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New Roads to Capitalism: China and Global Value Chains

by

Mark Peter Dallas

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Political Science

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Kiren Chaudhry, Chair
Professor Thomas Gold
Professor Kevin O'Brien
Professor T.J. Pempel
Professor Steven Vogel

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New Roads to Capitalism: China and Global Value Chains

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Abstract

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The creation of markets in China has been most commonly analyzed through the lens and vocabulary of the new institutional economics in which broad, national-level institutional reforms are seen to be effective because they altered the incentive structures of farmers, local government officials, or factory managers. Drawing from literature on comparative capitalism which focuses on the processes of production, this dissertation examines markets through deconstructing production to the level of specific commodities. It utilizes a value chain framework by beginning with the cultivation of cotton, wool and silk agricultural commodities, and tracing them through China's textile and garment industries and into domestic and foreign trade. It considers each of these links along the chain as a locus of conflict between China's many ministries, local governments and economic actors, highlighting the political contestation and the complexity of state policy underlying the institutionalization of markets. By tracing how the terms of trade become structured along the chain over time, it details the re-creation of economic order and the distribution of resources among different producer groups.

This approach is employed to construct a comparative historical narrative of China's textile agro-industries, starting from the domestic market reforms in the 1980s through to China's international integration in the 1990s, a period which coincided with major transformations in global manufacturing. In terms of domestic market reforms in the 1980s, it first shows that an institutional economics perspective mistakenly draws too clear a line between China's planned economy and the market reforms over the 1980s. By examining reforms at the level of concrete commodities and along the value chain, the planned economy and market reforms are re-conceptualized as being deeply interpenetrated such that the vitality of China's nascent market economy grew not simply from the liberation of economic interests through institutional re-engineering, but from the structure of China's version of a planned economy.

Second, it examines China's international integration over the 1990s by analyzing the impact of the contemporary transformations in global manufacturing, in which vertically integrated production along the value chain has been sliced up and re-integrated through cross-national networks of production. This fragmentation of production introduced a new form of capitalist development in China in terms of the organization and regulation of industry and the composition of its labor force.

Finally, the dissertation's approach offers new insights into the study of China's rapid rise in regional inequality. Instead of explaining regional inequality through differences in location advantages, it finds that regional inequalities arose more from changes in regulation between direct producers along the production chain. The dissertation employs a variety of data sources, including fieldwork interviews, Chinese newspapers and trade journals, internal government documents and statistics, yearbooks and local gazetteers, industrial and population censuses and digital mapping techniques.

Table of Contents

Abbreviations

ABC	Agriculture Bank of China
ATC	Agreement on Textiles and Clothing
EU	European Union
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GVA	Gross Value of Agricultural Output
IMF	International Monetary Fund
MFA	Multi-Fiber Agreement
MOA	Ministry of Agriculture
MOC	Ministry of Commerce
MOF	Ministry of Finance
MOFERT	Ministry of Foreign Economic Relations and Trade
MOG	Ministry of Grain
MOLI	Ministry of Light Industry
MOTI	Ministry of Textile Industry
NASMC	National Association of Supply and Marketing Cooperatives
NPB	National Price Bureau
PRC	People's Republic of China
RMB	Renminbi (Chinese currency)
SMC	Supply and Marketing Cooperative
SOE	State-owned Enterprises
SPC	State Planning Commission
TNC	Transnational Corporation
TVE	Township and Village Enterprises
UN	United Nations
UNCTAD	United Nations Commission on Trade and Development
UNIDO	United Nations Industrial Development Organization
US	United States
WTO	World Trade Organization

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I finish this dissertation with more unanswered questions than when I began. There are many to blame for this, but a few stand out for their continued guidance and inspiration. Foremost among them, Kiren Chaudhry has been unwavering in her support and dedication. Quite simply, this dissertation would not have come to fruition without her. Many of its ideas derive from her pedagogy in two exceptional courses at Berkeley, endless conversations with her over the years, and her willingness to take risks and experiment with new ideas. Although it is becoming less common in the discipline, Kiren firmly believes in graduate education as a high-skilled craft, and I am extremely grateful for this.

Other committee members have contributed in diverse and crucial ways. Tom Gold and Kevin O'Brien have very ably contributed essential China expertise. Tom was supportive of the project since it was a prospectus and used his prodigious skills in linking people together to introduce me to individuals in China during fieldwork. He also unselfishly gave of his time, for instance by attending regular meetings of a China dissertation writing group with doctoral students from across three disciplines, only a few of whom he formally advised. Kevin provided a crucial outsider's perspective on the project. Despite his protestations that he was not a political economist, his commentary on my work was invariably insightful and probing. He remained the constant voice in the back of my head reminding me that I ought to strive to touch a broader audience beyond fellow political economists. T.J. Pempel and Steve Vogel contributed substantially both as keen observers of political economy and in terms of guiding dissertation research. If Kevin remained the voice for broadening my appeal, Steve was the voice urging me to strive for greater clarity, economy of words, and for striking a balance between comparative, qualitative research and generalizability. He was also very generous with his time in helping me as the project evolved. T.J. always contributed whenever I asked, even when he was about to fly off to Asia. I firmly believe there are two T.J.s at Berkeley, because just one person could not read and comment on drafts with such alacrity and skill while engaged with so many other pursuits. His influence was particularly helpful when planning my project, in which he (perhaps unwittingly) turned me away from studying both China and Japan in the same project, insisting that I not spread myself too thin, since 'China is big and complex enough, and worth delving deep to understand.' This advice proved sound, except for the unfortunate consequence that by removing Japan from the project, my interactions with him were curtailed, though I hope to return to my study of Japan in the future.

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Most of the individuals in China who opened their lives to me and offered me an inside look at the textile and garment industries must remain anonymous. However, I can say that I enjoyed the endless hours of conversation over *Puer* and *Tieguanyin* tea in their offices, their patience in explaining textile technology and their factory shop floors to a neophyte, the sumptuous dinners, the long train and bus rides to wholesale markets and trade fairs, and even the soccer games played in spite of the pollution and rain. Although their voices are not always directly heard in the research below, the insights I gained into textiles and into 'doing business in China' in general, helped generate new ideas which heavily directed my research questions. Other individuals in China provided more practical things, such as valuable advice, a place to stay, new insights into Chinese politics and the economy, or just warm friendship. Although too many to list everyone, a few must certainly be singled out, including Jia Wenjian, Dou Pu, Qian Ying, Bu Wenyuan, Huang Zhengjun, Luo Chi, Yan Xiaoping, Xie Mengyao, Zhu Tianbiao, Zhang Jianjun, Gao Wenjie, Sun Xuefei, Li Lu, Gao Mengmeng, He Yu, Han Luyao, Shi Xiaomin (and family), Yang Fuwu, Er Jie, Zhang Bo, Guo Huasheng Wang Zhaohua, Ma Qianli, Liang Zhijing, Wang Yuemei, Xiao Ye, Zhang Xianghua, and Miao Rui.

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Chio, Chen Zongshi, Xiao Suowei, Leslie Wang, Rachel Stern and Jonathan Hassid. It was fabulous working with them. In addition to formal writing groups, the same combinations of friendship and scholarship were true of Carsten Vala, Bill Hurst, Chrystal Chang, Oh Seung-Youn, Yun Ji-whan, Lee Junghwan, Rosie Hsueh, Han Rongbin, Naaz Barma, Ken Haig, Toby Schulze-Cleven, Chung-min Tsai, Regine Spector, Brent Durbin, among others, and office mates Mike Nelson, Jane Gingrich, Ed Fogarty, Sara Newland and Sebatian Etchemendy.

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Mark Dallas
Saratoga Springs, NY

Chapter 1

Introduction: Constructing Markets in China

From the vantage point of the 1970s, there was little reason to believe that within two decades China would boast one of the most sustained rates of high growth in the world, achieve unprecedented levels of poverty reduction, and transform into an export powerhouse. In the 1970s, China's prospects looked bleak indeed. It was overwhelmingly rural, constrained by low agriculture productivity, and possessed a huge underemployed labor force with very low levels of income. If this were not enough, it possessed none of the institutions which many believe to be necessary for sustained productivity growth, most importantly private property protected by the rule of law and a market form of exchange. By many accounts, the heavy hand of the command economy was inefficient, wasteful and created untold distortions in the economy. If anything distinguished China from countries at a similar level of development, it was its complex bureaucracy and relatively effective state capacity. However, the ten years of anti-bureaucratism during the Cultural Revolution (1966-76) had severely undermined the coherence of even this legacy.

Despite these strikes against it, however, over the following decades China underwent a dual transformation, achieving structural change through widespread industrialization, in addition to transitioning from state socialism to a market economy. Over the past three decades, other countries of the developing and post-socialist worlds have suffered through only one of these two wrenching transformations. For China, they were simultaneous.

Most accounts of China's dual transformation agree that the direction of change has been one-way: from marketization to industrialization. It was the institutional reforms which gradually created a market economy that sparked the structural changes, industrialization, and economic growth. In other words, 'unshackling' from the planned economy was the pivotal factor.

From the vantage point of the 2000s, China's economy remains an enigma, especially in light of common 'models' of late development and international integration. First, unlike the small East Asian NICs, China is continental in size with a massive internal market and raw material resources. And yet, China's dependence on the global economy is more akin to these small, resource-poor NICs, than to its large country peers, like India or Brazil.

Secondly, unlike China, the East Asian countries possessed highly organized domestic economies. These consisted of powerful, interlocked business groups (*keiretsu* and *chaebols*), well-organized and effective business associations, and some sort of central or nodal state agency.[1] Together, these functioned to formulate coherent long-term strategy, to resolve discord among conflicting bureaucracies and firms, and to shield

[1] By this, I refer to planning boards such as MITI in Japan, the EPB in Korea, or the EDB in Singapore. Johnson (1982), Amsden (1989), Wade (1990). For government-business ties and business groups, see Gerlach (1992), Lincoln and Gerlach (2004), Kim (1997), Kang (1996).

their economies from global economic forces. By many accounts, it was their high degree of internal organization that made them so competitive in global competition.

China has tried, but failed, to emulate this model. Looking to East Asia, China organized firms into business groups (*qiye jituan*)[2] and established business associations (*xiehui*),[3] supported national champions[4] and possessed a nodal agency to spearhead strategic policies. However, in actuality, China's internal market is fragmented;[5] there is no Chinese equivalent to Mitsubishi or Samsung; business associations have little real influence;[6] and there are serious state capacity problems in China's sprawling, multi-tiered bureaucracy.[7] China shares few of the traits widely considered to have contributed to East Asia's rise, but it has followed in their footsteps in becoming a globally competitive export powerhouse. Why has China's economic liberalization and path of development been so unusual?

China's market reforms have most commonly been understood through the lens and vocabulary of the New Institutional Economics. That is, in many influential studies reviewed below, China's major economic reforms are seen to be effective because they *altered the incentive structures* of farmers, local governments and industrial firms. From a micro-economic level of analysis, this is true: institutions were changed which altered the incentives of government and economic actors alike. Many of China's most important reforms, including the decollectivization of farms, fiscal decentralization and the dual-track price mechanism have been interpreted through this lens. More often than not, scholars utilizing an institutional economics approach to China's reforms tend to draw a clearer conceptual line between China's planned and market economies.[8] For instance, seen through a micro-economic lens of incentives and institutional structures, it appears that the plan and market constituted 'two tracks' (*shuangguizhi*), a common metaphor in the China reform literature.

This dissertation offers a different lens through which to understand China's market reforms. Instead of examining marketization through a micro-economic lens of incentive structures, it deconstructs production and exchange to the level of concrete

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[2] See Keister (2000), Tam (1999), Sutherland (2003).

[3] See Kennedy (2005), Unger and Chan (1996), Foster (2002), Pearson (1994), Nevitt (1996).

[4] See Nolan 2001a, 2001b, Sutherland 2003.

[5] Development Research Center of the State Council 1997, World Bank 1994, Young 2000, Poncet 2003, 2005. There are those who disagree with this line of research, such as Naughton 2003, Park and Du 2003.

[6] This is especially true at the national level. Of all of the studies on business associations, most deal with them at the local city level. For instance, White (1993) in Xiaoshan, Unger (1996) in Beijing, Nevitt (1996) in Tianjin, Foster (2002) in Yantai. Zhang Jianjun's recent book does an excellent job of comparing the differing trajectories of local business associations in Wenzhou and Wuxi. See Zhang (2008), Chapter 8. Kennedy (2005) is an exception, but a close reading of his case studies reveals that most of the successful lobbying of Beijing was done outside of business associations themselves. There are many local studies on business associations, but most of them are rather pessimistic of their effectiveness in linking government and business interests. See Foster (2002), Pearson (1994), Nevitt (1996), Unger 1996.

[7] For instance, one of the most enduring characterizations of the Chinese state was coined by Ken Lieberthal and Michael Oksenberg (1988), who describe it as 'fragmented authoritarianism.' Also see Mertha 2009.

[8] This is not to deny that there are many conceptualizations of China and other socialist countries as 'hybrid' economies. However, this concept is most frequently used with reference to mixed ownership patterns and the unusual entwinement of government-business relationships. It is also associated with the 'dual track' system; however as discussed below, conceptualizing China's mechanism of exchange as' growing out of the plan' and into markets creates a clear conceptual line between the two forms of exchange which this dissertation argues is far more blurred and interpenetrated than the two-track metaphor suggests.

commodities. In particular, it traces the harvesting of cotton, wool and silk agriculture commodities through the downstream production and exchange 'links' in the textile industry and foreign and domestic trade. By examining each link in the production process, this approach – commonly called a 'value chain' – is especially well adapted to observe the formation of markets.

The study of value chains focuses on individual commodities and examines their particular industrial organization, government regulation and territorial location.[9] By starting 'upstream' with agricultural commodities and following them through the intermediary and downstream industries, I examine each node along the chain as a locus of conflict between China's many ministries, local governments and economic actors, highlighting the political contention underlying the creation and institutionalization of markets. Furthermore, by tracing the way the terms of trade are structured along the chain, we can observe the creation of economic order and the distribution of 'value' among different social groups along the chain. Although I substantially adapt the literature to China's political environment, the basic approach has been applied by hundreds of scholars worldwide and to a wide variety of products and countries.[10] This dissertation compares the value chains of three sub-sectors within the textile and garment industries: cotton, wool and silk.

This approach departs from a New Institutional Economics account. At the level of individual commodities, China's market economy appears much more *interpenetrated* with the older planned economy than commonly acknowledged. Instead of seeing the key change from the planned economy to markets as the realigning of incentives through institutional re-engineering, it highlights how the market and plan intersected, most importantly in the formation of prices. If this is true, then compared to the 'big bang' reforms associated with Russia and East Europe, the key distinction of China's post-socialist reforms was not that the *introduction of markets* was gradual or adaptive or experimental (all of which are also true); it is that the *planned economy* was structured – sometimes even rigged – in such a way that made the market mechanism appear to generate explosive growth. Instead of seeing China's 'partially' reformed planned economy as simply maintaining social stability or as a source of economic rents to pacify entrenched political elites (as it is often characterized), I demonstrate that the planned economy was crucial to the effectiveness of markets. China's nascent market economy grew not from the liberation of economic 'interests' through institutional restructuring but from the structure of China's version of a planned economy. A micro-economic lens which sees market creation primarily as the realignment of incentive structures is incapable of discerning this. The approach used in this dissertation is to examine the

[9] See Gereffi and Korzeniewicz 1994 for the original formulation of what was then called 'commodity chains,' and Gereffi 1995 for an addition to the framework. Gereffi, Humphrey, Sturgeon 2005 offer a synthesis and new and unifying terminology for the subfield, though not everyone is in agreement (see Bair 2005, Henderson et al. 2002).

[10] For a clearinghouse of scholarly work worldwide that utilizes this approach, see www.globalvaluechains.org. While the theoretical lineage of this literature is World Systems Theory, there are such serious differences that they are hardly identifiably connected (see Bair 2005 for a comparison). In fact, in scholarly reviews, the 'parent' literature (World Systems) berates its wayward progeny. (see McMichael 1995) A small sampling includes apparel in Mexico (Bair and Gereffi 2002), automobiles in different countries (Lee and Cason 1994; Kim and Lee 1994), cashew nuts in Mozambique (Cramer 1999), software in Ireland (O'Riain 2004), fresh vegetables in Africa (Dolan and Humphrey 2000), coffee in Latin America, (Fitter and Kaplinsky 2001; Talbot 2004), tourism (Clancy 1998), and various service sectors (Rabach and Kim 1994).

creation of markets at the level of concrete commodities and the changes in their regulation in China's transitional economy.

Apart from re-evaluating China's domestic economy reforms, a value chain perspective offers new insights to China's international integration over the 1990s. China's integration has coincided with a new era of global manufacturing in which production has disintegrated along the chain of production within national borders, while re-integrating globally through complex production networks that combine the management of trade and foreign investments. Originally, the concept of value chains was developed to understand these fundamental changes in global production. As addressed below, these changes in global manufacturing have shifted scholarly focus from a technological and transaction-cost approach in the study of industrial 'sectors,' like textiles or steel, to an historical-organizational approach of specific commodities and industries. This shift has important implications. For instance, from a 'sectoral' perspective which focuses on technology, the cotton, wool and silk textile and garment industries are considered nearly identical and seen as a single, undifferentiated industrial 'sector,' sharing similar levels of capital- and labor-intensities, asset specificity, and economies of scale. However, through a commodity and value chain lens, I find wide variation between them in terms of China's regulation of these industries and their integration into global manufacturing. This is well illustrated even *within* each of these 'footloose' industries, as China has both aggressively intervened in the upstream sectors through import substitution (chemical fibers) and strategic trade controls (in raw materials like cotton and silk), but simultaneously in other links in the chain remains heavily dependent on foreign investments (dyeing and garments), imports (chemical feedstocks) and exports (garments). Thus, with regards to the long-standing debates over cross-national institutional 'convergence,' or the impact of global 'openness,' China's complex posture towards the international economy shows how the 'convergence-divergence' or 'openness-closure' dichotomies are often artificial, even across quite similar industries. Because of the networked nature of contemporary global production, scholars miss much of what is important by failing to deconstruct production by commodity and along the production chain. For instance, I illustrate how China's domestic production of textile and garments, which were originally well integrated, became disarticulated over time through China's international integration in the 1990s. This disarticulation resulted in a shift in the geography and demographics of China's domestic labor force in these industries, with potent implications for the possibilities of collective action.

Lastly, China's domestic market reforms and its integration into the international economy have coincided with an alarming increase in inequality, which given China's large size is especially acute across geographic regions. Most studies of regional inequality in China explain the enormous coastal-inland and urban-rural gaps through a variety of 'location advantages,' (differences in tax or investment policies, factor endowments, industrial legacies, etc.). Logically, however, such broad advantages ought to influence the cotton, wool and silk sub-sectors in fairly identical ways, given the similarity of these three sub-sectors. The broad brush approach of 'location advantages' cannot account for the changing pattern of incomes, profits, output and employment among farmers, workers and factories in the cotton, wool and silk agro-industries. For

instance, it cannot explain, why the major inland wool industrial centers and herders' incomes collapsed in the 1990s but coastal ones did not, while over the same period *both* the inland and coastal silk industries and silkworm cultivators enjoyed unprecedented booms. Through detailed process-tracing along the value chain, I argue that regional inequalities arose more from the changes in the regulation of economic *linkages* between producers groups along the production chain both within China and with the international economy, rather than from the advantages of geographic location.

Overall, these three insights, concerning the interpenetration of plan and market, China's international integration and rising inequality, are derived from deconstructing the production process. A commodity-level perspective brings to light alternative and unique historical periodizations which break sharply from the more typical 'national-level' timeline of the major economy-wide institutional reforms. In fact, it reveals that China's market reform era was heavily populated with economic crises and disjunctures, and followed a tortuous route to a market economy, impressions which belie characterizations of China's reforms as gradual, incremental and smooth. These alternative periodizations further illustrate the usefulness of resisting macro-level generalizations of China's market reforms. In fact, the fine-tuned, commodity-specific periodization of reforms reveals that more times than not, the timing of major national market reforms bore little relationship with production trends and economic transformation on the ground.

A value chain perspective differs markedly from the more typical organization of the study of Chinese economic reforms into 'sub-fields,' which is well illustrated by two recent textbook-like overviews of reforms, written by Barry Naughton and one of China's most prominent economists, Jinglian Wu.[11] These books divide China's economy into discrete issue areas, such as agriculture, rural industry, urban state-owned enterprises (SOEs), finance, foreign trade and investment and taxation, and examine them from a national or 'economy-wide' level of analysis. In general, an issue area approach is how the field of Chinese political economy has developed and these books are exceptionally good synopses of the state of the field. Value chains differ in that they start with a narrow slice of the economy, in this case textiles, but *integrate across* these different issue areas. To understand textiles, we must consider agriculture, rural and urban industry, domestic and foreign trade, taxation and how they intersect in the transformation of commodities. It is by tracing the individual commodities through the production process that the larger insights concerning China's creation of markets, international integration and inequality are generated.

The remainder of this chapter begins with two examples which illustrate the potential of commodity level analysis in offering new insights; it then contrasts the institutional economics approach to China's domestic market reforms of the 1980s with the alternative commodity approach offered here. Finally, it examines the implications of China's international integration in the 1990s coinciding with the restructuring of global manufacturing.

[11] Naughton 2007, Wu 2005.

Two Illustrations from a 'Commodity' Point of View

I begin with two empirical examples which illustrate how a commodity perspective can fundamentally reshape substantive debates in Chinese political economy. The first examines the issue of ownership, one of the most hotly debated topics of China's reforms. The second illustration concerns China's macroeconomic inflation, a topic for which a commodity level approach would seem to be largely inappropriate, particularly since China's economy is highly diversified and not dependent on any single sector (such as natural resource extraction). In fact, however, because China's transitional reforms were so uneven across commodities, the typical macroeconomic approach to inflation, which is standard fare in the study of most countries, proves misleading in China in the 1980s (for a full explanation of the use of statistical data in this dissertation, see Appendix II).

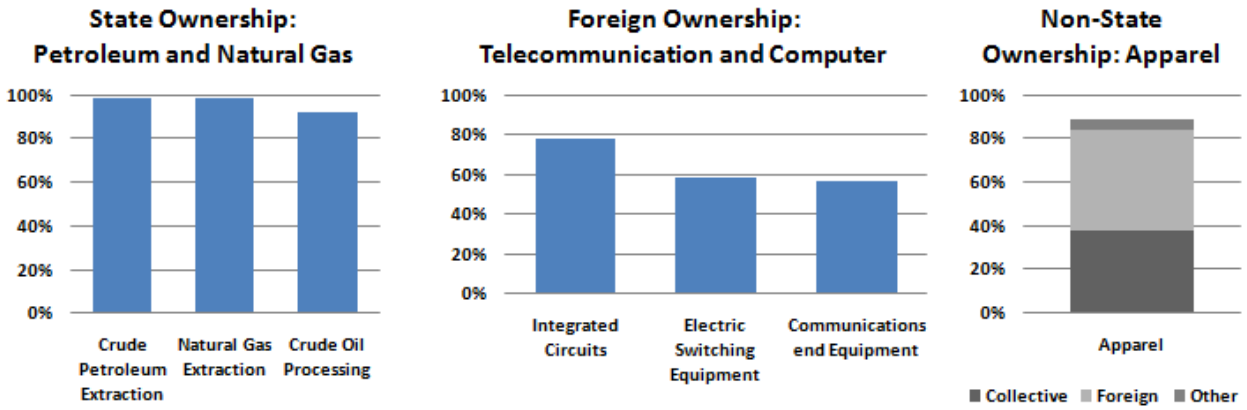
Let's first examine the pattern of ownership in different industrial sectors in the year 1995. I use 1995 as a baseline year for several reasons: first, it represents the peak of development for China's rural township and village enterprises (TVEs), the primary domestic non-state ownership form up to that point; second, 1995 is after the first major wave of foreign capital entered into China (1992-1995);[12] and third, it is at least a couple of years *before* the start of China's major ownership transformation in 1997, when TVEs and smaller state-owned enterprises (SOEs) were privatized, and shares of large SOEs were securitized. This later period of privatization and securitization would muddle the analysis since ownership patterns became substantially more convoluted than before, even among China's best known corporations, like Lenovo, Huawei, or SAIC Motor.[13]

It is no surprise that across certain broad industrial categories, different forms of ownership are dominant. For instance, by 1995 different branches of the petroleum and natural gas industries remained overwhelmingly state owned; the telecommunications equipment and computer hardware industries were dominated by foreign firms; and the apparel industry was composed of a genuine mixture of different firms, but was overwhelmingly composed of non-state enterprises (Figure 1.1).

[12] It is common to think that China 'opened up' with the introduction of Special Economic Zones in 1979. However, as argued in the previous chapter, the 1990s marked a qualitatively different intensification of international integration. Also, see the data I present on this issue in chapter 5.

[13] See the opaque ownership patterns of these firms in Yasheng Huang 2008, chapter 1.

