozens of NDRC officials were netted, including deputy director Liu Tienan, who managed the energy portfolio.

Xi then announced at the Third Plenum of November 2013 that market forces should now play a “decisive” (jueding xing) role in allocating resources within the Chinese economy, and particularly in determining prices. Soon thereafter, the government also abolished the NDRC’s power over “non-administrative license approvals.”

Although the unleashing of market forces did not quite live up to expectations, the neutralization of the NDRC continued. Xi advanced the notion of “top-level design,” which was essentially a belief in the need to consolidate authority over economic governance under a small cabal of trusted advisors.

Xi first created new “central leading small groups” (CLSGs) and then upgraded these and existing CLSGs to become
permanent commissions with formal administrative powers. The most important are the Central Finance and Economics Commission (CFEC) and Central Commission on Comprehensively Deepening Reform (CCCDR)—both of which are led by Xi and answer to the CCP Central Committee.

For instance, one of Xi’s closest economic advisers, Liu He, headed what is now the CFEC work office while he simultaneously served as an NDRC deputy director from 2013 to 2018, when he became a Vice Premier. Liu reportedly never worked from his NDRC office as his real power came from the CFEC.

In practical terms, these changes were aimed at improving inter-ministerial coordination and solidifying central-local alignment on major policies and strategic initiatives such as “Made in China 2025.” In political terms, these changes coincided with the sidelining of Premier Li Keqiang and his State Council. And, as the role of the State Council waned, so too did the status of the NDRC as a “mini State Council.”

Under Xi, the declining fortunes of the NDRC became more evident after the NPC in March 2018, when the agency emerged as a loser in the organizational reforms passed at the meeting. It lost significant powers in the inspection of major state projects, climate change policy, natural resource management, agriculture investment, price adjustment, and anti-monopoly regulation. This fit into a wider reform agenda to create ministries with exclusive control of specific issue areas that could serve as more efficient state executors of central Party directives.

Yet even as the tentacles of a powerful “vested interest” are being chopped off, the NDRC probably still remains one of the more powerful state agencies, given its resources, accumulated expertise, and the role it plays in supervising and implementing FYPs at all levels. That sort of institutional knowledge and function cannot be easily replaced.

**Conclusion**

Economic planning is a hallmark of the hybrid market economy that has emerged in China over the 40 years of Reform and Opening. The peaks and troughs of the planning agency’s journey—from microeconomic dictator to macroeconomic coordinator—appear to correlate with cycles of decentralization and recentralization in the Chinese political economy. Planning has had its drawbacks but it will not disappear so long as the CCP remains adamant that the word “socialist” precedes “market economy.”