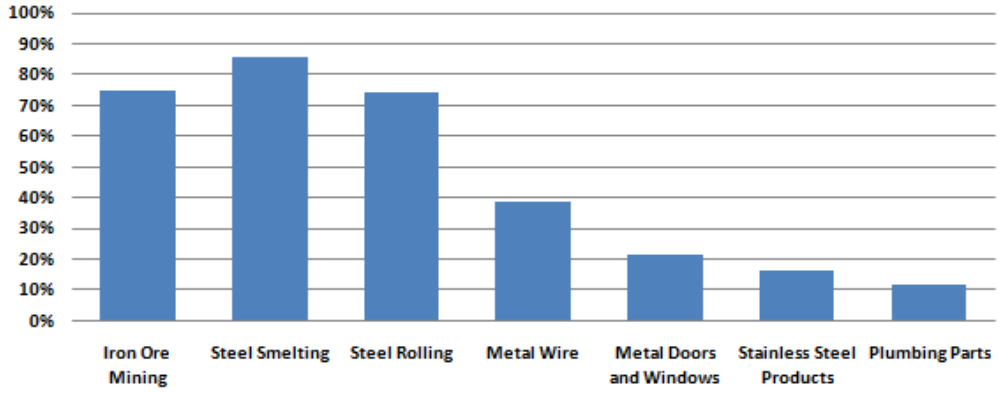
Figure 1.1: State, Foreign and Non-State Ownership in Different Subsectors, 1995 (Percent of Total Assets)



Note: Reference numbers below signify the 4-digit industrial code of the Chinese statistical system and match with the figures from left to right.
Source: *Zhongguo Shichang Nianjian* (China Market Yearbook) 1997: Petroleum and Natural Gas: 710, 720, 2520; Telecommunication and Computers: 4112,4113, 4155; Apparel: 1810.

However, a value chain approach suggests the importance of dissecting industrial sectors into production stages or 'nodes.' Once we examine ownership *within industries* at a sub-sectoral level, a distinct pattern becomes clear. Consider state-ownership in the steel industry when examined along the value chain; that is, starting with upstream iron ore mining and moving downstream into steel smelting and steel rolling, then onto intermediary industrial steel products like metal wires, and finally to downstream consumer goods (Figure 1.2). A clear pattern emerges. State-ownership is highly concentrated in the upstream sectors, and then steadily declines in the mid- to downstream sectors. This is surprising. Even after almost two decades from the initiation of reforms, by which time collectively-owned firms had reached their peak and foreign direct investment had flooded into the Chinese economy, the barriers to entry into different sub-sectors remained highly uneven. Furthermore, this has implications for the vast scholarship on China's mixed ownership economy. Given China's systems of industrial classification, scholars who rely on broad industrial averages and fail to disaggregate are likely to draw incorrect conclusions due to the heterogeneity at the commodity level of analysis.

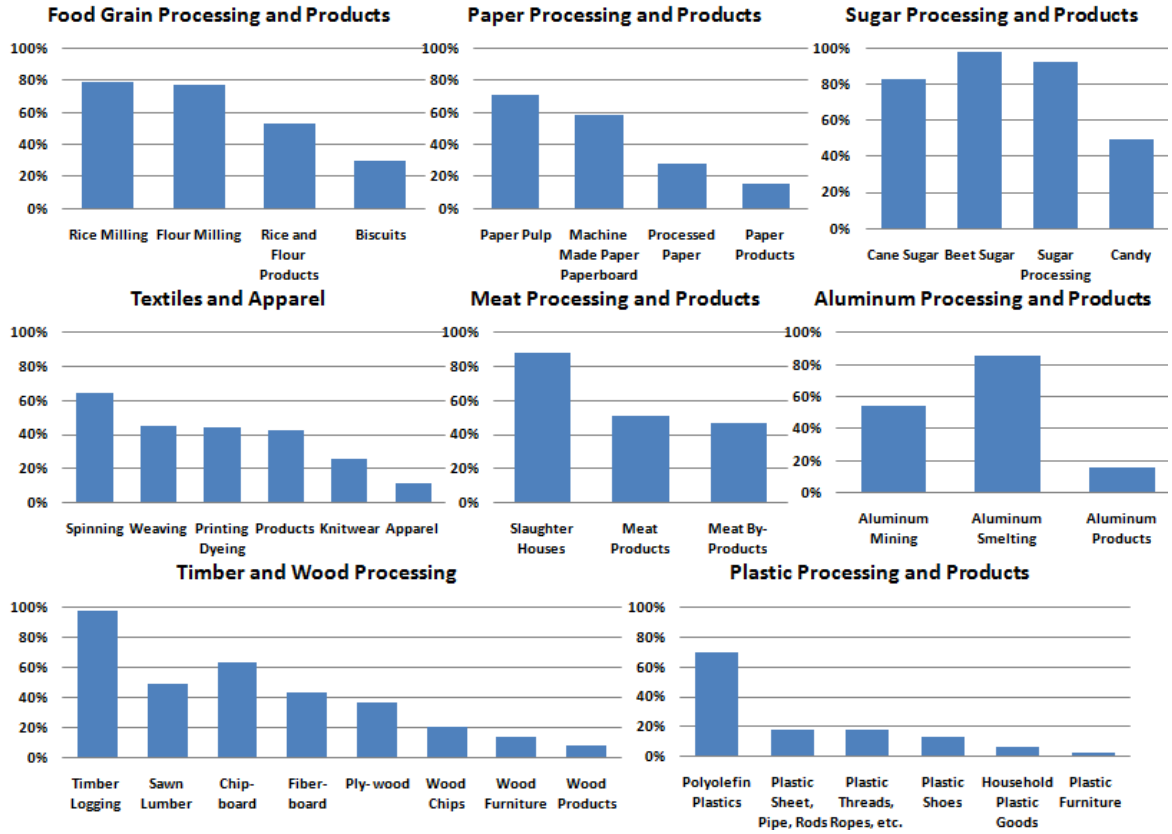
Figure 1.2: Steel Industry: Percent State Ownership in Total Assets by Subsector, 1995



Note: Reference numbers below signify the 4-digit industrial code of the Chinese statistical system and match with the figures from left to right.
Source: *Zhongguo Shichang Nianjian* (China Market Yearbook) 1997: Steel: 0810, 3220, 3240, 3450, 3465, 3483., 3463.

One might try to explain this sort of variation through differences in technology or capital-intensity between these sub-sectors. For instance, it might be argued that this pattern is the result of the capital requirements or technical sophistication of steel smelting or ore mining. Another explanation might focus on the inability of foreign firms or rural firms to gain access to politically sensitive primary industries, like ore mining and certainly petroleum. Although occasionally true in particular sectors, in general, an examination of different industries does not support these claims. This same sub-sectoral pattern is repeated across a very wide range of industries which utilize diverse technologies, capital- and labor-intensities, representing both light and heavy industries and in strategic and non-strategic industries alike. For instance timber, food grains, chemicals and plastics, bamboo, aluminum, meat, sugars and textiles and garment industries all exhibit a pattern nearly identical to the steel industry (Figure 1.3). These sub-sectoral patterns illustrate that ownership – one of the most well-researched topics in Chinese political economy – conforms closely to a commodity and in particular a value chain logic.

Figure 1.3: Percentage of State Ownership in Total Assets by Sub-sector, 1995



Note: Reference numbers below signify the 4-digit industrial code of the Chinese statistical system and match with the figures from left to right. Textiles is an exception since it was first aggregated across the cotton, wool and silk sub-sectors. For silk, the spinning sector includes both reeling and spinning.
Source: *Zhongguo Shichang Nianjian* (China Market Yearbook) 1997: Food grain: 1311, 1312, 1313,1413; Paper: 2210, 2221, 2224, 2230; Sugar: 1331, 1332, 1334, 1411; Textiles: 1721-24 (cotton), 1742-45 (wool), 1771-75 (silk), 1781-3 (knitwear), 1810 (apparel); Meat: 1341, 1342, 1343; Aluminum: 0931, 3321, 3482; Timber: 1210, 2011, 2023, 2022, 2021, 2012, 2110, 2033; Plastics: 2661, 3020, 3030, 2060, 3070, 2140.

In fact, further disaggregating textiles brings to light even more refined patterns of ownership, an issue that plays an important role in chapter 3. For instance, take the single node of 'yarn spinning' across the cotton, wool and silk textile industries (for silk, this is silk reeling). At this link in the value chain, agricultural commodities like raw cotton, raw wool and silkworm cocoons are transformed into industrial products like cotton yarn, wool yarn and reeled or raw silk. In terms of capital requirements, technological sophistication, labor-intensity, skill-intensity, or any other commonly cited economic indicator, there are no significant differences between them.[14] And yet, in 1995, cotton spinning was dominated by state-owned firms (75% of total assets), whereas in both wool and silk, ownership was substantially more mixed, with state ownership around 50%.[15] Similar but even larger discrepancies exist between sub-sectors of

[14] These are all relative to other industries, and is true only when examining across industries. Of course, when examined from within the textile industry, there are technological differences between silk reeling and the spinning of cotton or wool, something addressed in later chapters. However, this nuance does not undermine my claim here, since even if we set aside silk reeling, there is little technological difference between wool and cotton spinning.
[15] *Zhongguo shichang nianjian* (China Market Yearbook) 1997: 1721 (cotton spinning), 1742 (wool spinning), 1771/1772 (silk reeling and spinning). These numbers refer to their 4-digit industrial codes.

China's massive chemical fibers industry where state ownership in terms of total assets is rather insignificant in polyester production (26%), but the production of other synthetic fibers in the acrylic, polyvinyl, rayon and the synthetic fiber pulp industries are overwhelmingly state owned (92%, 99%, 73% and 85% of total assets, respectively).[16]

It might be argued that the issue of ownership holds special significance in China given its admixture of 'hybrid' ownership forms, so that in China we might expect some unusual patterns like these. However, an issue like inflation, which in other countries is exclusively studied as a macroeconomic issue, also requires a commodity approach in China. Most studies of inflation in China approach the topic from a conventional, macroeconomic and 'elite' Beijing politics standpoint.[17] Perhaps the most sophisticated account of inflation in China is Yasheng Huang's book *Inflation and Investment Controls in China*.[18] With intellectual roots in Janos Kornai's approach to command economies, Huang could not be more clear about both the causes of inflation in China and Beijing's reaction to it: "between 1978 and 1993, China experienced five bouts of inflation; each time the main catalyst was *investment surges*, and each time the central government attempted to control inflation through reductions in investment and recentralization of investment authority" (emphasis added).[19] These five bouts of inflation were followed by "five rounds of economic austerity to combat inflation: in 1981, 1983, 1986-7, 1989-91 and in 1993."[20] Altogether, these five 'inflation-austerity' cycles serve as Huang's case studies of Beijing's control over the macro-economy, through the suppression of local government industrial investments.

The problem is that in at least three out of the five cases, inflation does not appear to be due to the insatiable 'investment hunger' of state-owned enterprises, to use Huang's and ultimately Kornai's original vocabulary.[21] One problem with Huang's analysis is specifying the root causes of the sources of increased demand. Between 1979 and 1985, the massive transfers of national income from government coffers to households did *not* occur via over-investments in SOEs and increases in urban workers' wages as Huang claims (p.13), but rather through the inflated earnings of rural farmers from the boom in agriculture.[22] Chapter 2 of this dissertation examines the diverse ways that agriculture commodities were regulated and markets introduced, which I argued created the agriculture boom and rising rural incomes. Of the 16% of total national income that was transferred from government control to households over this period, wholly 14% of it was transferred to *rural* households, much of it through price changes in commodities (more below).[23] In fact, real per capita urban retail sales actually *declined* during this period while real rural household consumption more than doubled.[24]

Through to at least 1985, the issue of inflation was overwhelmingly a rural phenomenon. If rural households as consumers had doubled their expenditures, then it

[16] Ibid: 2822 (polyester), 2823 (acrylic), 2824 (polyvinyl), 2812 (rayon), 2811 (chemical fiber pulp).
[17] See Huang 1996; Shih 2008.
[18] Huang 1996.
[19] See Huang (1996): 2.
[20] Huang 1996: 14.
[21] Kornai 1980, 1992.
[22] Huang argues that SOE investment hunger influenced inflation via two 'closely related' channels: one direct channel by increasing demand for industrial goods and one indirect through increases in the wage bill. (Huang 1996: 13)
[23] Naughton 1995: 83.
[24] They increased from 102 RMB to 236 RMB per capita. See Travers 1984: 246 and Riskin 1987: 295.

makes sense to look at their income generation as producers. The key to the first bouts of inflation in China was the reform of farm prices, and it is here that the importance of disaggregating by agricultural commodity comes to the fore. Once economy-wide inflation figures are disaggregated by commodity category (something which Huang does not do), a distinct commodity logic becomes evident. The 1980 bout of inflation was overwhelmingly concentrated in the consumer prices of sideline agricultural goods (like meats, eggs, dairy, vegetables and fruits), while the 1985 bout of inflation was concentrated in both food grains and non-staple agricultural goods (Table 1.1).[25] Industrial consumer goods suffered almost no price increases at all, as inflation was concentrated only in foods, and within foods categories, concentrated particularly in non-staple foods.[26]

Table 1.1: Decomposition of First Two Bouts of Consumer Price Inflation (Prior Year = 100)

	Overall CPI	Grains	Non-Staple Foods	Clothing	Daily Use Articles	Cultural/ Entertain-ment	Newspaper/ Magazines	Medicine	Home Use Fuel
1980	107.1	103.5	119.0	100.0	101.6	95.5	N/A	100.9	100.7
1985	109.9	110.9	119.3	100.9	102.7	101.5	132.5	103.8	104.0

Source: *Zhongguo Wujia Wushi Nian* 1999: 1059-1065. Newspapers/Magazine prices were not recorded before 1985. Despite the high inflation in this category in1985, it would not have influenced the overall inflation very much because these items constitute such a minor portion of consumers' overall consumption.

The reason for this unusual pattern is that China was not a market economy. Market economies suffer from *general* price inflation because they maintain general price equilibrium across commodities and geographic space. In this context, inflation is legitimately studied at a macroeconomic level of analysis. By contrast, for more than a decade of the early reforms, China lacked any semblance of general price equilibrium and so a macroeconomic perspective, even for inflation, is inappropriate. In fact, the pattern of inflation in Table 1.1 perfectly mirrors Beijing's *commodity-specific* price policies (which influenced the rural population as both consumers and producers), not the flow of state-owned investments or urban wages. This dissertation spends considerable effort examining commodity-specific price policies and how they led to the interpenetration of the planned economy with newly emerging markets in the formation of prices.

[25] Oddly, by Huang's own data on inflation (Huang 1996: 154), 1981-82 was a period of the *lowest* level of inflation, so it is not clear how inflation concerns at this point in time fit into his version of events. This is not to say that Beijing did not crackdown on local government investments during this period. However, with inflation around 2% from 1981 to 1984, it is hard to see why inflation would be the reason for the crackdown. There likely were other justifications unrelated to inflation.

[26] In fact, the one exception, 'Newspaper/Magazines' is the exception that proves the rule. These items were some of the few consumer goods that were liberalized in this early period. Most importantly, these items were too small a portion of consumers' total expenditures to influence the aggregate consumer price index.

I. The 1980s: Value Chains as an Interpretive Lens on China's Market Reforms

These two illustrations reveal the depth to which China's economic reforms were commodity-specific. In fact, in many ways, the deconstruction of production and exchange proves useful in reshaping substantive debates in China's domestic economy. Many of China's major market-oriented reforms, such as the decollectivization of farms, fiscal decentralization and the dual-track pricing mechanism have been interpreted using the concepts and terminology of the New Institutional Economics. In the following section, I illustrate how this approach has shaped our understanding of China's planned economy and market reforms. In subsequent sections, I introduce the alternative 'commodity chain' framework and give several illustrations of how it offers quite different insights. In chapters 2 and 3, a commodity approach is contrasted with the institutional economics approach in analyzing two key reforms: first, the role of decollectivization of farms in creating China's agricultural boom of the early 1980s; and second, the influence of fiscal decentralization in fueling what were called the 'commodity wars,' which were struggles between local government bureaus in controlling agricultural commodities like raw cotton, wool and silk. On the one hand, the most accepted understanding of China's agriculture boom in the1980s is that it resulted from the return of land usage rights to household farmers (decollectivization), which fundamentally shifted household incentives. However, I find that the effectiveness of this reform varied widely by commodity, and that the patterns of change in agriculture over this pivotal period are better explained by the different state organizations, goals and policies, which separately regulated each commodity. Similarly, the dysfunctions of China's commodity wars have been most commonly explained by the introduction of fiscal decentralization which incentivized local governments to invest in industrial expansion. However, I find that the timing of fiscal reforms do not conform to the patterns of investment and production in these commodities and cannot explain the timing of the commodity wars. Again, an inductive and process-tracing account of institutional changes along the three commodity chain reveals the reasons for local government interventions in the market exchanges of agricultural commodities.

The Institutional Economics Approach to Chinese Market Reforms

Chinese economic reforms are hotly debated because they challenge many of the foundational assumptions of orthodox economic theory and development. There is a broad consensus that three elements compose the *sine qua non* backbone of economic development: private ownership, markets and crucial economic institutions, most importantly secure property rights through the rule of law. China's economic reforms challenge this holy trinity because its economic reforms have largely failed to follow any of these three prescriptions, and yet it has enjoyed very high levels of sustained growth, coupled with unprecedented poverty alleviation. Among China's complex array of ownership forms, private ownership has composed only a small share until more

recently;[27] markets were only 'partial' for much of the reforms and even today banking, real estate, equity and rural land markets are restricted and heavily government-managed; finally, the 'grabbing hand' of the state (central or local) remains largely unbound since the Chinese state has failed to 'credibly commit' to tie its own hands through an independent and effective judiciary. In all three key issues – ownership, markets and core economic institutions – China goes against the grain of economic theory.

These anomalies provide the backdrop for various institutional macro-narratives of China's path of post-socialist development. The most sophisticated versions seek to explain the anomalies posed by China's development, while at the same time reconfirming the universality of markets and secure private property rights in economic development. To be sure, these 'gradualist' and institutional approaches to post-socialism are far more insightful and sophisticated compared to the 'shock therapy' scholars associated with Russian and East European reforms; and it is in the direction of the shock therapy thinkers that they direct their arguments. Despite their opposition, however, the two schools diverge not on the issue of these best-practice institutions (which are not in dispute), but on the issue of institution-building which gradualists see as a process of slow accretion and incremental improvement on the road to best practices. Yingyi Qian, one of the most prolific writers on Chinese gradualism, explains the link between China's 'imperfect' transitional institutions and best-practice institutions: "A major problem in the study of reform in developing and transition economies is not that it neglects institutions….not any more. The problem is the naïve perspective on institutions [which] often confuses the goal (i.e. where to finish up) with the process (i.e. how to get there) and thus tends to ignore the intriguing issues of transition paths connecting the starting point and the goal."[28]

It is China's 'partial' reforms which have generated the most interest among scholars. Many of the most influential accounts of China's marketization examine broad, economy-wide institutional changes that 'gradually' guided China along a market economy path. The institutional reforms in the 1980s that have perhaps garnered the most attention from scholars include the decollectivization of farming, fiscal decentralization and the dual-track price mechanism. These major reforms (along with many others) have been typically interpreted through the vocabulary of the New Institutional Economics.[29] In many influential studies on these reforms, it is common to understand institutional change through a micro-economic lens; that is, the importance of institutional changes lay in the fact that they altered the incentive structures of either government or economic actors in ways that were market-oriented, efficiency-oriented and conducive to growth. Thus, the typical approach to Chinese economic development

[27] Huang 2008 has recently made the argument that TVEs have been misinterpreted as 'collectively owned' and he is at pains to show that the growth of this category of ownership during the reform era was almost exclusively private. It is true that the TVE category includes private firms, but his claims rely too heavily on 'the number of firms' composing the collective and private ownership sub-sections of TVEs. This is perhaps the least accurate measure in judging the relative 'shares' of an ownership category. He mentions only briefly that collectively owned firms still constituted around half of the TVE category in terms of 'value added' and 'employment' much more accurate measures of relative size.

[28] Qian 2003.

[29] For some foundational texts, see Coase 1937, Williamson 1985, and North 1990.

consists of a relatively straight line from individual incentives to new market-oriented institutions to economic growth.

There are many concrete examples of the influence of institutional economics on our interpretation of China's transitional economy. In the case of farmers, a voluminous literature argues that the breakup of collective farms (or decollectivization) replaced their stark egalitarianism with household farming. This, in conjunction with the re-opening of rural markets, realigned incentives so that a farmer's labor was directly linked with rewards. While political scientists have focused on how decollectivization began and was implemented, economists have been most concerned with decollectivization's contribution to China's unprecedented agriculture boom in the 1980s. Louis Putterman, who has written extensively on the subject, summarizes the state of the field: "[t]he interpretation frequently offered by the foreign press and by Chinese and Western economists is that since growth rates accelerated dramatically in 1979 after more than 20 years of collective agriculture, decollectivization, or the restoration of '*private production incentives*,' must bear primary responsibility" (emphasis added).[30] By some calculations, between 70-80% of agriculture's output growth and productivity growth in the 1980s are accounted for by the return to household farming.[31] The logic for the spectacular success of household farming is succinctly summarized by Justin Yifu Lin, whose 1992 article in the *American Economic Review* is perhaps the most frequently cited on this topic:

> Because of difficulties in monitoring agricultural work in a [collective] team, rewards to individual farmers were not tied directly to their efforts, and *incentives to work* were thus very low…the key to improving the farmer's incentive*s* was to solve the managerial problems in the [collective] system. (Lin 1992: 37, emphasis added)[32]

Lin's institutional economics approach is widely shared and has become the dominant explanation for China's agriculture boom of the early 1980s, a boom which subsequently triggered structural changes in the Chinese economy.

Apart from agriculture, a New Institutional Economics approach has also been very influential in explanations for the effectiveness of other major economic reforms in China. In similar fashion to decollectivization, fiscal decentralization (or changes in the fiscal relationship between Beijing and local governments) is also widely seen as successful because it realigned the interests of local cadres and government bureaus to encourage local growth through investments in local enterprises and infrastructure. Jean Oi expresses the institutional economics perspective most clearly:

> For China the issue was not whether its bureaucracy was capable of generating economic growth but whether it had the *incentive* to do so. During the Maoist period, the constraints of the state plan and fiscal system provided localities with little inducement to generate additional revenues. (Oi 1999: 6, emphasis added).

[30] Putterman 1993:36.
[31] Lin 1992, McMillan, et al. 1989.
[32] See also, Lin 1988 for a longer treatment. In chapter 3, I note many other authors that take a similar perspective as expressed by Lin here.

Of course, there are different variations and amendments on this central idea highlighted by Oi. In some studies, the appropriate level of government is debated, for instance between local governments as a unit or disaggregated to the bureau level;[33] in other studies, cadre evaluations are emphasized which only partially incorporated local economic achievements;[34] and in still others, fiscal decentralization is shown to vary by regional context.[35] But, in general, the issue of fiscal decentralization has most frequently been understood through a New Institutional Economics framework with each version a variation upon a common theme. The same approach has been applied to research on Chinese industry as well. As the name might suggest, studies of China's 'management responsibility systems,' (reforms adopted in state-owned enterprises), takes a similar incentive structure perspective, but this time in terms of realigning manager's incentives in the operations of urban state-owned industrial firms.[36]

Finally and most importantly, it is argued that price reforms through partial market liberalization, commonly called the 'dual-track' (*shuangguizhi*) pricing mechanism, realigned the incentives of both local governments, firms and farmers towards market price signals and market demand, which led China to 'grow out of the plan.' Barry Naughton argues that this realignment of incentives negated the role of the state plan in terms of the decision-making of industrial firms:

> The plan served as a kind of lump-sum tax on (or subsidy to) the enterprise. So long as the commitment not to change it was credible, it really had no impact on any of the enterprise's decision-making. Current decisions would be based on market prices. If the enterprise was *induced to operate as a profit-maximizing firm*, that profit maximization would be carried out on the basis of market prices. In that sense, the plan was irrelevant. (Naughton 1995: 9, emphasis added)[37]

Drawing from the New Institutional Economics approach, the 'dual-track' understanding makes three common assumptions regarding China's market reforms: first, markets and plan are distinct 'tracks,' which can be conceptually and empirically demarcated; second, growth is a function of the proper institutional alignment of individual incentives; and third, the market is the principal source of growth through allocative efficiency. For instance, Barry Naughton differentiates China's institutional innovation of the dual-track system from the common occurrence of black markets or the 'second economy' in planned economies by saying "the mere existence of a dual-track system is not itself sufficient to define a transition strategy…it is a crucial feature of the Chinese transition that *economic growth is concentrated on the market track*" (emphasis added).[38] This statement reveals that as an incentive structure, the market 'track' is a clear and conceptually demarcated mechanism separated from the planned economy and the generator of China's economic growth. In fact, only by conceptually demarcating

[33] Duckett 1998.
[34] Rozelle 1994, Wong 1992
[35] Whiting 2001 examines regional variation, although as addressed below, she restricts her comparisons to three 'wealthy' regions.
[36] Naughton 1995, Walder 1989, Child 1994.
[37] William Byrd has perhaps written the most on this topic. See Byrd (1989) and (1991). I consider his work below.
[38] Naughton 1995: 8.

markets from the plan can it be considered the principal mechanism of China's economic growth.

Complementing the conceptual differentiation, gradualists offer empirical illustrations of the dual track at work. For instance, much of the macro-level data drawn from statistical guides do appear to support their interpretation of market growth. Using specific commodities, like grain or steel, they show the market track expanding rapidly as the plan track remained unchanged or grew only slowly. For instance, the share of total production which is covered by the planned quota is shown to decline from 94% to 30% in agriculture goods and from 52% to 30% in steel over the 1980s.[39] Using grains or steel even seems to mimic the 'commodity' approach advocated here. However, as we will see shortly, these empirical illustrations do not consider any of the *interactive dynamics between commodities*, things which are observable only through a commodity lens.

A dual-track metaphor that conceptually quarantines the market mechanism, also allows for particular conceptualizations of the planned economy itself. In the broader literature on post-socialism, there are at least five distinct ways in which scholars have implicitly conceptualized the planned economy, which vary according to the scholar's attitude towards the consequences of 'partial' reforms. From the least to the most generous interpretation, the planned economy has been understood as either 'destructive,' 'distortionary,' 'deadweight,' 'a realm of political pay-off' or in the most generous interpretation, as a force of 'social stability.'

The most ardent opponents of economic planning offer the dire warning that 'partial' reforms, which retain parts of the planned economy, run the risk of economic and political collapse. By leaving state-ownership and planned pricing in place, not only do entrenched political interests of the old regime remain, but new powerful interests arise to seek rents between the plan and markets. The two political groups create an economy which degenerates into some form of 'crony capitalism.' For some, this leads to a highly 'distorted' form of capitalism, but one which stabilizes and becomes permanent as the newly enriched 'winning' interests halt the forward movement of the reform process.[40] Others take a similar view of the dangers of the planned economy, but believe that the resulting crony capitalism is inherently unstable since uncontrolled rent-seeking will drive the economy, and in some versions even the state itself, to the point of collapse.[41] Other interpretations are less dire in their predictions and simply see the planned economy as a sub-optimal and highly inefficient economic system which ties up scarce resources and thus hangs as 'deadweight' around the neck of the economy. In this interpretation, reforms simply reallocate resources away from the plan to the market, which in the case of China was done first in certain 'leading sectors' such as agriculture, where it is claimed the most extensive inefficiencies existed.[42] Finally, the two most generous interpretations of the planned economy see it as having at least a modicum of political and economic value. Politically, maintaining the plan was useful in ensuring

[39] For these figures, see Lau et al. 200: 130. Similar figures can be found in Naughton 1995.
[40] Hellman 1998, Hellman and Schankerman 2000, Gustafson 1999, Aslund1994, Winiecki 1988. Murphy et al. 1992 also fall into this group with the exception that they do not comment on the 'stability' of this arrangement.
[41] Aslund and Dmitriev 1990, Solnick 1998.
[42] Pomfret 1997, Chen, Jefferson, Singh 1992.

that reforms were Pareto-efficient. This means that while markets are seen as creating China's phenomenal growth, the economic rents infusing the planned economy were kept undisturbed in order to support potential 'losers' of reforms (such as industrial ministries or SOE workers). In this way, no one was made worse off by reforms, a seemingly miraculous feat![43] This ensured that the 'losers' did not create a bulwark of resistance against further reforms. The flip side of this is that economically the planned economy created the necessary 'social stability' by preventing dramatic drops in output, something suffered in other post-socialist countries.[44]

However, in none of these interpretations does the planned economy actively contribute to the creation of markets. If the planned economy is not considered a dire threat to market reforms, then its primary value is to provide continued rents or stability to make quiescent any potential opponents of market reforms. From the perspective of these macro-narratives, the planned economy is quarantined, implicitly creating the impression that the market mechanism alone possessed internally generative powers for growth. To accomplish this, plan and market must remain highly abstracted concepts and clearly differentiated. In other words, a macro-narrative level of analysis is critical to the project of neutralizing China's challenge to economic theory.

In contrast, by looking closely at a commodity level of analysis and at the creation of markets at particular 'nodes' along the value chain, we arrive at a alternative view of the role of the planned economy and China's path towards marketization. In the following sections, I develop a framework for studying individual commodities, which leads to new insights into the way that China's nascent markets deeply interpenetrated with the planned economy and drew their vitality.

An Alternative View: Commodity-Level Regulation and Value Chains

Decollectivization, fiscal decentralization and the dual-track were arguably the most important reforms of the 1980s and each is covered by large and complex literatures in their own right, which I address in the following chapters. As argued above, scholarship on these major reforms share in common a micro-economic understanding of

[43] Lau, Qian, Roland 2000, Qian 2003. Students of politics might rightfully be skeptical when they hear that major economic reforms could really ensure that *no one* was made worse off. And in fact, the 'reforms without losers' school does require a large dose of conceptual legermain to pull off this miracle. Their claim that no one was made 'worse off' is based on the fact that planned production quotas remained untouched. While this certainly makes the state enterprise sector (and government revenues) better off than if the plan had been completely extinguished, due to the dual-track system the real *prices* of planned production declined dramatically, so SOEs were receiving a lot less per unit of output than before the dual-track reforms. One needs look no farther than the pre-tax profitability of SOEs to see how much worse off they became. In the early 1980s, the pre-tax profit to asset ratio was a remarkably high 25% per annum; by the mid-1990s, this had declined to the crisis level of 5%. It is convenient to claim that this decline was caused by SOE 'inefficiency' and thus blame it on something internal to the firms themselves. But, I doubt any economist could deny that the artificial price supports of the pre-reform (i.e. pre-dual track) era did not substantially contribute to the extraordinary profits of these firms (presumably they were even more inefficient prior to reforms). If profits declined so dramatically, someone must have been worse off by taking this hit in revenue. Of course, it was the SOEs and local governments which took the brunt of the dual track reforms and they were certainly made 'worse off' even if we can all agree that they would have been much worse off (bankrupted) without the maintenance of planned production quotas. But being merely 'worse off' and being 'bankrupted' are just matters of degree, neither of which makes the reforms Pareto efficient, as the 'reform without losers' school claims.

[44] Naughton 1995: 8; Naughton 2007: 92,

the basic relationship between individual incentives, institutional reforms and economic development. In essence, from a New Institutional Economics perspective, the solution to the quandary of economic development for developing countries is to amend the incentive structures of both government actors and direct producers so that their individual interests align with rewards in socially productive ways. China's successful transition from plan to market seems to be a clear vindication of this framework.

The problem with much of this literature is that its fails to consider the degree to which the plan and market halves of the track interacted with each other. At a macro-narrative perspective, it is possible for plan and market to be conceptualized as clearly demarcated and separate, existing *alongside* each other, but never deeply *interpenetrating* each other. Only by conceptually separating the two realms is it possible to argue that the economy's dynamism and economic growth resided in the introduction of the market mechanism, while the planned economy only offered temporary social stability before shrinking out of existence.

However, by deconstructing the production process and examining each production and exchange 'node,' a value chain is especially well adapted to observe the formation of markets because it can closely follow the trail of concrete commodities as they are transformed from raw materials into final goods. By examining the ways in which the regulation and production of commodities interact and become intertwined in economic activity, such clear conceptual and empirical demarcations between plan and market become difficult to observe and justify. In the following sections, sectors are defined inductively according to three types of tight-knit interactions. These include the regulation and production of commodities aligned along the value chains, those between related co-commodities across different value chains and most importantly the formation of commodity prices. This sort of detailed tracing of specific commodities brings to the fore the many ways in which the planned economy interpenetrated with markets.

Defining the Boundaries of Commodities and Value Chains

In many ways, value chains significantly broaden the definition of sectors in comparison to other common approaches to industrial studies. Oftentimes, sectoral studies focus on *technological differences* when comparing across industries. That is, sectors are generally objects of interest because they vary on a range of factors such as asset specificity, capital and labor intensities or economies of scale, which are functions of existing technologies. For instance, the substantial 'sectoral governance' literature, which grew out of studies in advanced countries, argues that a sector's technological make-up, such as its degree of asset specificity coupled with the complexity of the production process, suggested a certain 'optimal' governance structure which explained why firms within different national institutional contexts succeeded or failed in global competition.[45]

[45] More precisely, it was argued that under conditions of market competition, the technological profile of a sector highly constrained, if not dictated, an 'optimal' governance structure to achieve efficiency and ensure competitiveness and firm survival. Variation in sectoral governance across countries was the result of the institutions of distinct national production systems which were built up during a period of relative closure to global competition across

Without denying the importance of technology, this dissertation substantially broadens the analytic boundaries of a sector to include the up- and downstream nodes along the production chain. Instead of seeing 'textiles' or 'steel' as somehow single, unified entities that can be easily categorized according to their asset specificity, labor and capital usage, or economies of scale, a value chain sees these as broad categories which include a wide variety of *interactive and tightly-knit sub-processes* which as a composite group are defined as 'a sector.' This was graphically illustrated in the example above on ownership patterns across the production chain in China. Thus, from a value chain perspective, raw cotton cannot be so easily separated from the textile industry, nor can iron ore mining from steel manufacturing. As the empirical chapters show, questions arising in the industrial node in textiles, such as the decline of profitability of factories, are sometimes best answered through examining the upstream agriculture node or the downstream foreign trade node, rather than the more common approach of finding faults within the industrial node itself.

Furthermore, by comparing across three *sub-sectors* within the same industry, it is possible to set aside many of these common 'techno-economic variables' that are typically seen as shaping sectoral dynamics. Although there are differences between the harvesting of agriculture fibers, like cotton, wool and silk (not to mention chemical fibers), once these raw fibers are converted into a standard industrial product at the yarn spinning node, the remainder of the industrial and commercial chain is (largely) similar in terms of technology, at least for the objectives of this dissertation.[46]

The challenge is to define inductively the boundaries of each commodity and its value chain. In doing this, the guiding principle is to examine the *tight-knit interaction* between related commodities. First, I begin by considering two: the nodes along the value chain and second what I call 'co-commodities.' As already mentioned, a single commodity (like cotton) goes through a series of processing stages along the road to being converted into a tradable article of cotton clothing. It is hard to deny then that the links along a value chain are in regular and very close interaction with each other.

Although tracing the actual commodities through the chain is part of the project, the institutions which regulate each node along the chain are the central concern. For reasons addressed later, in China, each major commodity was regulated in very different ways and by different sets of ministries, bureaus and policies. This is most directly evident in the structure of the different line ministries which existed for each major industry, such as metallurgy, chemicals or textiles, and which were not dismantled until the mid-1990s. However, even within ministries at a subsector level, the organizations

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national economies. This made deviations from the optimal governance structure possible. However, with the ushering in of an era of heightened global competition between firms with roots in different national governance systems, countries that happened to have an institutional make-up closest to the presumed 'optimal' structure, as dictated by sectoral technology, ought to win out in those industries. The most sophisticated and careful analysis is Kitschelt 1991. His work is heavily influenced by Williamson 1985 and Perrow 1986. While he clearly places the logic of technology at the center of sectoral governance, to his credit he frequently qualifies the sweeping logic of this approach. See also Hollingsworth, Schmitter, Streeck 1994 for another treatment of this topic.

[46] When judging technological difference between sectors, I use the existing literature on sectoral governance as my guide. Using the broad sectoral categories in this literature, such as in Kitschelt (1991), 'textiles' as a whole would undeniably be considered a single industry. Of course, there are always finer forms of variation. For example, when examined within the textile industry, there are technological differences between silk reeling and the spinning of cotton or wool, something addressed in later chapters. However, this nuance does not undermine the general claim here.

and policies which regulated each commodity varied widely. For instance, Beijing very closely regulates raw cotton and silk, whereas its interests in wool are much less acute, leaving these more to the provinces and counties to regulate. At the same time, however, the regulation of cotton and silk are like night and day. The regulation of the cotton chain is extremely complex with a wide array of ministries and bureaus with differing objectives and capacities pulling the cotton chain in multiple directions, a phenomenon I call 'inter-arena politics.' By contrast, because of silk's singular importance as an earner of foreign exchange, the entire silk chain from silkworm cocoon procurement to final trade, was traditionally streamlined through a single monopoly corporation under the foreign trade ministry.

Furthermore, it should be noted that the word 'chain' may give the impression that sectors are always linear and simple. Production is exceedingly complex and each industry has its own sequence and order in how it brings commodities to market. For instance, a commodity may have only a few or many uses. Raw cotton is quite inflexible in that it has very few alternative uses outside of industrial spinning mills.[47] This is quite constraining even compared to something like grains which in addition to being sold to industrial food mills, also can be self-consumed, fed to livestock, or traded locally. Even more extreme are basic petrochemicals which find their way downstream into a very wide range of products. The more delimited range of usage for cotton (and other textile fibers) makes studying them easier because we can be assured that the entire harvest (plus imports) each year must be either processed in the spinning sector, exported or else go to waste after a few years of storage. In addition, as the textile sector highlights, value chains are not necessarily limited to the domestic economy but extend into the international economy, an important factor addressed below.[48]

Apart from the chains themselves, however, there also are commodities which in one way or another are closely related to cotton, wool and silk, something I call their *co-commodities*. In the case of agriculture, this may be due to intercropping between more than one crop, such as cotton and wheat in northern China; or close interrelations resulting from being part of a common product, such as wool and mutton, two co-products of the same animal.[49] In the case of agriculture and industry alike, there are also interactions between substitutes and complements, such as the interweaving of chemical fibers and natural fibers in the production of clothing. As shown repeatedly in the empirical chapters, co-commodities are important because the policies and institutions regulating one commodity greatly affect their co-commodity. In some cases, they are

[47] By the reform era, household hand spinning and weaving had long been eliminated by the communists through the diffusion of the factory system (Kang 1978). This contrasts with India whose textile sector retains a very substantial hand weaving segment, such as *khadi* cloth.

[48] The study of linkages between countries in the international manufacture of goods was in fact the original application of the value chain literature. I have taken this same framework and applied it to China's domestic economy. For examples of value chain research in textiles and apparel only, see Bonacich et al. 1994, Bair and Gereffi 2001, Gereffi and Memedovic 2003.

[49] In reality, even this dichotomy is an oversimplification. In fact, there are two types of wool, each corresponding to different types of sheep. 'Fine' wool sheep are breed specifically for harvesting their hairs for fine apparel manufacturing. Mutton sheep are breed separately and their hairs are processed as 'coarse' wool, used in less refined textiles like outwear or carpets. The two types of hairs have their own separate systems of industrial processing and machinery. Such technical minutiae are not inconsequential. As I show in chapter 3, it is this basic division which when combined with price liberalization in these commodities, reshaped the industry and contributed to deepening the east-west geographic division in China between the raw material and industrial links in the wool chain.

even jointly regulated.[50] In summary, it is the tight-knit interactions between the institutions and policies shaping the nodes along a value chain and their co-commodities which create the broader context by which to examine the interpenetration of the planned and market economies and to reevaluate the role of broad institutional reforms like decollectivization and fiscal decentralization, the subjects of chapters 2 and 3, respectively.

Prices and Price Formation

Finally, perhaps the most important factor concerns the formation of prices. It is in the issue of price formation that distinguishing the incentive structure (the dual-track system) from the incentives themselves (prices) is most frequently overlooked. Perhaps more than any other reform in the 1980s, China's unique dual-track pricing mechanism reflects best its 'gradual' approach to market creation.[51] The dual track mechanism allowed direct producers (like state firms or farmers) to produce for newly opened markets after their fixed delivery of planned production at state prices had been completed to the state.[52] Similar to decollectivization and fiscal decentralization, this institutional innovation provided a new incentive structure, in this case for producers to retain a larger part of the residual over and above the planned quota. The previous quotation by Barry Naughton implied that with the creation of the dual-track mechanism 'the plan was irrelevant' in terms of firm-level decision-making, since residual production and earnings became geared towards the 'market track.'

While the incentive structure is clear and straightforward, the key intervening factors are the prices themselves. In most of the scholarship on the dual-track mechanism, the formation of prices which made the dual-track system function are generally not addressed. For instance, in explaining the dual-track system, Naughton only briefly mentions the role of prices by saying, "[a] single commodity will have both a (typically low) state-set planned price and a (typically higher) market price."[53] Similar assumptions about the formation of prices are repeated in many accounts of the dual-track. For instance, William Byrd's work is perhaps the most comprehensive analysis of the dual-track system to date, and he simply states that "[the] reason for a rise in the share of the market is that incentives for investment in expansion are much greater for the market portion than for the plan portion, since the former *usually earns higher returns than the latter*."[54] For Byrd, the reason for the high earnings of the market track is that

[50] In some cases like silkworms, however, they have no co-commodity or alternative use. This has implications for policy and farmers alike. As explained in chapter 3, state price incentives had a straightforward impact on cocoon cultivators in a way which state price increases failed to have on other commodities because of interactions in the regulation of their co-commodities.

[51] There is a substantial literature on the dual-track pricing. See Byrd 1989, 1991; Wu and Zhao 1987; Gang 1994, Lin et al 1996; Naughton 1995, 2007 and for formal economic models of how it worked, see Sicular 1988, along with two chapters in Byrd 1991, and Lau, et al. 2000.

[52] In fact, as we will see in chapter 3, this statement is a simplification as there were more than one type of state quota and multiple state prices.

[53] Naughton 1995: 8, which is repeated in Naughton 2007: 92.

[54] Byrd 1991: 203 (emphasis added).

"market prices normally are *presumed* to be higher than plan prices."[55] While the incentive structure is dissected in great detail, the fact that market prices and market-track earnings remained so high is largely taken for granted, not explained.

Scholars devoted most of their attention to the construction of the institutional structure itself, not to the formation of price incentives which made it function so well. For instance, it was well-recognized that one key to the success of the dual track mechanism was that the state 'credibly commit' to state quotas and prices.[56] This is because if the state initially set prices and quotas at a certain level, but then reneged on its commitment after farmers or firms had completed their harvests or production, then the incentives to produce more for sale on the market track would have been undermined as the state confiscated the above-plan portion. Furthermore, it was understood that the planned quota portion had to be well-enforced and the planned quota had to be set at a level less than the (empirically unknowable) "fully liberalized market equilibrium" level.[57] However, even if the state 'credibly committed' and enforced a constant sized plan quotas, it still does not explain why market prices and earnings were consistently so high and hence why the market track worked so well as a powerful incentive structure. At the very least, the state had to not simply set the plan quotas on each commodity below some unknowable perfect market equilibrium level, but rather they had to set it *sufficiently low* in order to allow a market to develop; likewise, it had to set plan prices sufficiently low in order to ensure that market prices rose above them.[58] At the very least, the level at which the state set its quotas and prices determined the degree of attractiveness of the market track. Since 'fully liberalized market equilibrium prices' were unknowable, Beijing bureaucrats had to make educated guesses on state quotas and prices, and as my research shows they often made mistakes.

But even this is an over-simplification because prices were formed not just based on the level of quotas and state prices in any single commodity alone, but also according to the same mixture of state prices and quotas in the *adjacent nodes* along the production chain and in their *co-commodities*. For instance, Liu Zhoufu, Director of the National Price Bureau during the 1980s, had this to say:

> [F]or complex and historical reasons, the present pricing system has many irrational elements. Sometimes, products whose supply is constantly in excess of demand are highly priced and provide their manufacturers with large profits, while goods which are in short supply are priced too low and their producers lose money as a result. For example, cotton textiles are fixed at low prices whereas chemical fibers are much too high. This has prompted textile mills to go into chemical fiber goods with a vengeance to the neglect of cotton cloth. (Quoted in Griffin 1984: 117)

While his comment can be interpreted to mean that markets would make rational these 'irrationalities,' it also highlights the sector- and commodity-specific nature of reforms

[55] Byrd 1991: 197 (emphasis added). He repeatedly mentions that market prices were 'usually' high without offering any explanations. Other examples include, Byrd 1991: 202, 204, 210, 215.
[56] Lau et al.: 2000.
[57] Ibid.
[58] This second qualification depended on the particular commodity regulation, in particular whether the state guaranteed all additional purchases above the plan, such as in the early 1980s, or could refuse them. These details are addressed in chapter 3.

and pricing, as well as the interpenetration among co-commodities. Investments in the nascent chemical fiber industry occurred 'with a vengeance' because cotton cloth prices remained so state-controlled and suppressed. Thus, in addition to the prices of any single commodity, *relative prices along the links of the value chain* and among related *co-commodities* had to be properly aligned from upstream to downstream to ensure producers at each link found it worthwhile to produce for the market track. The incentive structure only offered a market track *opportunity* to produce above the plan quotas. The prices themselves and their proper alignment along the production chain were the actual incentives which attracted entrepreneurs, local governments and farmers, and they contained the key as to whether the dual-track system would in fact operate as intended. In the following chapters, I highlight many examples of how different combinations of commodities and the way they were regulated created complex interpenetrations of plan and market. These interpenetrations generated the 'high' market prices which Byrd and Naughton took for granted. In these ways, the vitality of China's markets derived from the planned economy.

To understand the issue of price formation, we must put aside for a moment the economy-wide market reforms which have garnered so much scholarly attention and descend one level of analysis to concrete commodities like cotton, wool and silk. This also requires examining the institutions and policies which influenced (for example) the supply of agricultural commodities and the demand from industrial capacity. Thus, my analysis is in fact one step removed from the prices themselves. It focuses on the institutions and policy *context* which influenced price formation at particular nodes in agriculture commodities (like cotton, wool and silkworm cocoons) and their textile industry counterparts (like yarns, cloth and garments).

The issue of price formation in China, especially during the 1980s, is crucial for several reasons. Research on China's economy necessarily relies on measures that incorporate Chinese prices, including the most commonly used measures, like GDP or gross output data (see Appendix II). But in the context of the 1980s, when China was undergoing a radical realignment of prices, does an uncritical use of Chinese prices make sense? In most research, price data are used out of necessity in order to transform many heterogeneous goods into a single common metric. This is needed to conduct any research at an *aggregate level of analysis*. For instance, as we will see in chapter 2, research on decollectivization and its impact on the agricultural boom is overwhelmingly done using measures incorporating aggregated price data, most commonly China's gross value of agricultural output (GVAO). The calculation of GVAO relies on two components: the gross output of a heterogeneous group of agricultural goods and the prices of each of these goods. Thus, the assumption built into measures like GVAO is that prices in the 1980s already reflected the *relative value* of these goods. [59]

However, in China in the 1980s, prices of most important commodities were heavily mediated by state administrators, whose decisions on price-setting were generally not constrained by concern over equilibrating the relative value of goods to achieve allocative efficiency. And yet any price changes implemented by the State Council or the National Price Bureau would be reflected as a change in GVAO. In other words, a mere

[59] See Field 1988 for a discussion of the use of GVAO in Chinese agriculture. Also, Terry Sicular's research has explored most extensively the issue of prices in Chinese agriculture. Her work is addressed in chapter 3.

accounting alteration (and its implementation) would register as economic growth or stagnation. Moreover, given our previous discussion of the tight-knit interactions across the chain and between co-commodities, state price changes in one commodity reverberated across other related goods.

However, by descending one level of analysis to examine individual commodities and industries, the need to rely on aggregated price data is substantially reduced. Although never perfect, a ton of cotton can be traced, node-by-node, through the production chain. The study of commodities requires much less reliance on prices because they less frequently have to compare across heterogeneous goods, and when they do (such as between raw cotton, cotton yarn and cotton clothing), the prices are often intimately connected to each other to begin with. This makes it possible to directly observe how well supply and demand met, and how prices were formed in China. This is made all the more easy by data availability in China, particularly the extensive use of quantitative measures by planned economies (like production in kilograms or tons). One more ton of steel was the important gauge of social progress, not the abstracted value of one more ton of steel. Because of the serious problems surrounding the uncritical use of prices in the Chinese context of the 1980s, I too heavily favor the use of quantitative measures over monetary measures, much like the Chinese economic planners. [60]

In summary, then, the analytic scope of a commodity chain consist of three basic ingredients: linkages along a value chain, interactions with closely related co-commodities, and the formation of prices that acted as incentives to motivate producers. Together, these constitute the tight-knit contextual factors which can be used to observe interaction of plan and market and re-evaluate the role of broad institutional market reforms, like decollectivization or fiscal decentralization. This may seem unnecessarily complicating, but in fact it is precisely what is generally meant by an 'ecology.' Similar to regional analysis, it is what make sectors unified objects of study and act as important intervening factors in China's economic reforms. Few would suggest that the social networks and agglomeration effects within a regional economy are simple or straightforward. Sectors contain this same sort of interactive complexity. It is what makes them both complicated to study as well as very powerful intervening factors. The two cannot be separated.

Some illustrations of the interpenetration of plan and market help to concretize these dynamics, which are then further detailed in the empirical chapters. The interactions can be viewed on several levels of complexity and detail, and they occur at different parts along the value chain. To begin, it is important to understand that in the very initiation of the reform era, from 1979 to 1981, Beijing substantially boosted the buying power of households through transferring to them a much larger share of national income. For urban households, wages were increased while basic necessities remained highly subsidized, including housing and medical care; in addition, whenever consumer prices were increased over time, the government regularly increased wages in line with inflation. Furthermore, we already saw that the vast majority of the income transfer

[60] This is not to deny that the Chinese government, like other socialist economies, considered relative prices (*bijia*) between competing or related goods (like co-commodities). But, their reasons and goals for doing so were diverse. For instance, state price-setting agencies would carefully evaluate the setting of cotton prices in north China in relation to wheat, in terms of agricultural needs, distributional outcomes, work incentives, and ease of policy implementation.

flowed not to urban but to rural households. After the consolidation of new leadership under the tutelage of Deng Xiaoping, the first set of new policies in early 1979, just before the spring planting season, was a sharp increase in state procurement prices paid to farmers on most major agricultural commodities. These price hikes differed by commodity and ranged between 5% to as high as 70%, with state agriculture prices rising an average of about 22% overall. Chapter 2 details how these price increases and various other bonuses and incentives varied and interacted across commodities in the formation of prices. The point here is that over a two year period, there was a sudden increase in buying power.

To understand the interactive nature of price formation among agriculture commodities, it is important to consider the three categories of staple crops (food grains, cotton and oilseeds). As detailed in the next chapter, in these goods, the state 'rigged' the price incentives in such a way that the more farmers grew, the higher the marginal prices paid by the state. This means that by growing the core staple crops, even if market prices fell below the lowest of state quota prices, farmers still had price incentives to grow more of these crops because the state offered above-quota bonus prices (*chaogou jiajia*). Since the state also guaranteed the purchase of the entire harvest, staple crops were rigged for explosive growth regardless of market prices.[61] This is best illustrated by cotton which was unique among the three staple crops in that free markets were completely banned; and yet production almost tripled between 1978 and 1984, along with rising crop yields. Clearly, in cotton, it was impossible for the market price 'track' to have been the incentive driving household decisions, because no markets existed in cotton!

Starting with staple crops, there are several dynamics to consider. For instance, there is the interaction between consumable staples (grains and edible oils) and non-staples, like meat, eggs, dairy, vegetables and fruits. Since the state rigged the procurement prices for staples, it artificially elevated the quantity of aggregate demand in these critical crops, and farmers responded by raising production. Relative to non-staple crops, these excessive quantities pushed the market prices of grain and edible oils down, even as the state prices remained buoyant.[62] Furthermore, given the elasticity of demand for staple crops (there is only so much grain and oil someone will consume even if prices drop very low), consumers shifted more of their buying power to non-staple goods. In other words, the state's particular regulation of certain staple crops led to their overproduction and lowered market prices, which then shifted consumption to non-staples. The flipside is that in terms of the dual-track mechanism, the regulation of non-staples was far more liberal compared to staples, and thus much more could be sold on the market track.[63] Thus, on both the consumption and production side of non-staples commodities, state regulations jointly conspired to invigorate and concentrate the market price incentives on these goods.

This explains why in the beginning of this chapter, we saw that inflation followed a commodity logic: consumer price inflation became overwhelmingly 'concentrated' in

[61] This guarantee was altered in the mid-1980s when Beijing switched to a system of fixed contracts, although there is debate as to how strict these contracts were actually implemented, issues covered in Chapter 2.
[62] For instance, this happened in 1983 and 1984 in staple crops.
[63] For instance, whereas the staple crops had two quotas (a baseline amount and above-quota amount), non-staples had only one quota at most.

sidelines, while other consumer goods remained flat (Table 1.1 above). Thus through commodity specific regulation, the market frenzy in certain commodities was largely a function of the system of state prices, quotas and regulations in a different subset of commodities. It was the interaction between commodities and their different degrees of 'partial' market regulation which created the sky-high market price incentives which were crucial for the dual-track mechanism to operate. Although tedious, a commodity-by-commodity examination of state policies and their interaction across goods is critical to understand the significance of broad institutional reforms, like the dual-track.

The above example is just one instance of how market prices drew their buoyancy through their interpenetration with the planned economy. In addition to the interpenetration of market and price in broad categories of goods, like staples and non-staple, uneven regulation and the interpenetrations of plan and market also occurred between quite narrow co-commodities as well. For instance, before 1985, wool was banned on free markets, but its co-commodity, mutton, was allowed on markets after meeting state quotas. State prices for both were raised in 1979, but as a non-staple with open markets, prices for mutton on markets rose many times above state mutton prices. This was not only due to the non-staple dynamic just described, but also because the maintenance of state wool quotas and the banning of open wool markets restricted the market supplies of mutton (since sheep must be alive to yield wool). As I show in chapter 2, the results of this particular regulatory combination was not simply sky-high market prices of mutton, but it also led sheep herders to rapidly shift into the raising of mutton sheep, which undermined the quality and quantity of Chinese wool in complex ways. This dynamic between wool and mutton was further complicated by state policies in downstream wool textiles which fueled a doubling of machinery capacity during the same time period that herders were slaughtering sheep.

Thus, markets were shaped at the interstices of different combinations state policies, which regulated commodities along the value chain and in interaction with related co-commodities. In the chapters below, there are many other similar examples of market and plan interpenetration. For instance, I show how grain and cotton prices and harvests were interconnected, which forced Beijing to make difficult tradeoffs when manipulating the grain-cotton price ratios to achieve certain agricultural or industrial goals. In other instances, we will see that the path dependence and the geographic distribution of China's pre-reform system of agriculture quotas created a patchwork of both explosive and anemic harvests, even among neighboring counties.

Similar dynamics occurred between different industrial goods as well. For instance, in the previous quotation from Liu Zhoufu, the director of the National Price Bureau during the 1980s, he commented on the interactions between the relative prices of cotton and chemical fiber textiles in which the 'low' prices of cotton textiles 'prompted textile mills to go into chemical fiber goods with a vengeance to the neglect of cotton cloth.'[64] These dynamics also linked together agriculture and industry along the value chain. In industries like textiles, the close ties between agriculture and industry created distinct agro-industrial dynamics, something addressed in chapter 3. The linkages between agriculture and industry are critical because anywhere between 45% and 75% of

[64] As quoted in Griffin 1984: 117.

the total cost of production in textiles derive from raw materials prices formed in these upstream nodes, and they remain permanent as the commodity passes through the downstream. Thus, the formation of prices of agricultural commodities is perhaps the single most important factor determining the health of downstream firms and China's export competitiveness.

To summarize, the macro-narratives of economic reforms suggest that a clear conceptual line exists between market and plan; one in which the plan is quarantined from the market track and at best functions largely as a force of 'social stability.' At a commodity level of analysis, the 'wall' which many theorists perceive as demarcating the planned economy (as rent-distributor) and the market economy (as efficiency generator) disappears. In many ways, the market's vitality was actually derived from the institutional structure of the planned economy. Markets in China appeared so enlivened precisely because the planned economy continued to shape and feed them. In these various ways, the 'carrot' of market prices grew from the soil of the planned economy. To use a metaphor, China's gradualism or 'partial reforms' can be thought of as poking a small hole at the base of a dam: no matter how little water is behind the dam, it will gush forth with great ferocity. One might explain this by pointing to the outstanding qualities of the water as the source of the frenzied activity, but it is really the broader 'context' that matters; that is, it is the remaining structure of the dam and the strategic placement of the hole at its base which are the real reasons for the gush of water.

II. The 1990s: China's International Integration in a New Era of Global Production

Originally, the idea of 'commodity chains' was one of many new concepts which were developed to understand fundamental changes in the organization of global production over the past decades.[65] As described below, these changes consist of the disintegration or 'slicing up' of production at different links along the chain within national economies, along with a simultaneous re-integration of production globally through complex cross-national networks of production and services that mix trade, foreign investments and technology transfers. China's international integration especially over the 1990s coincided with these transformations and through this China has become highly integrated into East Asian and global cross-national production.

Because of the wide variability in the way these production networks have been forged, research has often been organized by individual industries and commodities. That is, groups of scholars often specialize in the automobile industry, or even in particular products, such as hard drives, semiconductors, or coffee. As argued below, this change in focus highlights a shift away from traditional 'sectoral' studies which consider technology as the distinguishing characteristic and primary reason for studying industrial sectors. By contrast, with the internationalization of networked production, the focus of the literature has shifted to the organization of production, strategies by which

[65] For a long time, the terminology of 'commodity chains' was used by one group of scholars to describe the idea of networked, cross-national production and commerce (see Gereffi and Korzeniewicz 1994), which only later was re-conceptualized and re-named, 'value chains.' (see Gereffi, Humphrey and Sturgeon, 2005).

transnational corporations have structured production and trade, and how this has influenced developing countries.

In the case of developing countries, including China, this has many potent implications. As the chapters illustrate, China's regulation of the influences of the international economy has been very complex. Similar to its domestic economic reforms, China has regulated the influences of international prices, and the entry of foreign capital and goods on a commodity-by-commodity and even a node-by-node basis. Along a single value chain, it has pursued strategies of import substitution to protect infant industries in some goods, while it maintained state monopoly trading in others to achieve self-sufficiency or protect vulnerable populations. At the same time, it has shown a remarkable proclivity for liberalization in other nodes along the production chain, particularly in downstream garment manufacturing or more sophisticated dyeing and printing processes which require very close ties with commercial intermediaries and final buyers. This unevenness in regulation is a response to the changes in global manufacturing and the challenges and opportunities presented to China within this new system of global manufacturing. In the following sections, I begin by narrating these changes in global manufacturing and their implications for scholarship of industrial organization and economic development. Then, I preview my findings and arguments on the influence of this new organization of production on China.

Transformations in Global Production

The spread of multinationals after the Second World War – first American and later European and Japanese – raised new questions for scholars who had experienced the golden age of protected, national economies. Latin America was the site of one particularly intense flurry of scholarship. While multinationals previously had a foothold there for raw material extraction, protectionist import-substitution policies made direct exports to Latin America more difficult. This prompted the entry of manufacturing multinationals to serve large, home markets where populist policies buoyed wages and consumption. In the 1970s, area studies scholars argued that the increasing entry of multinationals, wooed by a new technocratic elite keen on implementing a second, 'deepening' of import-substitution in producer goods industries, created severe political and economic distortions, including bureaucratic-authoritarian rule and a 'dependent' form of development.[66]

However, the rise of multinationals was a major concern among scholars of advanced industrialized countries as well. With the creation of the European Common Market in 1958 and a common external tariff regime, U.S. multinationals aggressively entered European home markets. Similarly, in the 1970s and 1980s, under the constant threat of U.S.-imposed export restraints, Japanese multinationals invested in the U.S. market. Both shifts were met with resistance, and in Europe government supports national champions.

[66] The classics of this tradition are Cardoso and Falleto 1979, O'Donnell 1979, Evans 1979. For a refinement on this literature that pushes a greater examination of domestic politics, see Collier 1979.

Multinationals entered these markets for a variety of strategic reasons, including circumventing high levels of import protection, taking advantage of government incentives, and strategically preempting the rise of competitors.[67] However, despite these very different contexts, the main goal for multinationals in advanced and developing countries alike was broadly quite similar: *to better serve large, lucrative but protected domestic markets*. The scholarly angst centered on how countries should best handle multinationals in their midst, the consequences for domestic firms and the impact on domestic political development and institutions.

It was these large, protected domestic economies and the institutions which shaped them that were so important to the scholarly literature, best represented by the 'national models' approach to political economy. This literature was born a decade or two after the Second World War, when European and Japanese economic recovery demonstrated that capitalism could be successfully organized in a way different from what some viewed as a perfected or triumphant American capitalism.[68] While the focus was on the overall national system, successive generations of scholars dissected and then compared different segments of the overall economic system, including industrial relations, finance, corporate governance, and taxation.[69] These dissected parts were then continually re-aggregated and theorized to understand the distinctiveness of each country's system of national institutions.[70]

However, incongruence grew around the issue of industrial sectors. With Europe's recovery and the seemingly inexorable march of Japan's competitive firms, U.S. companies were increasingly competing head-to-head across a range of industries. However, they were 'losing' only in certain sectors, most worrisome of all, America's bread and butter: automobiles.[71] It was observed that the analysis of aggregate 'national' institutional systems could not predict the variability in a country's competitiveness across industrial sectors. This sparked interest in detailed and comparative studies of sectors and the emergence of the 'sectoral governance' literature.[72]

By delving below the surface of broad aggregate national systems of institutions, however, scholars were forced to confront a much deeper theoretical terrain, most importantly, the relationship between technology and institutions – an area of study already well-populated by economists and sociologists of widely differing theoretical backgrounds.[73] Sectors were conceived of in two very different ways. By far the most common way was to start with their particular *technological* core. It was argued that a sector's technological make-up suggested a certain array of matching institutions. Under conditions of market competition, the technological profile of a sector highly constrained, if not dictated, an 'optimal' governance structure to achieve efficiency and ensure firm

[67] Most theories on multinationals take a corporate strategy perspective, despite major differences in theoretical approach, such as Hymer 1976, Vernon 1966, 1971, Dunning 1981, 1988 and Porter 1990. These contrast with realist theories, such as Gilpin 1975, and economic approaches.
[68] Shonfield 1965 is the foundational work. Katzenstein 1979, Katzenstein 1985, Hall 1986.
[69] Zysman 1983, Steinmo 1996, Thelen 2001,
[70] Hall and Soskice 2001, Kitschelt et al. 1999, Dore and Berger 1996
[71] Womack , Jones and Ross 1990.
[72] Kitschelt 1991, Schmitter and Streeck 1985, Campbell et al. 1991, Hollingsworth et al 1994.
[73] Williamson 1975, 1985, Perrow 1986, Nelson and Winter 1982, Piore and Sabel 1984.

survival.[74] Variation in sectoral governance across countries was the result of the institutions of distinct national production systems. Given an environment of relatively closed economies and delimited global competition, deviation from the optimal governance structure was possible. However, in an era of heightened competition between firms with roots in different governance systems, countries that happened to have an institutional make-up closest to the presumed 'optimal' structure, as dictated by sectoral technology, ought to win out in those industries. In other words, powerful global forces were thought to create industrial convergence at the sectoral level.

This particular understanding of industries and governance was undergirded by the utilitarian principles of transaction-cost economics in which the particular attributes of the internal production process of a sector (asset specificity, degree of complexity/uncertainty, etc.) determined the optimal governance structure.[75] Ironically, this 'naturalistic' and ultimately ahistorical understanding of sectors and technology was the (often unwitting) foundational assumption for many historically-minded approaches to political economy.[76] In fact, these later studies reversed the logic of the national models approach by claiming that the unique features and endowments of certain sectors, at particular historical moments, created political coalitions supporting the ascendant and successful industries, that in turn shaped state institutions.

However, there was a second more historically informed approach to technology and governance. Instead of starting with an assumption of different degrees of technological and economic necessity, the starting point was the political and social institutions in place at a certain moment in history within which sectors and their technologies were formed and changed. Conflict and struggles within the institutional environment determined the nature of technologies, which over time and through path-dependence shaped industrial and national institutions.[77] Although some wrongly label these ideas 'technological voluntarism,' there admittedly is a degree of plasticity in terms of the historical possibility of alternative forms of production and organization.[78] The crux is the *historical and institutional context* within which struggles over control took place. And it is precisely for this reason that the historical changes in global production, the topic at hand, are so critical to fully appreciate.

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[74] The most sophisticated and careful analysis is Kitschelt 1991. While he clearly places the logic of technology at the center of sectoral governance, he frequently qualifies the sweeping logic of this approach. But Hollingsworth, Schmitter, Streeck 1994 have a similar understanding.

[75] Williamson 1985.

[76] Much of the broadly Gershenkron-inspired histories of European economic and political development fall into this category, such as Kurth 1979a, 1979b. For a non-European adaption, see also Shafer 1997. It might strike some as counter-intuitive to describe these works as 'ahistorical.' I do not argue with the fact that they are historically informed, however, they take as a priori and given how these particular sectoral endowments and technologies developed in the first place. This may be acceptable in certain circumstances, but given their particular ambitions to understand the full sweep of European history and the centrality of industrial sectors in their analyses, they must 'endogenize' technology and industrial development in their history, not simply start with these 'naturalistic' assumptions.

[77] Piore and Sabel 1984 present the clearest and most elaborate argument for this approach. Campbell et al. 1991 offers many case studies. While Fligstein does not formally study 'sectors' (rather, markets understood as 'fields'), his work has all the elements of this socio-cultural and political approach. See Fligstein 1990, 1996, 2001.

[78] See Kitschelt's critique. For strong support of this understanding of history and technology, see Hirst and Zeitlin 1991, and Sabel and Zeitlin 2002.

While scholarly debate focused on the intrusion of multinationals into domestic economies and the internal structure of national economies, the world of global trade and production was changing. Improvements in transportation and communication made international trade easier and cheaper. By 1967, the Kennedy Round tariff reductions under the GATT had been fully implemented and the Tokyo Rounds began eight years later. These, together with bilateral and regional agreements, significantly reduced tariff barriers and even partially reduced non-tariff barriers. Given these drastic reductions in transaction costs and the institutional changes in trading, an economic logic would predict certain alterations in multinational behavior and transformations in sectoral governance. On the one hand, it would seem that the *reason d'être* of multinationals and FDI had come to an end on account of the lowered transaction costs to trading and the lowering of barriers to trade. As a large literature on FDI suggests, this is because, *ceteris paribus*, national firms prefer the advantages of operating in their familiar home countries and from there export final goods abroad.[79] The logic of the traditional system of 'trade between nations in final goods' seemed to have returned. On the other hand, if sectors had optimal governance structures based on their technological core, then a global environment of sharpened competition between 'national' industries and the limits globalization places on national industrial policies would presumably have created a powerful convergence in the conduct of firms and the sectoral-level governance structures of these now globalizing industries.[80]

It is not the purpose of this section to disentangle why, but the changing global context from at least the mid-1980s certainly makes clear that neither of these premises held. Rather than a return to a system of national economies competing through trade in final goods, FDI exploded and new forms of non-equity linkages between TNCs multiplied. Likewise, within the same sectors, multinational firm strategies diversified immensely, creating a broad array of governance structures. Clearly, something else was afoot. The 1990s witnessed a barrage of bilateral investment treaties clarifying cross-national tax rules and other regulations. Developing countries extensively liberalized trade and investment regimes, sometimes under pressure from international organizations, such as the IMF.

Over time, new and complex global linkages arose, which have profoundly transformed global manufacturing. Firms within the same industries came to utilize different combinations of cross-national linkages in line with distinct corporate strategies.[81] For instance, in addition to traditional trade and FDI, myriad forms of non-equity, cross-national production arose. Different types of subcontracting arrangements arose through which multinationals shifted the production of branded (final) or

[79] The choice for TNCs to take a controlling stake in a foreign country is generally believed to require very compelling advantages over local competitors, such as technological sophistication. For instance, Lou Wells states, "two concepts are rather widely held among researchers concerned with foreign direct investment: (1) to survive abroad, a firm needs some kind of advantage over local competitors, and (2) a firms must have some reason to internalize that advantage through ownership, rather than contracting with another firm." (Wells 1993: 182). This concept serves as the key jumping off point for Y. Huang's study of FDI in China, especially in the light industries like textiles and garments where technology gaps are relatively narrow, learning can be rapid and competition with local firms is fierce (Huang 2003). For a review of scholarship on the rationales of FDI, see Caves (1996).

[80] Hollingsworth, Schmitter and Streeck make this prediction explicit, see 1994: 10.

[81] For automobiles, see Freyssenet, Shimizu and Volpato (2003a) and (2003b); for electronics, see Ernst 1997, 2000. For general discussions and a comparison of different sectors, see Dickens 2007.

intermediary goods to lower cost and more flexible, but formally independent firms in other countries. A wide variety of corporate alliances, both joint venture and non-equity, arose in many industries, making cooperation in technology development and R&D more attractive between rival firms.[82] These arrangements often also included extensive cross-licensing of technology, another increasingly common form of non-equity linkage between firms. Further, even traditional equity forms of cross-linkages have transformed as parent-affiliate governance altered according to the global or regional strategy of the parent firm. In contrast to the older multinational strategy of foreign investments serving the home market, new foreign production bases now served any combination of the home market, final good export markets or intermediary goods linked into a larger cross-national production network. For instance, foreign firms in China pursued widely different aims in investing, some targeting the domestic market, others centered on exports and still others combining both.

The opening of national economies and the proliferation of these different linkages meant that firms even in the same sector utilized different combinations of strategies to knit together their global operations. The proliferation of studies on global sectors is testimony to these changes.[83] The implication of these empirical findings is that unyoking firms from their national contexts and heightened forces of global competition have not created the conditions by which a presumed entelechy of sectoral logic has been fulfilled. Quite the contrary, they have unleashed a diversity of responses. Accordingly, crucial differences with the first generation of sectoral studies arose. While the first generation theorized the impact of technology as the defining feature of a sector, the second generation of sectoral studies focused on the organizational structure of sectors, the strategies of leading firms, and linkages between the advanced and developing worlds as production networks intimately linked very different economies together.[84] Sectoral studies no longer focused as intensely or directly on technology, and their intent was no longer to better understand differences in national models.

This change has inspired an enormous outpouring of theorizing on the globalization of production. The most prolific branch of this literature, and the one from which this dissertation heavily draws, has focused on the increasingly 'networked' governance of cross-national production.[85] Large-scale and often vertically integrated

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[82] Dunning 1997

[83] For instance, very close studies of the global automobile, high-tech electronics and textile and apparel industries have created new conceptual frameworks to analyze the rapid and variable changes within each sector. Occasionally, scholars have attempted to theorize across global sectors, but interestingly, they have returned to a transaction-cost framework as a theory 'general' enough to encompass the vast empirical variation on the ground. For autos, see Freyssenet, Shimizu and Volpato (2003a, 2003b), for electronics: Borrus and Zysman 1997, Borrus 2000, Ernst 1997, Ernst 2000. For apparel, see Appelbaum and Gereffi 1994, Gereffi 1999 and Gereffi and Memedovic 2003. For a cross-sectoral theorizing, see Institute of Development Studies Bulletin Special Issue 2001 and Gereffi, Humphrey and Sturgeon 2005.

[84] This is not to say that technology has been ignored, far from it. However, the argument on technology shifted. An argument over how information and communications technology (IT) has facilitated globalization, initiated the 'retail revolution' or contributed to the disintegration of Fordist production is quite different from arguing that steel is produced with certain technologies and hence is best organized in certain ways.

[85] There are innumerable names for this phenomenon and equally as many 'models' and 'typologies' to understand them, including 'international production networks' (Borrus et al. 2000), 'global production networks' (Ernst 1999, Henderson et al. 2002), the French 'filiere' literature (Raikes et al. 2000), 'global commodity chains' (Gereffi and Korzeniewicz 1994, Gereffi 1995) which has been substantively re-theorized as 'global value chains' (Gereffi, Humphrey and Sturgeon, 2005) though not without its detractors (Bair 2005).

'Fordist' factories in advanced industrialized countries (the national champions) were restructuring the production process by 'slicing' off parts of in-house production and creating cross-national 'chains' using any combination of the new equity and non-equity linkages described earlier. The exact combination of linkages varied by industry and firm strategy. These phenomena have been theorized across the social sciences and have created an explosion of new concepts and terminology, including 'slicing up the value chain,' 'Wintelism,' 'delocalization,' 'buyer and producer-driven value chains,' 'intra-mediate trade,' 'intra-product specialization,' 'vertical specialization,' and so forth.[86]

There are important differences between these approaches, however, and this dissertation draws upon those that take disaggregated manufacturing seriously – a claim even some economist, despite disciplinary training to seek ever greater generality, argue is critical to understand the fundamental changes in the global economy.[87] Earlier studies focused largely on the general phenomenon of production networks in particular regions, [88] while others theorized the implications for standard trade theory of the global 'integration of trade and disintegration of production.'[89] Largely, they did not delve deeply into the enormous variation within and across sectors by which the developed countries have interpenetrated each other and developing countries.[90]

This dissertation's usage of the concept of global value chains derives from this broader literature. [91] Scholars have emphasized different aspects of a chain, building upon the four elements originally outlined by Gary Gereffi, including the input-output of the production process, the governance of the whole chain, the territoriality from local to global levels, and the institutional and regulatory environment at each of these levels.[92]

As the name might suggest, one key concern is the distribution of value among firms operating in different nodes along the chain, and the welfare and employment implications for developed and developing countries which are linked together through these cross-national chains. The distribution of value across the nodes is critical given the dismemberment of the production process in which certain manufacturing stages declined in relative importance in the overall provision of goods. This is partly because production has increasingly become 'modularized' at certain links in the chain, meaning that the *process of production itself* (not just the final good) has become so standardized in many industries and hence increasingly has taken on properties of a commodity.[93] With the assistance of firms that have mastered the technique, manufacturing sites can

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[86] Krugman 1995, Krugman and Venables 1995, Gereffi 1994, Borrus and Zysman 1997, Leamer 1996, Hummels, et al. 1997, 2001, Arndt 1997, 1998.

[87] Some early work by Paul Krugman 1995 and Krugman and Anthony Venables (1995), and more importantly the work of Robert Feenstra (1998) and Feenstra and Gordon Hanson (1996, 1997) were important in stimulating this field of research.

[88] Hatch and Yamamura 1996.

[89] See Feenstra and Hanson 1996, 1997, Feenstra 1998. Krugman 1995

[90] For an early study that examines both a particular region and sector (autos), see Doner 1991. In economics, see Campa and Goldberg 1997 for detailed sectoral analysis in four OECD countries.

[91] Gereffi and Korzeniewicz 1994 for the original introduction and Gereffi 1995 for an addition to the framework. See Gereffi, Humphrey, Sturgeon 2005 for a synthesis and new and unifying terminology, though not everyone is in agreement (see Bair 2005, Henderson et al. 2002).

[92] However, the preponderance of research has focused on the governance aspects, to the chagrin of some. For the original framework, see both Gereffi et al. 1994 and Gereffi 1995. For criticisms, see Henderson et al. 2002 and Bair 2005.

[93] See Baldwin and Clark, 2000 and Sturgeon 2002.

more easily be established through foreign investments in other countries; or, the techniques of manufacturing can more easily be taught, requiring no equity investments at all. In this later instance, independent firms are still intimately linked into the chain because the products are often branded for a particular company. Oftentimes, this transmission of production has been done in a narrow, specific intermediary good, which then linked the foreign firm into a larger network of production sites, sometimes orchestrated by a multinational. At other times, the production of a multinational's entire product is outsourced, creating multiple layers of formally independent firms engaged in all manufacturing and service stages. Ironically, these products are nominally 'produced' by the original multinational, which in actuality no longer produces any tangible product itself, a form of production called 'branding.' As the importance of manufacturing declined and was passed off to other firms, the core multinationals increasingly specialized on the initial designing and market research stages, intermediary supply chain management, and the final marketing, distribution and/or retail stages – links in the chain increasingly containing the most 'value-added' along the value chain. Through this transformation, economies of scale and market power had shifted out of production and into areas like marketing, retailing, supply chain management and branding, links in the chain which require enormous capital investments.

There are two main lessons to be drawn from this discussion. First, China's opening up over the past two to three decades has precisely coincided with these shifts in global production. Unlike in prior export-oriented industrializing countries, China has integrated into a qualitatively different global environment.

Second, and related to this point, a production chain approach is a way to understand the nature and effects of these new forms of globalized production and trade. The key difference is that more aggregated data cannot 'detect' the underlying changes in production and organization.[94] Take trade. For many countries, the aggregate trade-to-GDP ratios are not radically dissimilar between the pre-World War I era and today. This similarity in aggregate trade fostered debates over whether we are more or less internationalized today than a century ago. In the earlier period, however, trade in manufactures was largely arms-length sales of final goods, in which most of the production process was done within national borders. By using gross values, today's trade statistics reflect this older system. They measure the total value of the final goods, not the *value-added* of the final product done within that country. For instance, in the case of the Blackberry Torch, the full US$183 of production costs would be credited to the current account of the country of final assembly. This used to be a reasonable (and simplifying) measure for an earlier era of trade which assumed that all processing was done in the home country. However, with the changes in production, foreign investment and trade described earlier, this can no longer be assumed – surprisingly, not even in a large country like China. As production disaggregates, so must the level of our analysis, making detailed sub-sectoral studies essential to any insights into how the global economy is interwoven with China's domestic economy. Further, these are gradual trends over time, making cross-sectional data often less insightful than longitudinal

[94] See Feenstra 1998 for an early statement of the implications of this approach across many research fields, including trade theory, employment, efficiency and equity. For better measurements by economists of trade in 'vertical specialization,' see Hummel et al. 2001.

trends. The new forms of production have 'opened' national economies in such a way that in any one sector a significant percentage of the inputs into the production process for any single good may have been imported from elsewhere so that when the final good is finally exported only a fraction of its final value was added in that final location. The degree to which this occurs can only be disentangled by 'slicing up the value chain.'

This implies that in addition to reinterpreting the relationship between plan and market in the domestic economy, a detailed industrial level perspective which deconstructs production along the value chain also offers new insights into China's international integration over the 1990s which coincided with this new era of global manufacturing. Even though from the perspective of economies of scale or capital and labor intensity, the cotton, wool and silk textile and garment industrial sub-sectors are commonly seen as undifferentiated, I find wide variation between them in terms of China's regulation of international prices, trade and the entry of foreign capital, especially foreign direct investment. As mentioned, over the 1980s and 1990s, China has aggressively intervened in upstream sectors like chemical fibers to protect its nascent industries as it transitioned from a cotton-dominant textile industry to greater diversification of fibers. In other upstream fibers, like in cotton and silk, it has maintained the organization and policies of monopolistic state trading, which have changed little from the pre-reform state socialist era. At the same time, in other links in the chain, China has become heavily dependent on foreign investments and technology, such as in dyeing and garments, and the importation of chemical feedstocks and high-end cloth, and exports of final garments. This admixture of policies and strategies even within the same industries is a reaction to the networked nature of contemporary global production and China's capabilities in linking up with it. Chapters 4 and 5 explain the reasons for China's rapid international integration, especially in the 1990s as well as the policy and organization changes which created China's mixed system.

This opens up new possibilities for the China field which in recent years has witnessed a burgeoning of new research on industrial sectors. Book length studies of Chinese industries alone now cover a wide range of sectors, from heavy to light industries,[95] low- to high-tech,[96] energy and mining,[97] and agricultural commodities.[98] However, sectoral studies have been overwhelmingly justified only on *methodological* grounds. Some studies examine a single industry in order to delimit the scope of study, unearth new findings on one slice of the economy,[99] or achieve greater depth on a particular theoretical topic without having to worry about the confounding effects of different sectoral dynamics.[100] Comparative sectoral studies seek to show that a common phenomenon plays out in a similar way across very different sectoral 'contexts,' such as

[95] These include research on steel (Steinfeld 1998 and Kennedy 2005), automobiles (Harwit 1995 and Thun 2006), shipbuilding (Moore 2002).
[96] Liu 2005 (whitegoods), Harwit 2008 (telecommunications) Segal 2002 (several high-tech industries) , Kennedy 2005 (software).
[97] Thompson 2003 and Rui 2005 (coal), Cunningham 2009 (petroleum).
[98] For instance, Etherington and Forster 1994 (tea) and Alpermann 2010 (cotton). There are many books that specialize on grain. Several recent dissertations continue this sectoral tradition, including Cunningham 2009, Hsueh 2009 and Tsai 2010.
[99] Although not explicitly stated in this way, this seems to be the case for Etherington and Forster 1994, Liu 2005 and Thompson 2003.
[100] For instance, Steinfeld 1998, Thun 2006, Alperman 2010.

heavy and light industry,[101] and others compare sectors to show clear divergence in policy or outcomes.

The above discussion suggests, however, that industrial studies in China need to consider the changed context of manufacturing itself as a substantive issue in its own right. The approach adopted here aims to place the study of sectors on more firm footing in the China field and extend its utility well beyond its current methodological focus.

By failing to do so, scholars risk missing much of what is important. For instance, in chapter 5, I illustrate how China's domestic production system, which linked the textile and garment sectors, became disarticulated through China's period of international integration in the 1990s. This disarticulation resulted in a shift in the geography and demographics of the domestic labor force in these industries, with potent implications for the possibilities for collective action.

Furthermore, China's integration into the international economy has coincided with an alarming increase in inequality of which regional inequality is a key component given China's large size. As mentioned, most research on regional inequality in China utilizes a 'location advantage' lens, which focuses on differences in tax or investment policies, factor endowments, industrial legacies, and so forth. These sorts of advantages ought to influence the cotton, wool and silk sub-sectors in fairly identical ways, given the similarity of these three sub-sectors. They cannot explain the patterns of income, profit, output and employment among farmers, workers and factories in the cotton, wool and silk agro-industries, which are detailed in chapter 5. Through detailed process-tracing along the value chain, I argue that regional inequalities arose more from the changes in the regulation of economic *linkages* between producers groups along the production chain both within China and with the global economy, rather than from the advantages of geographic location. Overall, China's integration into global production has had varied influences in terms of the regulation and organization of China's foreign trade and investment regime, industrial organization of the domestic economy and the agro-industrial linkages between geographic regions and the international economy.

Periodization: Incremental Reforms or Dramatic Changes

China has been a model for the gradualism of its introduction of private property ownership, liberalization and institution-building. With the exception of the political crisis culminating in the Tiananmen crackdown, its path towards a market economy is widely seen as incremental, slow, measured and most importantly, relatively stable. In comparison to the dramatic collapse of the Soviet Union and disintegration of the Leninist party-government structure there, China's reforms are rightfully described as incremental and smooth.

However, setting aside China's relative political stability, the findings in this dissertation raise questions about the degree to which China's market transition has been smooth. Some scholars have analyzed certain periods of instability. Most importantly,

[101] Kennedy 2005 and Moore 2002 utilizes this approach and to a certain extent so does Gutherie 1999, though Gutherie's work is not sectoral in the same ways as these others.

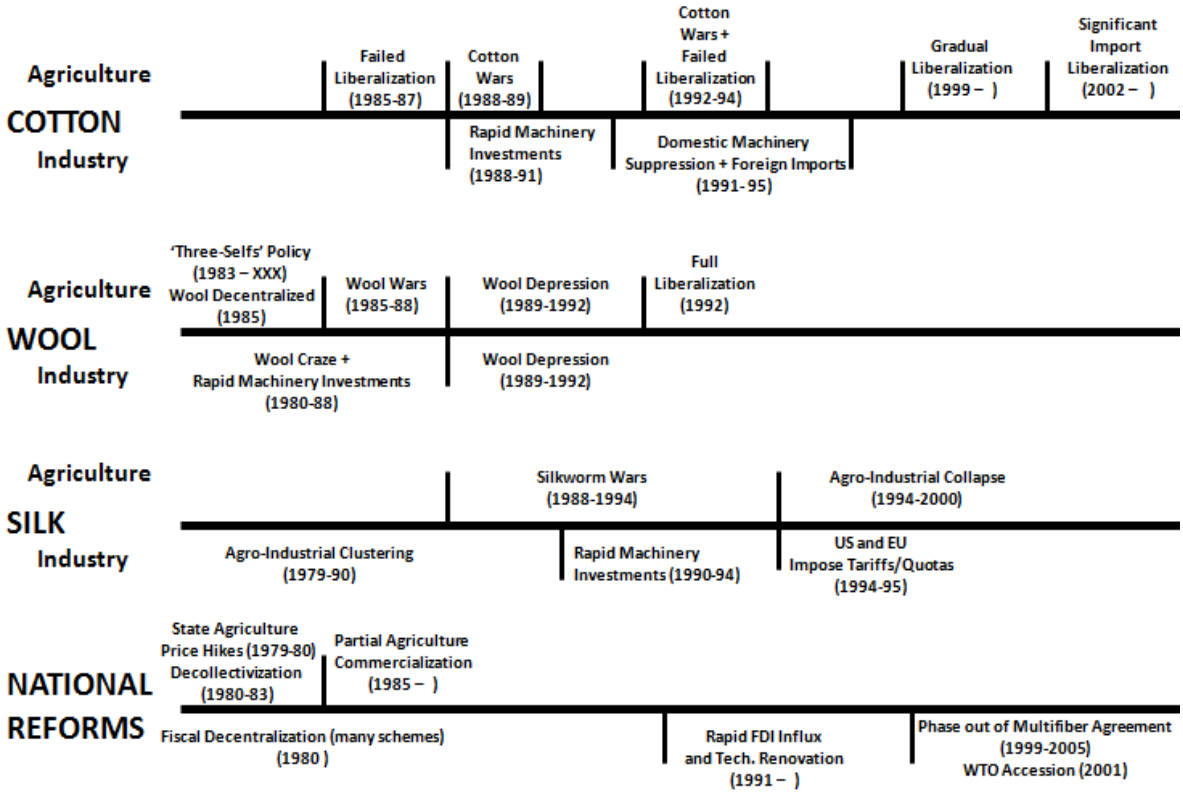
China's periodic bouts of inflation have been well-recognized by scholars,[102] and so have the dramatic bankruptcies and lay-offs surrounding state-owned enterprises, which became especially acute from the late 1990s.[103] However, through the examination of specific commodities and industries, this dissertation reveals a string of interlinked crises, periods of economic disjuncture, regular back-tracking in policy and implementation and severe malfunctions in the economy. These instances of rapid change and instability too easily become hidden under statistical aggregates and averages at a more macro-level (see Appendix II). Examples of this, which play a prominent role in chapters 3 and 4, are the 'commodity wars,' which were struggles between local government bureaus over control of the exchange of raw commodities. It was these wars in the upstream nodes which created rapid price inflation and undermined the profitability and competition of China's textile industry, forcing the State Council to re-orient the industry over the 1990s. Other times, sources of instability derived from changes in the international economy. However, whether domestically generated or entering through the international economy, I find new sources of instability in China's transition, beyond just inflation or lay-offs, which belies the image of China's smooth and stable transition to a market economy.

Apart from this general observation, however, these variable periods of instability also reveal alternative ways of periodizing the reform era, which depart sharply from the more typical 'national-level' timelines of the major economy-wide institutional reforms. These fine-tuned, commodity-specific periodizations reveal that more times than not, the timing of national institutional market reforms bore little relationship with production trends on the ground. Rather, it was some combination of domestic or international factors somewhere along the commodity chains themselves, which produced the variability in fortune of these industries. At times, it was changes in the global industry or trade of particular commodities which fed backwards along the production chain into China's domestic economy, something well illustrated in the case of silk. Other times, periods of instability and policy back-tracking were ignited by simultaneous but conflicting reforms at different nodes along the domestic chain, such as happened more than once in the heavily regulated cotton chain.

This makes for a substantially more complex narrative given the comparison across three agro-industrial chains and individual nodes along these chains. Thus, as a reference for the remainder of the dissertation, I summarize the key turning points and periods of instability over the course of the reform era, which is graphically illustrated in the figure below (Figure 1.4).

[102] The best studies on this topic are Y. Huang 1996 and Shih 2008. Naughton (1995) also sees inflationary periods as marking key turning points in China's reforms.
[103] See Hurst 2009, Holz 2003, Yusuf et al. 2006, Garnaut et al. 2005.

Figure 1.4: A Timeline with Major Turning Points



At this stage, it is not important to understand each major event or turning point. This will be clarified through the narrative of the following chapters. For now, it is sufficient simply to note the variation in the timing of some common occurrences across the cotton, wool and silk agro-industries, such as the 'wars' or the periods of rapid machinery investment. From the perspective of broad, nationwide institutional reforms, like decollectivization or fiscal decentralization, which occurred at particular points in time and did not discriminate by agro-industry, this variability over two decades is hard to explain. For instance, why would broad reforms, like fiscal decentralization, have their intended impact in the early 1980s in some agro-industries, like wool, but not in others, like cotton or silk? This is an example of the types of questions which run through the empirical chapters. Answering it requires close process-tracing of changes in commodity-level regulations of production and exchange and the creation of markets at particular 'nodes' along these chains.

Schema of the Dissertation

This chapter has laid forth the main arguments addressed in this dissertation. However, before turning to the empirical chapters, this final section offers an overall framework for the remaining empirical chapters, which serves as a summary comparison

of the organizational and policy differences between the three textile fiber agro-industries and their co-commodities. I examine them according to several dimensions whose importance will become apparent in later chapters. These include structural factors, state interests and organization, and co-commodities; they are summarized in Table 1.2.

The regulation of cotton is linked to the enormous state apparatus surrounding the annual grain harvests, cotton's co-commodity. Given China's very high population-to-arable land ratio (one of the highest in the world), food security is at the heart of state regulation of agriculture, and grains and cotton lay at the heart of food security. Because cotton is the largest cash crop and often intercropped with food grains (like wheat in north China), state regulation of cotton is extensive and very complicated. At the same time, cotton remained the central fiber for China's textile industry, not to mention an important commodity in controlling domestic inflation. This was especially true in the 1980s before the chemical fiber industry became well-established in China. Thus, it not only provides for the livelihood of tens of millions of farmers, but it also supplies the raw material that employs many millions of industrial workers in China's cotton textile industry. Cotton stands out in being one of China's most regulated commodities, after petroleum and natural gas. Free markets were only briefly experimented with in 1985 and 1992, but quickly abandoned. It has only been since WTO accession in 2001, that the commodity has undergone more extensive liberalization.[104] In addition, from the mid-1980s, textiles and garments replaced petroleum as the single most important export good and foreign exchange earner, and cotton and silk made up the vast majority. Given its importance across so many areas, it is no wonder that an alphabet soup of Beijing ministries and agencies along the chain from agriculture through domestic and foreign trade are heavily engaged in cotton. Chapter 2 narrates how the cotton boom in the 1980s was largely engineered by a slew of state policies, not the decollectivization of farms. Although state policies proved effective (if wasteful) in the cotton agriculture node, Chapter 3 highlights the effects of the push and pull of different political interests along the length of the cotton chain, a phenomenon I call 'inter-arena' politics, which sparked the cotton commodity wars.

[104] Alpermann 2010 focuses on this last period of market liberalization.

Table 1.2: Key Attributes across the Cotton, Wool and Silk Value Chains

	Structural Features	Co-Commodity	Government Level and Primary Interests	State Organizations and Policies
Cotton	High per capita arable land ratio	Food Grains Chemical Fibers	Center: Basic Needs Security, Foreign Exchange, Employment (Agri and Indus) Domestic Inflation	Many Ministries: 'Inter-arena Politics'
Wool	East-West Divide	Mutton Chemical Fibers	Local: Taxes, Employment	Decentralized
Silk	Global center of raw silk	Chemical Fibers	Center: Foreign Exchange	Foreign Trade Ministry

Wool and silk, as sideline agricultural commodities, do not garner this same kind of attention from Beijing, nor do structural issues like food and clothing security shape their development. However, despite their secondary importance, each commodities' unique industrial geographies and the nature of government interests in them creates wide variation in the set of government bureaus and policies regulating them.

In silk, the key structural factor is China's importance as the global epicenter for the production of silkworm cocoons and raw silk. By 1970, China had retaken Japan as the world's largest producer of raw silk and by 1980, China produced over 60% of world output, rising to 78% by 1994; as such, it dominated 80-90% of world trade.[105] Without competitors, European, Japanese and Korean processors became dependent on China for raw silk, prompting Beijing to control global prices by centralizing the silk chain within a single monopoly corporation under the foreign trade ministry. In contrast to cotton, in which different ministries and bureaus are engaged at different nodes along the production chain, silk has traditionally been regulated by only one state corporation which is in charge of all operations along the chain, from agricultural procurement to industrial processing and domestic and foreign trade. This is because despite its smaller size in terms of employment and fixed assets, its foreign exchange earnings are outsized. For instance, cotton textiles employed over 5.2 million workers at its peak, while silk employed about 1.6 million;[106] and yet in terms of *net* foreign exchange (exports minus imports) silk textiles earned nearly as much, and by the late 1980s, actually earned more than the massive cotton industry.

Wool lacks the national importance of either cotton or silk, and it is marred by serious divisions in its agro-industrial geography. Sheep are largely reared in the remote grasslands of western China (largely Inner Mongolia, Xinjiang, Gansu and Qinghai

[105] *Zhongguo sichou nianjian 2000*: 569.
[106] See *Zhongguo fangzhi gongye nianjian* 1992: 255, 293-4 for the peak in cotton textiles employment and *Zhongguo fangzhi gongye nianjian* 1995: 159, 177-78 for the peak in silk employment.

provinces), but the demand for wool from industrial processors is concentrated along the coast, a legacy of China's colonial period. Furthermore, wool's co-commodity, mutton, possesses its own geographic division in which consumption remains largely in the west where the sheep are reared. During the pre-reform period, the state commercial system took responsibility of linking the western herders with the east and balancing the relative end uses for mutton and wool. Mao-era industrialization attempted to reverse this geographic split by locating some major plants in the urban areas of western China and these became some of the most important industrial units in some cities of the west, particularly for local foreign exchange earnings, locally retained taxes and urban employment. However, as I show in the empirical chapters, despite the quicker pace of domestic liberalization in wool, this geographic division ironically deepened over the course of the reform era. This was partly because apart from regulating the imports and exports of raw wool, Beijing has regulated wool and mutton much less in comparison to cotton and silk, leaving provinces and counties under greater control.

In summary, a different set of organizations and regulations were built up around the three main textile fibers and industries, and each according to different combinations of state interests and structural factors. China reformed each of them in a different way and at different points in time. It is this variation between commodities which provides the basis for re-evaluating China's transition towards a market economy.

Chapters 2 and 3 re-examine the major market reforms of the 1980s and demonstrate that it is the differences in organization and regulation at the commodity level which are the key intervening factors determining the influence of the major economy-wide institutional changes. Chapter 2 compares across cotton, wool and silk agriculture and reconsiders the role of the decollectivization of farms and the dual-track pricing in agriculture in fostering China's unprecedented agriculture boom in the 1980s. While most scholarship has focused on the decollectivization of farms to households, I find the combination of price and other agriculture policies at the commodity level better explains the timing and patterns of change in agriculture over this transitional period. Chapter 3 conducts a similar comparison, but this time by moving downstream to the textile industry node to reconsider the role of fiscal decentralization on China's industrial development and in creating the 'commodity wars,' which were struggles between local governments over control of agriculture harvests. Again, the timing of industrial investments and the wars in each commodity is better explained by the change in policy and organization along each commodity chain, than by fiscal decentralization.

In chapter 4, we find that it was these wars and their impact on domestic price inflation which induced the dual crises in industrial profitability and export competitiveness in textiles and garments in the early 1990s. The new technocrats in Beijing dealt with these crises by re-orienting domestic firms towards technological renovation and restructuring the foreign trade and investment regime which integrated China more deeply into East Asian production networks. Thus, my findings are broadly similar to other scholars who have re-interpreted the 1990s as a 'reversal' of 1980s policy and direction. However, I depart from them in locating the source of this reversal in the malfunctions of China's 'localized and extensive' growth of the 1980s.

Since the 1980s and 1990s was a period when global production was experiencing a fundamental transformation in organization, China's pattern of trade and inward foreign

investments over the 1990s was sculpted to East Asia's cross-national networked production, a hallmark of the regional economy. Chapter 5 examines the impact along the value chain of China's integration into East Asian production networks in terms of the articulation between the up- and downstream of the textile and garment chains, as well as how 'value' was distributed across different social groups along the value chain, including farmers, industrial workers and factories. We turn first to China's agriculture boom in the early 1980s.

Chapter 2

The Agriculture Boom 1978-85: The Changing Context of Household Farming and Markets

Introduction

In the early 1980s, the Chinese countryside experienced an unprecedented agricultural boom which sparked structural changes in the overall economy. The reforms in agriculture were the first and perhaps most significant change in the thirty years of Chinese reforms, in no small measure because of the dramatic increase in rural incomes. While it is often noted that China's thirty years of reforms have lifted more people out of poverty than at any other time period in history, World Bank studies have found that no less than half of this poverty alleviation occurred between 1978 and 1984, the period of China's agricultural boom.[107] This boom led to demands for new forms of consumption, which stimulated a range of industries, especially in housing construction, consumer durables and textiles and apparel. Household savings were absorbed into reinvigorated rural banking cooperatives, which, in turn, made loans to rapidly expanding rural industries, one of China's most distinctive developmental trends. These new forms of industrialization, along with expanding rural transportation, trading and other services began to soak up China's excess and underemployed agricultural labor force. In a word, the agricultural reforms sparked structural changes in China's economy with major implications in other parts of the economy, including state-owned urban industry and interregional commerce.

There is a widely held belief among many in the scholarly community and Chinese officialdom alike that the agriculture boom was the result of the dismantling of collective farms and the return of usufruct land rights to Chinese farmers (decollectivization), in combination with the re-opening of rural markets. It is argued that in contrast to collectivized agriculture, decollectivization shifted the incentive structure of farmers so that their labor was directly tied to rewards.

Decollectivization and marketization were certainly the most dramatic reforms of this period in terms of transforming the *everyday lives* of hundreds of millions of farmers; however, I argue that the boom in agriculture was heavily dependent on complex webs of institutions which regulated each commodity differently. This partly can be seen by comparing how decollectivization and marketization played out across different commodities. In the period covered here (1978-1985), cotton harvests boomed, wool fibers deteriorated in quality and quantity and silk remained unmoved by the change to household farming. These differences are not simply because some commodities are more or less suited to household farming, though there is some evidence below that this is

[107] Chen and Ravallion (2004); Ravallion and Chen (2004).

true too.[108] More importantly, this variation is due to the web of state institutions and policies which regulated each commodity. Like beams of light through a prism, household farming and markets were bent and altered according to the larger institutional 'context' regulating each commodity.

In cotton and its co-commodity, grain, in almost every important aspect of cultivation and commerce, household farmers were 'embraced' by an array of different state agencies. This is because cotton in the 1980s was unique in sitting at the crossroads between food security and clothing requirements before the advent of a significant chemical fiber industry in the 1990s.[109] The introduction of household farming and rural markets were thus molded to the particular state institutions and policies regulating cotton, itself an outgrowth of the structural situation of China's food and clothing security dilemmas. As this chapter argues, China's largest ever cotton boom which peaked in 1984 was induced by this complex set of state institutions, not household farming. This is reinforced by events after 1984 when cotton harvest plummeted as the government withdrew its supports, due to the excessive pressures which state procurement of cotton and grains imposed on state fiscal expenditures, forcing Beijing to restructure its relationship with cotton and grain farmers. Although markets in raw cotton itself were banned, the change in the institutional linkages between cotton farmers and the state introduced new market forces, and with it China's ability to satisfy the industrial demand for cotton textiles.

In wool, the introduction of household husbandry in sheep rearing and the 'partial' opening of rural markets in mutton proved quite destructive to wool production and wool fiber quality. This was largely due to the uneven institutional regulation between wool (in which open market exchange was banned) and its co-commodity mutton (which was not). This chapter illustrates how the interpenetration of economic planning with newly opened markets created conditions for a rapid shift towards the market track within the sheep economy. This partial marketization of wool and mutton, when combined with the east-west geographic division between wool processing and sheep rearing, generated a series of negative results, including an undersupply of wool fibers and a deterioration in their quality resulting in a decline in the quality of wool textiles, and the deepening of the geographic division between eastern and western China in the wool economy.

Finally, as mentioned, government interests in silkworm cultivation is dominated by its potential for foreign exchange earnings, which is reflected in the influence of the foreign trade ministry in every aspect of the silk value chain. Given the silk chain's organizational design, household farming had no noticeable impact on cocoon cultivation. Chinese sericulture and the silk industry were so linked into global production via the foreign trade ministry that the behavior and incentives facing farmers under the collective and later as independent farmers was largely determined by changing global trends, not the organization of production. Both forms of organization were

[108] For instance, there was resistance to the dismantling of collective farms in certain regions of China, such as the large grain fields of northeast provinces and the Yangtze delta region. See Riskin 1987. I address this issue in the decollectivization of sheep flocks and pasturelands, though the problem was more an issue of how to decollectivize, not whether sheep herding was appropriate for households to conduct.

[109] In the 1979, between 75-80% of textile yarns were composed of cotton, which gradually declined in the 1980s and 1990s. Naiz 1979.

equally effective within the larger organizational milieu which regulated silk. Lacking the sort of complex organizational structure in cotton and grain, the ministry quite readily mediated the connection between changing trends in the global silk industry and domestic cocoon cultivation. It provided incentives during periods of rising global demand and deflated these in periods of global recession. Given its influence, differences in the organization of production were largely inconsequential to cocoon cultivation and to the cultivators themselves since their prosperity fluctuated in line with global demand.

In all three commodities, the broad institutional changes and policies were identical and remained constants: household farming was introduced, markets were banned and the state increased its procurement prices in all three. In order to explain the variation in outcomes and the influence of the institutional changes, we have to consider the different organizational and regulatory 'contexts' of each commodity and how they *interacted* with their co-commodities, like grains or mutton. Each commodity possessed its own unique institutional 'context' which acted as an intervening factor in the introduction of household farming and rural markets. It was these factors which contributed to the formation of prices, attracted the newly independent farmers and led to the different outcomes across these three textile fibers.

In addition, a comparison of the three commodities illustrates how the analytic meaning of an institutional change, like decollectivization or marketization, transforms over time not on account of changes to the particular institution under consideration which remain constants, but on account of changes in the 'web' of institutions that in composite create the 'context.' The entwinement of decollectivization within the broader web of organizations and policies requires a rethinking of decollectivization itself as it transformed in line with state reforms at other nodes along the production chain. For instance, in cotton, the implications of decollectivization for farming households during its initial phase (1980-1983) depends on the state's adjustments in the prior period (1979-80), which then transforms in parallel with the gradual push to marketization in the following phase (1983-85). After a literature review and some background on agriculture in China, I sequentially narrate the introduction of household farming and marketization in cotton, wool and silk, in that order.

Literature Review and Background: The Liberal-Institutional Interpretation of Decollectivization and Marketization

After two decades of collectivized agriculture, the return to household farming and markets was a major repudiation of one of the pillars of the socialist economy in China. Farmers, once beholden to state planning and substantial extractions to feed and clothe urban workers, became increasingly free to control their own labor power and assets. Without a doubt, in terms of the daily life and struggles of the farmer, decollectivization meant everything in the world. Their labor was now theirs to command.

Given the momentous change in farmer's everyday lives, decollectivization has retained center stage in most explanations of the China's rural transformation – the hallmark of China's early reform era. For instance, it is common among specialists of Chinese agriculture to divide the agricultural reforms into two periods: the first (1979-1984) dominated by the decollectivization of agricultural production, and the second

(1985-1988) dominated by the liberalization of agricultural commerce.[110] In this, they are in agreement with some of China's top officials and scholars of the agricultural reforms themselves, such as Du Runsheng,[111] Hu Yaobang and Fan Gang.[112] Major studies by the State Council's Rural Development Research Center as well as key agriculture policy statements, such as the pivotal Central Document Number One of 1983 clearly highlight decollectivization as the key institutional change creating the boom in the countryside.[113]

A twenty year debate over the initiation and implementation of household farming has reinforced scholarly attention on decollectivization. This debate focused on whether decollectivization was a Leninist top-down policy prerogative of key elite reformers;[114] a bottom-up, unorganized and spontaneous response of the Chinese peasants;[115] or a multilevel dynamic involving the peasants, one or more levels of local leaders and central elites.[116] While this debate was very fruitful to larger debates on the complex, multi-tiered dynamic of state-society relations in China, it has perhaps unwittingly reinforced our attention on the centrality of this one reform, obscuring much of the context of the agriculture boom.

Scholars who focus on the agriculture boom overwhelmingly point to decollectivization and marketization as the critical 'liberal-institutional' change.[117] By some accounts between 70% to 80% of agricultural growth and productivity growth is attributable to these institutional changes.[118] Although earlier, first-hand accounts of decollectivization are generally more cautious and even-handed about the potential of household farming, they often ultimately argue in line with this institutional interpretation.[119] It is important to explain the logic behind this belief, which first requires an understanding of collectivized agriculture.

Collectivized Agriculture

While changing over time, the most important unit of production in collectivized agriculture after 1962 was the production team (*shengchan dui*), which typically consisted of twenty to thirty households. [120] Although land was inalienable, production

[110] Walker, 1988; Ash 1988, 1992; Fan 1997, Lin 1992, Mead 2003
[111] Beijing Review 30 (1981): 19
[112] Kojima 1988: 706; Crook, 1985
[113] See *Guowuyuan nongcun fazhan yanjiu zhongxin* 1985. It goes without saying that in the midst of ideological struggles surrounding agricultural reforms, any policies and public statements made by officials should not be taken out of context and construed as non-political evaluations of the reforms.
[114] Unger 1985; Hartford 1985.
[115] Kelliher 1992, Chapter 3; Zhou 1996, Chapter 3; Watson 1983.
[116] Fewsmith 1994, Chapter 1, Zweig 1987, 1997 (AS)
[117] Lin 1992: 45-6, Lin 1988: 199; McMillan et al 1989; Wen 1993: 30; Kueh 1985: 122-24; Fan 1991: 271-2, Mead 2003: 117; Carter et al. 2003: 54; DeBrauw, Huang, Rozelle 2003: 25; Fan1997: 226; Kalirajan et al, 1996: 338; Lardy 1986: 456.
[118] Lin 1992 and McMillan, et al. 1989.
[119] See Khan's and Lee's chapters in Griffin ed. 1984.
[120] There is an enormous literature on the collective period. For general but detailed overviews, see Donnithorne 1967, Riskin 1987. For more detail, see Lardy 1983 especially for issues of regional comparative advantage and specialization, and Oi 1989 for an on-the-ground, local perspective.

teams controlled usufruct rights and often owned small farming tools.[121] Teams were responsible for fixed state quotas and were required to follow state production plans which instructed them on sown areas for each crop, planting densities, intercropping ratios and so forth. Furthermore, after the state extracted agricultural taxes and reimbursed the teams for its allotted quotas at state-set prices, all team income that was not required to be put aside for collective purposes, was divided among team members according to one of many possible work point schemes.[122] In addition, a certain quantity of grain (and other quota crops) served local consumption needs. If this proved insufficient, such as in poor or disaster-ridden areas, theoretically the state would supplement them up to a predetermined minimum caloric level (which was lower than international standards).[123]

The dominant institutional interpretation argues that in contrast to collective farming where hard work was under-rewarded through egalitarian work point schemes and heavy state extractions, household farming *aligns individual incentives to labor*. This, together with the opening of rural markets in some agriculture goods, provided a new incentive structure to farmers, sparking the boom in agriculture. Decollectivization also meant that many aspects of state quotas and command planning were ended, such as sown area quotas, cropping densities, timing of sowing, usage of tools, and other frequent state intrusions of the collective era.[124] Instead, the state simplified the transaction with producers by contracting the usage rights to the land for the delivery of state quotas at state prices. Most importantly, farmers regained the right to their own labor power and assets. This was welcomed by many, especially in regions unfit for collective farming. Other regions, however, resisted decollectivization as did many grassroots cadres who resented relinquishing their influence.[125]

In the institutional interpretation, this also meant that farmers, who possess the most subtle knowledge of local conditions, were freed to transform China's regional cropping patterns. Beginning in the Great Leap Forward (1958-61) when the policy of 'taking grain as the key link' (*yi liang wei gang*) first began, but especially from the start of the Cultural Revolution in 1966, central planners insisted that all administrative units, including provinces, counties and communes, achieve self-sufficiency in grain production before diversifying into other crops. It was believed that regional self-sufficiency would be crucial for China to win a war of attrition against the Soviet Union or United States, both of which had amassed military build-ups along or near China's borders by the 1960s.

This policy significantly altered China's cropping pattern. Areas with fertile grain production, such as many rice-growing southern provinces were quickly able to achieve grain self-sufficiency, and hence began growing major cash crops which were traditionally grown elsewhere. For instance, cotton farming migrated from the provinces

[121] Large machinery and other inputs were often rented to teams by higher level units or were public goods and shared.
[122] These change in their degree of egalitarianism over time.
[123] Oi 1989: 47-8.
[124] See Lardy 1983.
[125] There is substantial evidence that decollectivization was imposed on some collectives, especially those in which economies of scale were effective, such as the large farms of the northeast, or where other benefits of collectivized resources worked well, such as peri-urban areas in the Yangtze Delta regions. Because household farming eventually became official policy, cadres were pressured to break up viable collectives. Riskin 1987: 298.

of the North China plains, most importantly Shandong, Henan and Hebei provinces, to the more southern provinces of Jiangsu, Anhui and Hubei.[126]

With the gradual change in leadership after Mao's death, central policy shifted away from this grain-first strategy.[127] The reduction of planning and targets entailed by decollectivization, along with the reopening of periodic rural markets, allowed greater freedom for households to make cropping decisions and hence returned Chinese agriculture to a more natural pattern of cropping which taped into each region's comparative advantage.

There are dissenters to this liberal-institutional understanding of the agriculture boom. Many of them point to *technological advances*, such as the increased use of chemical fertilizers, as better explanations of the abundant harvests.[128] For instance, Bruce Stone, at pains to focus on the hidden accomplishments of the late Mao era, argues that the combination of three major technological advances – better water irrigation, new seed varieties and, (chronologically last) chemical fertilizers in the late 1970s – contributed most to the agricultural boom of the 1980s.[129] Implicitly, their argument is that the boom would have occurred regardless of the institutional changes in farming as China became technologically poised to expand food production through a 'green revolution' – a longstanding goal of political elites. In yet another interpretation, economists like Terry Sicular have focused attention on government price increases which were instituted first in 1979 with many adjustments each year.[130] While I hold sympathies with those who examine factors like technological improvements and government prices, I see these as just part of the many ways in which decollectivization and marketization were entwined within a web of state institutions and policies which together constitute the 'context' of different commodities.

Remaining scholars either demur from making causal claims by arguing that reforms were simultaneous and thus too difficult to differentiate causality;[131] or they offer useful summaries of the reform years without addressing the issue of causality or ranking the importance of various reforms.[132] Without a doubt, however, the dominant explanation remains the liberal-institutional interpretation of decollectivization and marketization.

State Pricing, Household Farming and the 'Face' of State Regulation

By examining specific commodities one at a time, we are able to avoid a major pitfall of many studies which examine agriculture in the *aggregate*. Most studies cited above rely on aggregated price measures of agricultural growth, most commonly the gross value of agriculture output (GVAO). Chapter 1 already addressed the conceptual

[126] Blecher and Wang 1994.
[127] Lardy 1983: Chapter 1; Fewsmith 1994, Chapter 2.
[128] Fan 1991, Huang and Rozelle 1996, Stone 1988, 1993.
[129] Stone 1988: 819-820; Stone 1993: 352
[130] Sicular 1988, 1992a, 1992b, 1995.
[131] Lardy 1986: 452, Hartford 1985, Zweig 1987: 257, Surls 1986: 338, Crook 1985: 301, Stone 1985: 114; Riskin 1987, Chapter 12.
[132] Walker 1986, 1988, Ash 1988

pitfalls of aggregate data based on prices, especially during the early reform era, and we will see concrete examples below of how state and market prices became so entwined. To sidestep the problem of price, I examine the trends in these three commodities in terms of tonnage, rather than value.

The following figures illustrate well the variable outcomes of both the initial state price increases of 1979 on cotton, wool and silk and the introduction of the household responsibility system (HRS) using 1981 as the baseline year (Figure 2.1). Although in reality household farming was introduced over a period of time from 1980 to 1983, 1981 is a common conservative baseline because by then substantially more than half of households had reportedly been contracted a parcel of land. Similar to most other crops, the 1979 state price hikes appeared to have positively motivated the members of (still) collectivize farms to increase production in the three crops considered here.

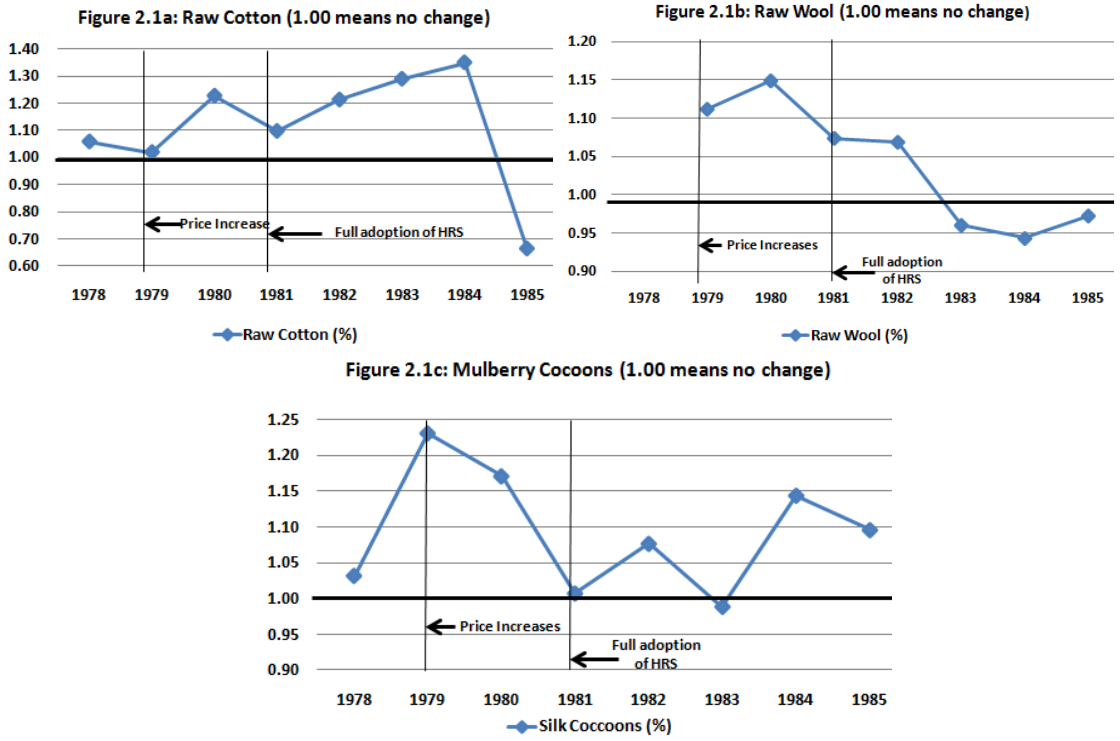
In cotton at least, the introduction of household farming appears to have incentivized cotton farmers as harvests expanded by 10-35% each year between 1981 and 1984, and this is at a *compounded* rate of increase.[133] In fact, cotton harvests grew much faster than all other crops over these years, including those food grains which are intercropped with cotton (like wheat); this indicates it was very likely the price and policy changes, not weather or other factors related to farming, which account for the over-abundance in cotton over these years.[134] In fact, as we will see below, the difference in size of the cotton harvest between 1980 and 1984 was the equivalent to the entire annual cotton harvest of India, a staggering amount of extra cotton that China's textile industry was never able to process.

By contrast, starting in 1981, newly independent wool herders turned away from wool (and harvested poorer quality wool fibers over this period) despite the increase in state procurement prices. Similarly, household silkworm cultivators appeared equally unenthused from 1981 until the state increased silkworm cocoon prices for a second time in 1984. In the case of wool and silk, one might argue that the jump in production from the 1979 price hikes may naturally have led to a gradual decline in production given the one-time temporary surpluses. First, the case of cotton contradicts this claim. And second, industrial expansion in silk reeling and especially in wool spinning was increasing at a much more rapid pace than the agricultural goods, so there was enormous new industrial demand for these commodities. This implies that there was something else besides the influence of household farming or industrial demand that was motivating cultivators in these two fibers.

[133] The figures show the percentage increase over the prior year, so the 35% increase in cotton harvest in 1984 was on top of all of the increases in the prior years.

[134] For instance, in Figures 2.3 below, either wheat or cotton experience very flush harvests in these two adjacent provinces, indicating that in none of these years was weather a significant determinant factor of yields. If weather was a key factor, we would see a drop or increase across many crops, especially those that are intercropped like cotton and wheat in North China.

Figure 2.1: Percent Change in Agriculture Harvests 1978-85



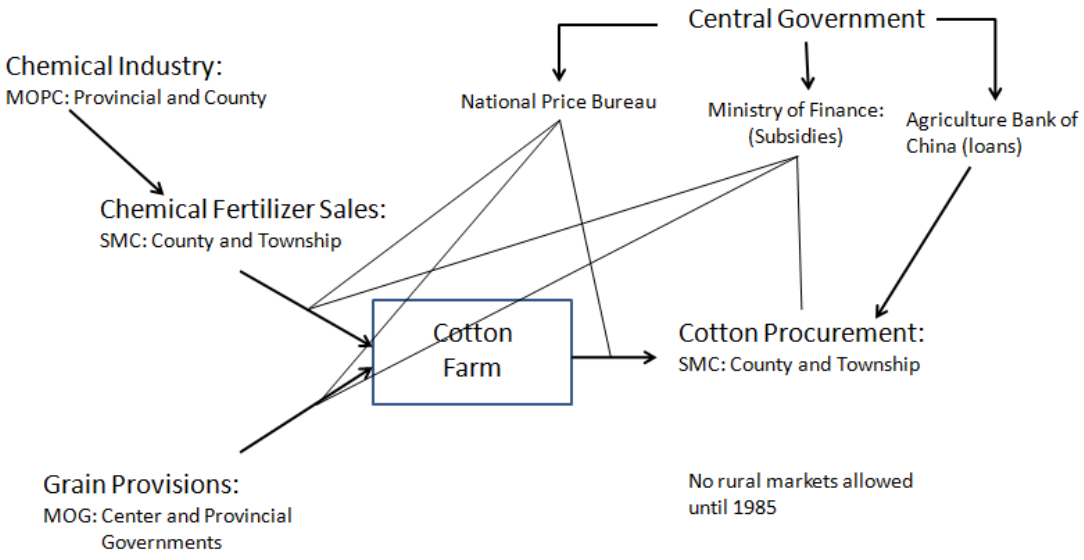
Sources: Raw Cotton: *Zhongguo tongji nianjian* (various issues). Raw Wool: Zhang et al. (1996): 136.
Silk Cocoons: *Xin zhongguo sichou shiji*: 948-955.

These commodity by commodity comparisons are admittedly crude. This is partly because just like it is less meaningful to study all of agriculture in the abstract aggregate, it is equally problematic to study a single commodity in isolation. For instance, any piece of land with its particular soil type, access to water resources and local climate can be used to plant a range of crops. As such, in the sections which follow, I incorporate the different co-commodities associated with cotton and wool (silk lacks a co-commodity). Furthermore, in the case of cotton farming, the 'successful' instance of household farming in our comparison, I examine the state institutions which 'embraced' the cotton farmer in the up- and downstream. In China, even though the cotton farmer may have been formally freed to make more cropping decisions in the early reform era, well-functioning producer and consumer goods markets largely did not exist. With the exception of the reinvigoration of local rural markets in 1978 (which still did not exist in cotton), the typical farmer still faced the state at every turn. It is this all-encompassing presence of different state institutions which constituted the broader 'context' within which household farming in cotton was carried out.

From the farmer's perspective, 'the state' took on various guises. At times, it consisted of faceless prices and quotas ultimately determined by the State Council and ministries in Beijing; at other times the state was the local Supply and Marketing Cooperative (SMC) purchasing station which procured their cotton harvest for the

Ministry of Commerce (MOC), or the supply store which sold them production inputs like fertilizers, pesticides or plastic sheeting; still at other times, it was a team or village leader enforcing regulations or permitting their violation by turning a blind eye.[135] Figure 2.2 illustrates the organizational 'face' which shaped the farmers economic environment and choices. The remainder of this chapter illustrates how this institutional web transformed over time. As I show, between 1979 and 1983, the shifts in state institutions and policies induced an economic boom in crops like cotton, and then in later periods squeezed the farming household through changes in prices and state organizational power. In Figure 2.2 and in my explanation later, I necessarily simplify the institutional web that bound the cotton farmer by only considering three basic elements: *grain provisions* provided through the Ministry of Grain (MOG) network which allowed cotton farmers to specialize, *chemical fertilizer and pesticide* production, and input and output *prices* determined by the central state, but implemented by the county SMCs and their local stations.[136] Due to the complexity of state interests in cotton, the narration of the cotton node is quite long and involved. After cotton, I examine the more straightforward cases of wool and silkworm cocoons.

Figure 2.2: The 'Face' of the State by Hierarchical Level



The Cotton Boom: Decollectivization in the 'Embrace' of the State

Between 1979 and 1984, China experienced a historically unprecedented boom in agricultural output, and cotton was the exemplar case. Although cotton is grown in many

[135] Oi 1989 provides the most fine-grained account of this, especially the role of local village and team leaders.
[136] For simplicity, I ignore the provisions of many other inputs, such as various mechanized machinery, electricity, irrigation, and improved seed varieties. While important, they are often public goods in China and not as directly part of the *choices* facing the household or team. Other inputs, such as chemical fertilizers or pesticides, do allow for choices and will be considered in detail. These public goods are important. Some have argued that the elimination of collectives undermined the ability of farmers to act collectively to maintain, improve and share in the usage of these essential goods.

provinces, I primarily focus on the North China plains region (and in particular Shandong province), which regained its mantle as the cradle of cotton production over this period. In 1979, the three core North China cotton-growing provinces (Shandong, Henan and Hebei) produced only 22.5 percent of the national output; this rapidly rose to 56.6 percent by 1984.[137] However, as I explain in Appendix I, it is impossible to study cotton by itself since it competes with wheat (and corn to a lesser extent) as substitutes in this region. As the two most strategically important crops, grain and cotton followed a similar developmental trajectory, in part because they drew the most attention from the central state.

The intellectual pitfalls of not disaggregating by product and region is well illustrated by data covering the period of decollectivization in two major agricultural provinces of the North China Plains: Shandong and Henan.[138] From Figures 2.3, it is clear that with the exception of wheat, there is a quick outburst of harvests in the 1979 and 1980 growing seasons, especially among the cash crops, such as oilseeds and cotton.[139] These data covers the major grains and cash crops of this region which altogether account for 60 to 80 percent of sown area between 1978 and 1984.

There is a problem, however. This pattern is nearly the *opposite* one would expect as a result of decollectivization. While national level data shows a rapid transition to family farming in 1982,[140] others have pointed out that some provinces transitioned earlier (Sichuan, Anhui) while others transitioned rather late, sometimes after the ousting of recalcitrant provincial leaders (such as in Hebei).[141] The two provinces examined here were average in their transition, but household farming cannot be said to have taken hold until 1981 *at the earliest*. In Shandong, household farming was introduced in only 13.5 percent of teams in 1980, but this quickly rose to 51 percent in

[137] Calculated from USDA ERG database.

[138] The logic of regional disaggregation by no means ends at the provincial level. Further insights can be found no doubt through data at the county, commune/township and even lower levels.

[139] In Henan, cotton, peanuts and rapeseed output rose between 73 and 107 percent in these two years. Shandong peanuts increased 32.5 percent in 1980 and cotton output skyrocketed by over 220 percent. Thereafter, growth rates retreated significantly for the 1981 and 1982 seasons, though cotton output remained high in Shandong as did rapeseed in Henan. With the exception of wheat in Henan, grain output mimics this pattern as well: relatively high production in 1979 and 1980, and then tapering off or turning negative starting in 1981. Then, in 1983 and 1984, corn and wheat return once again to high rates of output.

[140] By household farming, I group both baochan daohu and baogan daohu together, even though only the later form of household farming constitutes the more radical decentralization of decision-making. See Hartford 1985, Kueh 1985 for further discussion of these points.

[141] Blecher and Wang, 1994. Jiangsu and the three northeast provinces were other areas where collective farms seemed to work well and household farming was resisted.

Figure 2.3: Annual Harvests in Main Staple Crops in Shandong and Henan

Shandong Province

Figure 2.3a: Percentage Increase of Cotton and Peanut Output in Shandong Province, 1979-84

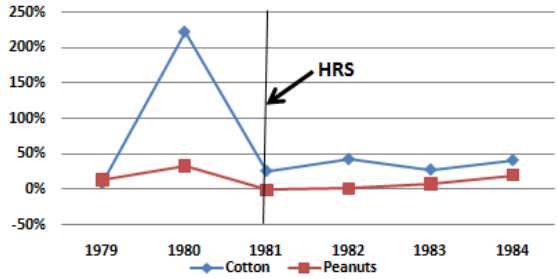
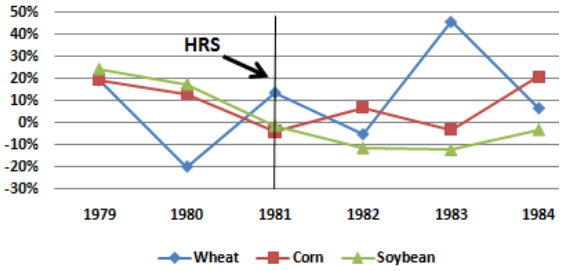


Figure 2.3b: Percentage Increase of Wheat, Corn, and Soybean Output in Shandong Province, 1979-84.



Henan Province

Figure 2.3c: Percentage Increase of Cotton and Peanut Output in Henan Province, 1979-84

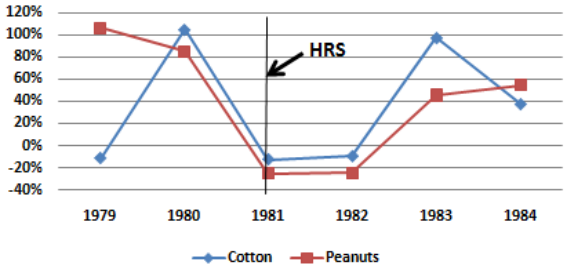
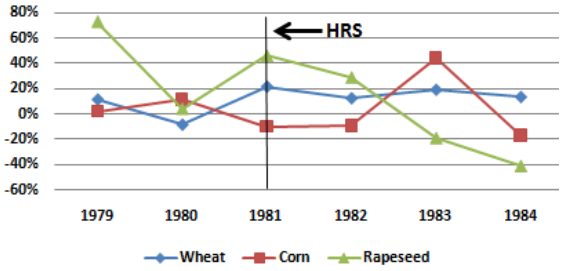


Figure 2.3d: Percentage Increase of Wheat, Corn, and Rapeseed Output in Henan Province, 1979-84.



Note: HRS indicates year of substantial introduction of the household responsibility system. *Source: USDA ERS Database*

1981 and 65 percent in 1982. By, 1983, it was nearly universal.[142] Henan was slightly quicker. At the end of 1980, only 18.14% of teams had introduced household farming, while by the end of the following year, this had jumped to 72.11% and became nearly universal thereafter.[143] In both cases, however, this outburst of production occurred at least a year *before* the dramatic shift to family farming had even occurred. Clearly, in North China's most important agricultural region, the old collective form of organization, despite its purported failure to link rewards to individual incentives, was more than capable of nimbly shifting its resources and labor power according to the price and non-price incentives offered by the state – what Nicolas Lardy calls "indirect planning," or planning through incentives rather than through command.[144]

In staple crops, like grains and cotton, the state used a wide array of regulatory tools to coax both production teams, and later family households to supply the state with an enormous amount of these key agricultural goods. Figure 2.2 above graphically illustrated the web of relations which linked the cotton and grain farmers to the state; in these crops, the state manipulated these points of contact (and many more not illustrated) in different combinations to create a very distinctive "push-pull" dynamic. On the one hand, the state "pushed" the farmer by providing some key production inputs, such as

[142] *Shandong sheng: nongye zhi, 2000: 121-123.*
[143] *Henan sheng: nongye zhi*, 1993: 62-4.
[144] Lardy 1983.

chemical fertilizers, pesticides, plastic sheeting, diesel fuels, as well as guaranteed supplies of grain to enable cash croppers to rapidly specialize. Secondly, through the state provision of food grain, not only individual farmers, but entire regions very quickly were enabled to specialize in cash crops. Finally, the farmer was also "pulled" by means of price incentives, which were adjusted almost every year in an attempt to achieve the optimum price ratios between cotton and grain, set according to state goals and fiscal constraints. In these staple crops, the state price system over this period was 'rigged' to ensure that household farmers were thoroughly incentivized to grow staples regardless of market price movements (in grains).

As we will see, the state pushed and pulled to such an extent that before long, China experienced an unprecedented supply glut in these crops. By 1984, there was so much cotton and grain, that the state far exceeded its storage capacity. Having exceeded the storage limits, Beijing urged local governments to find any means to store the cotton, which they did by commissioning households to store grains and cotton, licensing specialized storage households (*zhuanye hu*), renting out public and private rooms, and still untold tons were left in the open-air, unprotected and rotting. In later sections, I show that in cotton and grains, the cost of purchasing and storing this much output put inordinate fiscal strain on central state coffers, which starting in 1983 began to reshape its relation with the farmer by reducing its price and input subsidies substantially and altering the way it contracted with households. But, in addition, and largely unconnected to the glut situation, the state began to alter its relationship with its own local-level agents who dealt directly with the farmer through the procurement and supply stations belonging to the Ministry of Grain (MOG) and Supply and Marketing Cooperative (SMC) networks. Through fiscal and enterprise reforms, the county level units became less "agents" to the state and more independent economic actors. These transformations reshaped the very meaning of transacting on markets for the farming household and the milieu within which the now decollectivized household conducted their labors. The Chinese farming household entered a new phase in which a new type of market emerged that changed the meaning of household farming. These pressures led to *declining* real profits in the second half of the 1980s. This is surprising and the opposite of one would expect for the latter half of the 1980s, a period when local governments were fighting tooth and nail for raw materials like cotton, a phenomenon called the 'commodity wars.'[145] In this sort of frenzied seller's market, one would expect farmers to be further enriched. The roots of declining profits in cotton are a result of these systemic changes from which a new type of market emerged, giving new meaning to decollectivized agriculture. This is the topic of the current chapter, while the commodity wars are the topic of the next.

I begin by narrating the extensive system of subsidies and support through which the government 'embraced' cotton production teams and later households. By using the term 'embrace' I do not wish to imply that the state's goal was to protect farmer interests; rather it is to imply that the state's involvement was all-encompassing and its presence felt at every turn. In Jean Oi's detailed study, farmers clearly understood the state quotas

[145] Much has been written on the commodity wars. Some key works include Wedeman 2003; Watson et al. 1989; Zhang et al. 1996; Etherington and Forster, 1993: Chapter 8; Young 2000; Watson and Findlay 1992.

and fixed prices as an exploitative and extractive force, even in the post-collective world of household farming. From a grassroots perspective and to the extent that farmers were still required to fulfill quotas, this is true. However, while hierarchical controls certainly remained, the state nonetheless successfully managed to spur farmers to produce at historically unprecedented rates, and in the process dramatically increased incomes and reduced poverty. I look at this larger system and the roles of different level of the state apparatus in achieving this feat. While this does not preclude the exploitative and extractive nature of the relationship, the record of output makes clear that the farmers worked with great enthusiasm. The state's 'embrace' of both teams and later households created a highly incentivized environment in these staple commodities which was *rigged* for explosive output growth. When the incentives and system changed, farmers' income and profits declined as they were increasingly forced to face a more hostile marketized environment.

The 'Pull' of State Prices

I begin by narrating the "pull" factors. These consisted of crop-specific state procurement price increases which occurred between 1978 and 1980 for most crops and were subsequently adjusted on a yearly basis. Unlike most economists, Terry Sicular has been one of the few proponents in arguing that state price and commercial policy was the crucial contribution to the agricultural boom.[146] While others occasionally agree that price increases partly contributed to the boom, they generally find its contribution to be far inferior to decollectivization.[147] Instead of arguing which independent factor is more or less important than the other, I argue that the state's pricing system has been largely misinterpreted by many because most have failed to differentiate the role and meaning of state pricing and market pricing, and their intimate interpenetration during these early reforms. Similar to my prior discussion on GVAO, prices have been uncritically utilized with assumptions drawn from a market economy.

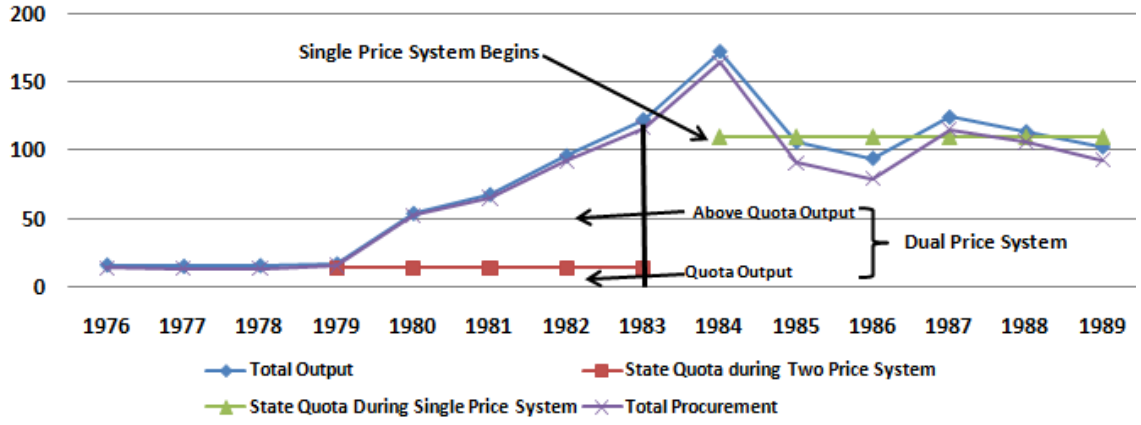
Beginning with grains and edible oils in 1953, and coming into its fullest form in the late 1950s, all strategic crops were placed under "unified purchase and unified supply" (*tonggou tongxiao*) which constituted a state monopsony at state prices and planned quantities.[148] Although the reasons for the creation of this system are subject to wide debate,[149] there have since been periods of both increased constraints followed by some relaxation throughout the pre-reform era. In this system, goods were assigned to one of three categories. The most important, "category one" goods, such as grains, cotton, edible oils, silkworm cocoons and some types of wood, received the most state regulation, and procurement of these goods was the primary duty of the state's procurement agents, such as the sprawling Ministry of Grain (MOG) and the Supply and Marketing Cooperatives (SMC) rural networks. Some of these goods were never allowed onto rural markets (such as cotton, except for a few experimental years), while others

[146] Sicular 1988, 1992.
[147] Lin 1992 claims that no less than 75% of the productivity growth came from decollectivization and McMillan, et al. 1989 arrive at a figure of 78%.
[148] Perkins 1966.
[149] Interpretations range from an intentional and planned creation of a centralized command economy to the threat of private traders to the regime. See Donnithorne (1967); Shue, (1981), Chapter 5; Walker (1984), Chapter 2; Oi 1989.

were allowed during periods when ultra-leftist politics waned. For these goods, prices were fixed at the national level and production units had two quotas to meet. The first "unified purchase" quota (*tonggou*) fetched the lowest state prices (*paijia*); any production in excess of this, while also considered a mandatory quota, was rewarded with an above-quota bonus (*chaogou jiajia*). For instance, these two sets of quotas with their two prices are graphically illustrated in Figure 2.4 during the period 1979 to 1983 for the case of cotton in Shandong. The lower line represents the quantity of the unified purchase quota and the rising line from 1979 and after represents the new above-quota bonus pricing and quota. It should be noted that cotton markets were banned, so this second quantity was also a mandatory quota, but at a bonus price. In 1984, the quota and pricing system changed once again to a single price and quota system, which is explained later. Finally, after both of these quotas were fulfilled, farmers might be permitted to sell on the rural markets. Alternatively, they could sell more to the state at a "negotiated price" (*yijia*), which in theory was supposed to be competitive with market prices, but was also used as a tool against market price inflation.[150] "Category two" goods, such as non-staples like meat, eggs, wool, tobacco, sugar and key export goods like teas and cashmere, were far simpler in administration. They had only one quota (*paigou*) and one quota price (*paijia*), after which they entered rural markets or were purchased by the state at negotiated prices. Some key export goods and goods with strict monopolies on production, however, were not allowed on rural markets, such as silkworms, wool and uncured tobacco (though cigarettes were). Finally, "category three" goods were regulated more by individual provinces, though under the guidance (*zhidao*) of central bureaus which might impose price ranges or other regulatory mechanisms. A group of very minor agriculture goods were not categorized and remained unregulated.

[150] For instance, in grain, this price was not supposed to be higher than twice the base price. Furthermore, grain procured by the state according to negotiated prices (*yigou*) was linked to the negotiated prices at which it was sold (*yixiao*). This was to limit the marketization of grain units as the linking of the prices prevented high commercial profits margins by state units. For instance, if negotiated procurement prices changed less than 5%, negotiated sales prices would not change. But, if the change was greater than 5%, the sales price could not change more than 10%, unless approved by the provincial grain bureau. This link was broken in later reforms. *Shandong sheng zhi: liangshi zhi, 1994: 196-7.*

Figure 2.4: Total Output of Cotton and Dual and Single Price State Quotas for Shandong Province 1976-1989 (10000 tons)



Sources: Total Output: USDA ERS database; SMC Procurement: *Shandong sheng: gongxiao hezuo she zhi , 1995.* Single and Dual Price Quotas: *Shandong sheng: jihua zhi, 1996.*

During the Third Party plenum in December 1978, reform leaders attained control of many of the key levers of power in the central government. Within months, their first major wave of policies consisted of procurement price increases on eighteen major agricultural categories of goods. In essence, this constituted a massive transfer of income from state coffers to farming households.

However, state planners attempted to correctly adjust the price ratios (*bijia*) between crops in each area of the country to achieve their planned balance of output. As such, the price ratios between crops competing for the same land in the same seasons is crucial to explain the changing patterns of output and sown areas. For instance, one might expect that the 15 percent increase in cotton prices in 1979 in Shandong would induce a huge shift to cotton production that year. However, the state increased wheat, corn and soybean prices by more than 20 percent, so the *relative* attractiveness of cotton actually declined. By 1980, however, the state re-balanced relative prices in favor of cotton in Shandong (and Henan), at least for cotton and grains. Cotton output skyrocketed in these two provinces which in a few years, along with Hebei, would constitute the new core of cotton production in China (see Figure 2.4 for Shandong).

The size of these transfers was truly staggering. While they were achieved through a relatively simple administrative change in the state purchasing prices (*shougou jiage*), the revenue was drawn from reductions in investments in heavy industry and (for China at that time) a relatively large dip into international borrowing. Because different goods were regulated by different ministries, these price increases were negotiated between the National Price Bureau and a range of other ministries and bureaus, including most importantly the Ministry of Commerce (MOC), Ministry of Agriculture (MOA), National Association of Supply and Marketing Cooperatives (NASMCs) and others. These price increases were not haphazard; they were highly calibrated to each commodity and balanced with their co-commodities.[151] In addition, over-quota bonuses were

[151] In February 1979, procurement price increases included: sugarcane and sugar beet prices (20-25%, according to the province), sheep's wool in Xinjiang province (5.5%), chicken eggs (30%) (*Zhongguo wujia wenjian xuanbian 1979-1983:* 207, 211). In March, cotton prices again rose (15.2%), as did the prices of freshwater and saltwater aquatic

increased for grains, oilseeds and cotton: grain and oilseed bonuses were raised from 30 to 50 percent (calculated on the basis of the *newly increased* base prices) and a new bonus of 30 percent was offered to above-base quota cotton in 1979.

The key to the new pricing system was that it was *rigged for explosive growth*. Under market forces, *higher* relative prices for cotton should have stimulated farmers to *increase output*. Over time, this larger cotton supply should *lower* the price of cotton and ultimately cool cotton production while shifting resources to other crops with higher relative profit margins. However, there was only very moderate increase in cotton spindle capacity before 1988, so under market conditions, cotton prices would have plummeted. The state pricing system did precisely the opposite: average prices continued to *increase* as output *expanded*, since a higher portion of farmer's output could be sold at the higher above-quota price. In essence, the entire edifice of price incentives was geared towards an infinite increase of agricultural output, with only the state's fiscal limits (and the physical limitations of land) as constraining factors. Prices between competing crops did not reflect supply and demand or relative scarcity relationships; rather they reflected state goals in increasing overall output and achieving a certain, state-determined balance between substitutable crops, such as cotton and grains in North China. Over time, this pricing structure forced the state to alter its pricing system between 1983 and 1985 due to intense fiscal pressures. This was done in 1983 in cotton, 1984 in oilseeds and 1985 in grains.

The 'dual track pricing' system has been understood as the crucial transitional institution which guided farmers towards the 'market track.' It is typically argued that farmers' incentives, particularly after decollectivization, were structured not by state quota prices, but by 'typically' higher free market prices. According to this interpretation, market prices guided marginal output, while the quota and state prices lost all significance in terms of farmers' decision-making. So long as market prices remained typically higher, then rural markets were the key to farmer decision-making, while the quota was simply a restraint to the farmer or an implicit tax.

This is a misinterpretation because it ignores the interpenetration of plan and market between different crops. For one, market prices initially remained so high *because* the state quotas absorbed so much output at lower prices, thus creating an artificial boost to market prices. Had the state quota been thrown onto rural markets, market prices would have collapsed, as they did for grain in 1983 when the glut conditions appeared. But, even this does not get to heart of the matter, at least during the period covered here. As mentioned, the state quota and pricing system was in fact rigged for explosive growth as the state bought as much as the farmer would produce, and average prices rose as they produced more. This upward spiral of increasing output and increasing prices would not have been possible in a market environment. Hence, only the state pricing and quota system and the enormous fiscal revenues devoted to agriculture, could have created these conditions for explosive growth, growing incomes and high market prices. Furthermore,

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products (30% and 20%, respectively), live pigs (26.4%), beef and lamb prices in Xinjiang, Inner Mongolia, and Qinghai provinces (between 22.6% and 70%), and mulberry silk cocoons (20.3%) (*Zhongguo wujia wenjian xuanbian 1979-1983:* 211, 212, 218). In April, the most important price hikes occurred due to the sheer quantity of output of grains and oilseed crops which enjoyed price increases of between 19 to 23%, depending on the grain and oilseed type (*Zhongguo wujia wenjian xuanbian* 1979-1983: 220).

as we will see, this system of pricing generated larger and larger transfers of government revenue to farmer's income, which by enriching farmers kept rural market prices buoyant, especially for non-staple goods like meats, eggs, vegetables and fruits. Most scholars have failed to see these interpenetrations of state and market prices, believing that the alignment of individual incentives through decollectivization together with the incentive structure of the market track drove the system. But the market prices themselves (the actual incentives as opposed to the incentive structure) were so high because of the state system of quotas and income transfers. It is not so easy to draw a clear line of demarcation between plan and market. In actuality, at this earliest stage of reforms, market prices were merely an artifact of the state quota system. The market drew its vitality from the plan.

'Push' Factors and Regional Specialization: Grain Supplies and Production Inputs

While state price increases constituted the major 'pull' factors in fostering the economic boom, output prices were not the only policy tools. 'Push' factors were also crucial. Table 2.1 summarizes all of the major price increases ('pull') and incentives ('push') offered to cotton farmers in Shandong province, both during the period with two quotas (1979-1983), as well as after the transition to a system of single state contracts in 1984. It lists the basic quantities and amounts of the various quotas and contracts, as well as the many subsidies offered to cotton farmers, such as in cash, cheap grain provisions and cheap fertilizers. Most of these adjustments were made with the approval of the State Council and required the coordination of a range of ministries usually including the Ministries of Agriculture (MOA), Commerce (MOC), Grain (MOG) and/or Finance (MOF), as well as the State Price Bureau. The majority of this was paid through central revenues, although Shandong province frequently added to the incentives by emphasizing certain prices or incentives at certain times.[152]

[152] For instance, price increases differed from national plans in 1979 and 1980, as did the quantity of chemical fertilizer offered between 1979 and 1981.In the table, these differences with the national plans are indicated with an asterisk.

Table 2.1: Yearly Price and Incentive Policy Inducements for Shandong Province Cotton Cultivators, 1977-1988						
		Prices Policy (RMB per 50 kg)			Incentives and Grain Provisions	
	Base Quota/ Contracted Purchasing (1000 tons)	Quota Price (increase over prior year)	Subsidy +5 Percent (for Northern Cotton only)	Above-Quota +30 Percent	Grain Provision for Cash Crop Farmers	Fertilizer Provisions per 100kg cotton (kg fertilizer)
1977		104.5	-----			
1978		115 (10%)	-----			80 kg
1979	137.2	132.25*§ (15%)	138.86	180.5	Linked Purchases^	100 kg + 2000 tons for county*
1980	137.2	145.8*§ (10%)	153.1	199.03	Linked Purchases	100 kg + 2000 tons for county*
1981	137.2	145.8	153.1	199.03	Linked Purchases	100 kg*
1982	137.2	145.8	153.1	199.03	Linked Purchases	100 kg
1983	137.2	Inverse 3:7 176.4	185.25	--ends--	Linked Purchases	100 kg
Change from Unified Procurement to State Contracted Procurement						
1984	1,110	Inverse 2:8 180.79	--ends--		--ends--	100 kg
1985	1,110	Inverse 3:7 176.4				100 kg
1986	1,110	Inverse 4:6 172.04				40 kg
1987	1,110	Inverse 3:7 176.4				40 kg
1988	1110	Inverse 3:7 176.4	+20 RMB* 196.42			70 kg +5 kg diesel fuel

* Indicates that Shandong province has made additions on top of the national policy.
§ The source has confused the 10% and 15% figures for 1978 and 1979. Using their own data when calculating the prices, these are the correct percentages.
^ Linked Purchasing (*guagou*): If the average per capita sale of cotton for the production unit reaches 5kg, then they are guaranteed purchases of 182.5 kg of grain at the lowest state price for the year. If they sell 10 kg, then this is raised to 190kg. For every 0.5 kg of cotton over 10 kg, they can purchase 2 more kg of grain or 1 kg of chemical fertilizer. Subsidy ended in Aug 1, 1983 which is right before the new harvest.
Sources: Base Quota/Contracted Purchasing: *Shandong sheng zhi. gongxiao hezuo she zhi*
Prices based on calculations from *Shandong sheng zhi: gongxiao hezuo she zhi*: 128-29
Grain Provision: Shandong sheng: liangshi zhi, 1994.
Chemical Fertilizers: Shandong sheng: huaxue gongye zhi, 1992

The cotton boom in Shandong required coordination across a range of bureaus. I begin here with the role of interprovincial grain provisions in reshaping China's regional agricultural economies and comparative advantage, and later I use the example of the chemical fertilizer industry to narrate the role of provincial and local-level bureaus in supplying these crucial inputs.

Interprovincial State Grain Provisions and Crop Specialization

By increasing the freedom of farmers to make decisions on cropping, decollectivization is also often attributed with shifting China's geographic distribution of agricultural output from the inherited 'grain-first' distribution of the Cultural Revolution period to one with increasing regional specialization. However, in order to specialize in non-grain crops like cotton and other cash crops, farmers needed an assured supply of grain for personal consumption. In the case of cotton in Shandong, while the province as a whole increased the share of its cultivated land devoted to cotton from 9.2 to 29.3 percent between 1979 and 1984, 30 out of the 35 counties in the main cotton producing areas around Liaocheng, Dezhou, Binzhou and Heze prefectures devoted a *minimum* of 40 percent of their cultivated land to cotton and many of them were growing it on over 60 percent by 1984. However, in 1979 most of these counties had cotton sown areas just slightly higher than the provincial average (around 11-14 percent), so this dramatic regional shift to cotton specialization occurred in only a few years, requiring huge infusions of grain to feed and sustain the local population.[153]

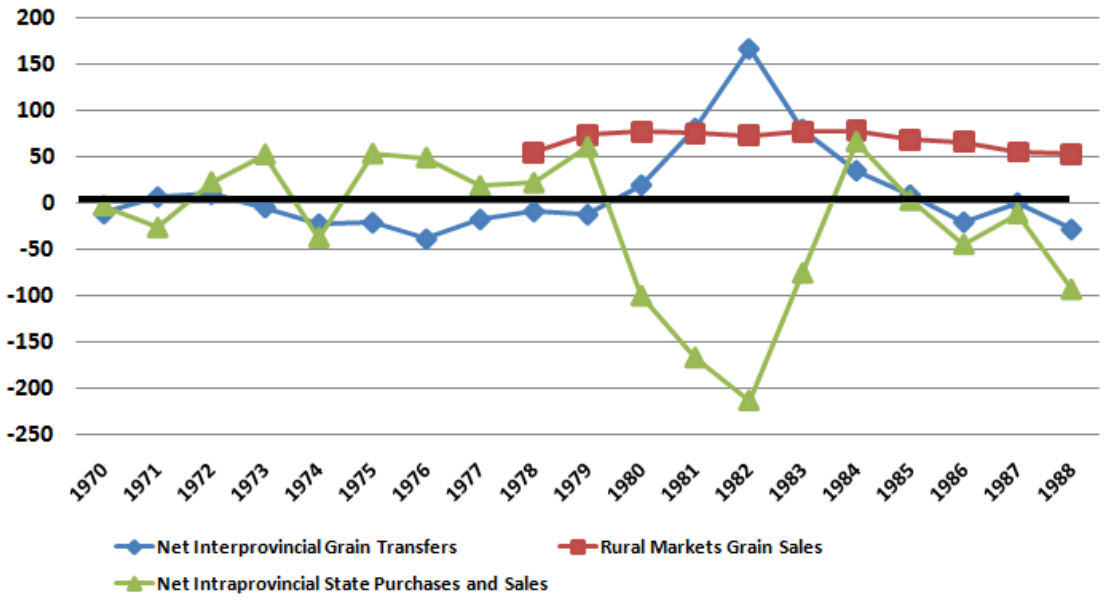
Where did this grain come from? Given the limited foreign exchange earnings and reluctance to use it on basic foodstuffs, there were two possible domestic channels: the state grain system (including the "import" of grain from other provinces), and rural markets which quickly revived in 1979. It is clear however that this feat of regional redistribution was engineered through the state system and not rural markets. Figure 2.5 graphically illustrates this fact. The three lines on this graph illustrate the channels of exchange in grain: one is the flow of grain through open rural markets, and the other two represent the new flow of grain into Shandong province from other provinces and imports, as well as the net distribution of grain to the Shandong population after state procurement from farmers and state sales to urban and rural Shandong people. It shows that during the transformative years of 1980 and 1984, the state commercial system in Shandong transferred into Shandong (*diaoru*) an unprecedented amount of grain from other provinces, coordinated through central and provincial level negotiations of the MOG. During most of the 1970s, Shandong, despite its very large population, was usually a net exporter of grain to other provinces. From 1980, however, Shandong's state commercial units sucked in enormous amounts of grain from other provinces. By contrast, grain quantities passing through free periodic markets remained almost unchanged throughout this transformative period. At this time, periodic markets were only capable of distributing goods over relatively short distances, and may have had a role in reshaping the agricultural landscape within much more local geographic spaces. Road transport was poor, especially over longer distances and the state continued to devote most resources to improving railways, the domain of state commerce, not rural markets.[154] Only the state grain commercial system, both within Shandong and those provinces supplying Shandong, were capable of reshaping the province as a whole at this time. While cotton took the lion's share of the increase in non-grain sown area in

[153] Liaocheng was somewhat higher at around the low 20 percentages. Calculated from *Zhongguo mianhua tongji ziliao huibian 1949-2000*.

[154] In fact, highway and road investments declined between 1980 and 1983 from 1.086 billion RMB to 722 million RMB, while railway investments increased from 3.044 billion RMB to 4.22 billion RMB. Lardy 1986: 453.

Shandong, peanut and tobacco farmers in eastern and central Shandong were similarly supplied. While it is commonly believed that household farming and markets returned China to a more 'natural' regional division of labor in cropping, in reality, only the existing state commercial system had the institutional capacity to enable such a thorough reorganization of the agricultural landscape in that short a period of time.

Figure 2.5: Sources of Commercial Grain in Shandong, 1970-1988 (10,000 tons)



Note: "Net Interprovincial Grain Transfers" is the difference between how much grain was transferred (or imported) into Shandong minus how much was transferred (or exported) out of Shandong. "Net Intraprovincial State Purchases and Sales" is the difference between how much was sold by state commercial units within Shandong minus how much was purchased by these units from Shandong farmers. In order to the commercial units to sell more than they procure within Shandong, they have to source from outside the province, hence the two lines are related. *Sources: Shandong sheng: nongye zhi*: 104, 239, 201-2.

Chemical Fertilizers

While grain was the most important provision to cotton farmers, the state also offered a host of other inputs at low prices to lower production costs, including chemical fertilizer, pesticides, diesel fuels, plastic sheeting and more. For simplicity, I only focus on chemical fertilizers and pesticides, which were the most expensive material inputs for farming households.[155] According to 1987 surveys of each province, chemical fertilizers constituted 45.6% of the material costs of production for wheat, 47% for corn and 42% for cotton, despite high rates of state subsidization.[156] These were supplied almost

[155] As many economists have tried to measure, chemical fertilizers contributed the most of all inputs to the growth and productivity growth of agriculture in this period. See Lin 1992, Wen 1993, McMillan et al, Fan. Chemical fertilizers work best only when applied in combination with improved seed varieties and proper irrigation, so its roles in growth and productivity in this period relied heavily on past investments by the state in these other arenas. See Stone 1985, 1988.

[156] In Chinese accounting, costs of production in farming are divided according to labor costs (*yonggong zuojia*) and material costs (*wuzhi feiyong*). These figures are a percentage of the material costs, which generally amount to approximately half of total costs. However, labor costs are generally calculated according to a fixed national average

exclusively through the SMCs at the grassroots level who procured them via the local chemical industry in Shandong. Unlike grain provisions which were coordinated between central and provincial levels of the state, chemical fertilizers were often a local affair, arranged between provincial and county levels.[157]

The local nature of the industry created a different dynamic. Both the nitrogen and phosphate fertilizer industries in Shandong began in the late 1950s as typical, Soviet-inspired large enterprises using technology and machinery from Shanghai and Tianjin factories, as well as imported machinery. However, starting in the mid-1960s, small, local factories were encouraged and instructed to rely on local raw material supplies. In August 1965, the Shandong government set up a leadership small group which concentrated on developing small, nitrogen fertilizer plants. Special funds and materials were provided so that each county had its own local production and distribution system. Because local coal supplies were relatively abundant, the local nitrogen fertilizer industry was able to exploit these resources quickly and the whole industry developed rapidly.[158] Between 1966 and 1973, 102 county level firms were built, so that each county had at least one factory to supply local needs.[159] By 1978, another thirty firms opened, which together supplied nearly two-thirds of nitrogen based fertilizers to Shandong teams through the local SMC supplies network. Local provisions certainly increased from this system, but they were neither efficient nor financially successful, due to their low technological levels and low prices at which they were forced to sell their products to the state commercial system. Hence, they relied heavily on the state for fiscal subsidies. By 1978, 114 of the 123 firms in Shandong were in the red and losses mounted to almost 150 million RMB.

The losses were due to the high subsidization which farmers received from the low purchasing price of fertilizers. This grew as farmer's switched to chemical fertilizers from the less effective organic fertilizers (*nongjia fei*). Since the late 1960s, the state supplied low-priced chemical fertilizer to farmers as an incentive to implement the planned procurement of major crops such as grains and cotton. In 1979, along with the crop price increases, Beijing also increased the provision of chemical fertilizers to cotton farmers from 80kg per 100 kg of cotton to a one-to-one ratio, with each kilogram of cotton awarded with one kilogram of cheap fertilizer.[160] Shandong province then added another 2000kg on top of this to be distributed to each county upon completion of their quota. In addition to ensuring the implementation of planned targets, these provisions also encouraged production, since similar to the crop pricing system, the sky was the limit: more gross output meant more cheap chemical fertilizers for farmers.[161]

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estimate of "wage" labor, which is problematic. For this reason, I use material costs only. See *1988 nian quanguo nongchanpin chengben shouyi ziliao huibian:* 30, 39, 86.

[157] Furthermore, chemical fertilizers more directly face the farmer as a choice. For instance, organic fertilizers (*nongjia fei*) like manure could be exchanged or purchased instead of chemical fertilizers, creating a choice which does not face the farmer when it comes to irrigation.

[158] To be more precise, the specific type of coal that was abundant had to be processed before Shandong could become more self-sufficient. Enough processing machinery was installed so that two-thirds of the raw materials were mined and processed in Shandong for local consumption.

[159] See a list of these county firms in *Shandong sheng zhi: huaxue gongye zhi* 1992.

[160] This can be seen in the most right-hand column of Table 3.1.

[161] This was not the case for grain provisions to cash crop farmers, which was supplied to specialized farmers up to certain limits.

It was this complex amalgam of incentives, which included favorable and improving price ratios, grain and chemical fertilizer provisions at low state prices (*pingjia*), and the additional 5% subsidy for northern cotton (see Table 2.1), that are crucial in explaining the rapid transformation of the regional agricultural economy and the explosiveness of cotton production in 1980 *before* decollectivization took hold. As we will see, when these price ratios and incentives changed, so did the output.

Fiscal Crisis: The Reversal of 'Rigged' Growth Pricing

It would be wrong to think, however, that the state perfectly engineered this dramatic change. While its tools of manipulation were many and they were used frequently, it was exceedingly difficult to get the right combination and balance between different crops. Again, it is useful to reference the period just before the reforms to appreciate the scope of the changes. Before rural industry became invigorated in the late 1960s and early 1970s, the cotton grown within Shandong was not only able to feed its own spinning mills which had a capacity of around 600-700,000 spindles and required about 140,000 tons of cotton, it also fulfilled duties to supply the major textile centers of Shanghai, Guangzhou and Beijing with about 50,000 tons of cotton each year. However, between 1975 and 1979, installed spindles in Shandong rose considerably from 1.01 million in 1975 to 1.22 million in 1979, while cotton output declined.[162] Shandong, the historic core of cotton production in China was forced to import cotton and in 1976, it was necessary to transfer more cotton into the province than it supplied to the rest of the country.[163] With the cotton boom, however, this quickly changed.

Shandong, Henan and Hebei, the core of the Northern Plains, rapidly regained their position as the cotton core of the country and began again to supply other regions of the country. In these three provinces, cotton took a staggering amount of non-grain lands. Between 1979 and 1984, when output and sown area peaked for cotton, the percentage of non-grain land devoted to cotton increased from 28 to 58 percent in Shandong; Hebei and Henan were not far behind, rising from 38 to 51 percent and 30 to 48 percent, respectively.[164] This expansion of sown area, along with rising yields, led to the many-fold increase in cotton output in North China. With 1984 as the peak year of production, in quantity terms (tons), cotton increased 1120 percent over 1978 levels in Shandong. Likewise, Hebei was producing 900 percent more and Henan, 390 percent more over this same six year period.[165]

The dramatic changes are evident from Figure 2.4. Again, starting in 1980 and increasing until 1984, the state commercial system feverishly procured all of the increase in cotton output (as indicated by the SMC line closely tracking total cotton output in Figure 2.4). This easily satisfied local spinning needs and allowed for huge amounts of cotton to be delivered to other provinces in need of raw cotton. The cotton imports of the late 1970s turned quickly into moderate exports.

[162] See *Zhongguo fangzhi tongji nianbao* 1984.
[163] *Shandong sheng zhi: nongye zhi* 2000: 418.
[164] Calculated from USDA ERS database.
[165] Ibid.

However, before long, agricultural production, including cotton, proved excessive and the glut put enormous pressure on the fiscal system. The particular amalgam of incentives and prices was almost irresistible for farmers, as average prices rose with the increased production. This was supported by state finances which became stretched to the limits. Furthermore, while cotton subsidies to farmers were significant, they paled in comparison to the grain subsidies, particularly after the reforms of grain marketing in 1983. In addition, to protect the urban consumers from food price hikes, the state frequently increased urban families' monthly subsidies.[166]

These levels of subsidies were unsustainable and their root cause was in the pricing system which encouraged infinitely increasing output, especially of those crops which turned the greatest profits. Given all of the different points in the system where subsidies were applied, it is quite hard to know how much agricultural subsidies contributed to state fiscal expenditures. By Joseph Fewsmith's calculations, agricultural subsidies alone (not including urban food subsidies) rose from 4.5 percent of total state revenue in 1978 to 20.3 percent by 1984.[167]

But one thing is clear: the central leaders did not expect such massive outlays of expenditures. A draft report of the 1979 National Economic Plan estimated that the total value of price increases would be 6.5 billion RMB, which it stated was unprecedented in the history of the PRC.[168] A government work report of the fourth meeting of the 5th National People's Congress calculated that between 1979 and 1981, agricultural price increases and (small) agricultural tax reductions totaled RMB 52 billion, while urban wage increases and the growing urban workforce increased expenditures by RMB 40.5 billion. Shockingly, the government had originally anticipated that the agricultural and urban revenue changes would only cost RMB 60 billion which is an underestimate of 54 percent – and this was *before* the real boom began![169] The rigged system created explosive growth, which government revenues could not sustain. In the span of three years, the entire institutional edifice was transformed, node by node.

One might expect that the next link in the chain would bear the brunt of the average 24.8% increase in agricultural commodity prices. This certainly would have set off a titanic inter-ministerial struggle to pass on the "hot potato" losses to the next link in the chain, likely ending in the lap of the urban consumer in one way or another. But in these early years of the reforms, the State Council was weary of imposing any financial burdens on the urban population for fear of disquietude and the possibility of wage inflation. It frequently went to great pains to assure them that staple foods and product prices would not budge, even while raising agricultural procurement prices.[170]

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[166] For instance, in November 1979, when the state decided to increase retail prices of non-staple goods, such as meats, eggs and dairy, they simultaneously increased each urban person's subsidies by 5 RMB per month to shield them from these changes. *Wujia dashiji*: *1978 nian 12 yue – 1985 nian*, 1986.

[167] Fewsmith 1994: 154.

[168] *Wujia dashiji*: *1978 nian 12 yue – 1985 nian*, 1986: 21; *Renmin Ribao* 6/21/79; See reference by Tian Jiyun on unexpected growth of agricultural output.

[169] *Wujia dashiji*: *1978 nian 12 yue – 1985 nian*, 1986: 104. For a finer breakdown of these figures, see ibid: 105. *Renmin Ribao* 12/14/81.

[170] To maintain calm among urban consumers, many government notices and People's Daily articles explicitly reinforced that retail prices on food goods would remain unchanged; in addition, some notice were more explicit, such as <<*guanyu rou dan goujia shangtiao, xiaojia zanshi budong de linshi shishi de tongzhi*>> in *Zhongguo wujia wenjian xuanbian 1979-83*.

Consumer price increases did occasionally occur, but these were usually offset by subsidies to the urban population.[171] When the state imposed these burdens, several top officials invariably would write articles or be interviewed by the People's Daily to assuage the urban population that no such changes would occur in staple good prices and usually to announce more price subsidies or wage increase to compensate the urbanites for their losses.[172]

Without such intervention, the commercial ministries would have to foot the bill. Fully aware of the risk of inter-ministerial war, the Ministry of Finance intervened mid-stream to negate the rise in agricultural procurement prices from sending shockwaves down the chain. They did this by offering subsidies to the ministry which handled these particular products, such as the Ministry of Commerce, Ministry of Grain, Ministry of Aquatic Products, Ministry of Forestry, and so forth.[173] This complex system of subsidies quelled much conflict between segments of the chains and ensured relative peace at the lower levels of these hierarchies which were assured compensation.[174]

The Transformation along the Production Chain: 1983-85

Predictably, the government moved to reduce the fiscal imbalances. However, in addition to progressively reducing the *level* of incentives to realign production quantities and save on revenues, the state also began to alter the *fiscal relationships themselves* which linked the central government revenues with their lower-level state agents in the MOG and SMC. I illustrate how these agents became less and less agent-like and more and more independent. This new vertical relationship, in turn, reshaped the horizontal relationship with the farming households, and breathed life into both state and market prices, which acquired a meaning that they lacked before. Prices now began to reflect the relative power between different nodes along the production chain. Producer and purchaser no longer passively accepted state pricing but began to struggle over control of raw materials and how profits would be split. Input and output prices, and ultimately profits, began to reflect this struggle. Agricultural producers (farmers) had to increasingly fight over the division of profits with their local procurement stations, who, because of their increasing fiscal independence gained the will to fight. Because of their dominant position as local procurers of the harvest, they had significant local market power, especially when aligned with local governments. This combination proved important in the 'commodity wars' of the late1980s.

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[171] For instance, in November 1979 meat, fish and egg prices rose 30 to 40 percent while more mild increases were imposed on vegetable, poultry and milks prices and in 1983 cotton cloth prices increased. *Renmin Ribao* 11/1/79.

[172] For example, <<*guanyu tigao zhurou, niurou, yangrou, shuichanpin, xiandan deng, xiaoshou jiage de tongzhi*>> in *Jia ge li lun yu shi jian bian ji bu*, 1986: 34 and <<*zhonggong zhongyang guanyu jiakuai nongye fazhan ruogan wenti de jueding*>> in *Zhongguo wujia wenjian xuanbian 1979-1983:*234.

[173] For instance, in grain and oils <<*guanyu tiaozheng liangshi he youzhi youliao tonggou jiage de tongzhi*>>,in cowhides <<*guanyu tigao niupi shougou jiage de tongzhi*>> Because silk was overwhelmingly an export item, the price supplements for the mulberry cocoon price increases were given via the Ministry of Foreign Trade, see <<*guanyu sang can xian jian tiaojia hou cha e you waimaobumen gei linshi butie wenti de tongzhi*>> in *Wujia dashiji*: *1978 nian 12 yue – 1985 nian*, 1986.

[174] Of course, this pushed distributional conflicts up the hierarchy as heavy and light industries, agriculture, transportation ministries, along with the Ministry of Finance and the State Council had to negotiate over the division of the fiscal pie.

But systemic changes occurred above the level of local agents as well. The center changed its pricing and contracting system from dual prices and unlimited procurements, to one based on a single ratio price; then, in 1984 the state eliminated the planned procurement system which had reigned since 1953 and began to contract a fixed portion of procurement in cotton. The same was done for oilseeds and grains in 1985. This increasingly began to shift production risks from the state's shoulder onto the farmer's shoulders. The farmers were unable to adjust to these transformations and the central state was initially forced to step back in to save the farmers from bankruptcy. As these reforms were instituted, the golden age of rising farmer incomes ended, as farmer profits and income both declined in the late 1980s. This is in spite of the frenzied purchasing triggered by the 'commodity wars,' precisely the conditions under which one would expect farmer's profits to rise further. In narrating the changes node by node, I return once again to the same nodes: chemical fertilizer inputs, the local SMC and MOG networks, and the central pricing system.

Chemical Fertilizers

The shift in strategy to encourage small, local chemical fertilizer firms that relied on local raw materials and supplied local requirements required an enormous amount of subsidization because many of these firms were inefficient due partly to their low technological levels and use of local materials of unequal quality. In most years, they were unprofitable and hence relied heavily on the fixed subsidy quota system (*yi xiao ding bu*) which offered 30 *yuan* of subsidy for each ton of standard quality fertilizer. Although it was officially a subsidy, this money is best understood as government-financed investment capital since factories were allowed to keep all profits (which included subsidies) and instructed to use it on technical improvements (*jishu gaizao*).[175]

The subsidies were necessary because the ex-factory prices of fertilizers were kept very low since fertilizers were the largest part of the material costs of production for teams and farming households. However, with broader changes in the economy, in particular, increases in energy, transportation and raw material prices, the Shandong provincial Price Bureau and Petrochemical Bureau in November 1983 decreed an increase in ex-factory prices of different important fertilizers by between 38 and 52 percent, at the same time that they eliminated their fixed subsidies in January 1984.[176] This change sent shockwaves along the chain that led to the collapse of the chemical fertilizer industry.[177]

Farmers reacted sharply to this by reducing their purchases and switched to the less effective, but much cheaper organic sources of fertilization (*nongjia fei*). In addition, large amounts of higher quality imports were permitted which essentially edged out the domestic firms. Between 1983 and 1985, production and sales of the most commonly used nitrogen fertilizer plummeted from 188,000 tons to 43,500 tons, a decline of 77

[175] For instance, in 1981, one of the few years the industry was profitable in Shandong, profits totaled 22.6 million RMB, of which 18.9 million RMB was subsidies, which could all be used for technical upgrading. *Shandong sheng zhi: huaxue gongye zhi: 57.*
[176] Ibid: 58.
[177] The following is drawn from *Shandong sheng: huaxue gongye zhi.*

percent. From (subsidized) profits of 32.7 million RMB in 1982, the industry experienced net losses of 16.2 million RMB, as a dozen firms closed and 45 of the 74 firms stopped production.[178] The provincial government was forced to restructure the industry.

Most of the measures adopted aimed to control competition by eliminating underperforming firms and low-grade products. First, they instituted a strict licensing procedure which required the approval of both the provincial government and the provincial petrochemical bureau. Only these firms would be "in-plan" and have raw materials supplied to them (at low prices). In 1985, fifty firms were licensed and only eight more in the next two years. Also, firms were no longer allowed to produce whatever they wished. They were forced to specialize in certain subsectors as a means to create an orderly and less competitive environment. Foreign imports were limited and production materials and electricity supplies were guaranteed. These measures created a stable environment in which production could be resumed.

However, the creation of a more stable and orderly business environment upstream created higher prices for farmers. These higher prices were not simply the result of increases in state prices, but also due to the loosening of the pricing mechanism. For one, the firms were given greater autonomy over many of their operations as they signed contracts with their supervising ministry as part of the enterprise contract responsibility system (*jingying chengbao zerenzhi*). Secondly, price setting was decentralized from the provincial level to the prefectural city level (one level down), so that, in fact, 17 regional prices reigned in Shandong province alone. Finally, firms were given greater (though not unlimited) scope in setting prices within predefined limits and seasonally over time. While these reforms benefited the industry, which turned profits of 28.8 million RMB by 1986, they subsequently contributed to increasing the costs of production for farmers.

Supply and Marketing Cooperatives: Agriculture Procurement

Besides fertilizer inputs, there were many other alterations between 1983 and 1985 in the environment within which farmers operated, particularly at the agricultural commerce node, where the central state began to alter its fiscal relationship with its lower-level procurement stations, especially at the county level. It is not clear whether these changes were directly related to the fiscal problems in agriculture, or were simply part of the broader and contemporaneous enterprise reforms, by which the state was trying to increase the efficiency and profitability of state-owned firms through greater managerial autonomy, increased profit retention for firms, and more competition between state-owned enterprises.[179] Nonetheless, the SMC are quite unlike a typical state-owned firm in that in many localities they constitute local monopsonies on certain agriculture procurement. In this sense, the same basic institutional reforms of SOEs had a different impact within the environment of a local monopsony in agriculture procurement.

Many authors have noted that during the mid-1980s glut of key agricultural goods, farmers had great difficulty selling their output to state agencies who were obliged to

[178] Ibid.
[179] See Naughton 1985, 1994; Wong 1992.

purchase as much as farmers offered. In grains, Oi notes the difficulty with which farmers sold grain to the state purchasing agents, a phenomenon referred to by farmers as "*mai liang nan*" or difficulty in selling grain.[180] A similar phenomenon has been documented for cotton (*mai mian nan*).[181] The glut conditions created a buyer's market, so that in spite of orders (and bank loans) to buy up all grains, oilseeds and cotton, local procurement stations resisted by various means. When purchase season began for each crop, lines of peasants eager to sell their harvests stretched miles long and farmers often were forced to wait for days to deliver their output. When their turn came for weighing, testing (for quality) and settling accounts, local state procurers tried to lower their payout by falsifying quality levels, reducing weights and lowering prices (*ya ji ya jia*).[182] At times, they even refused to purchase quantities. But why would agents of the state engage so fervently in this illegal behavior when their 'policy-induced losses' in these transactions were still covered by state subsidies (*zhengcexing kuisun butie*) and who used concessionary interest-bearing bank loans to perform the purchasing? Warnings against such behavior from China's top officials, such as Vice-Premier Tian Jiyun, made clear their disapproval.[183]

While part of the explanation may be that they simply wanted to increase their margins by illegally selling state priced grain on market priced periodic markets, this cannot explain the behavior in cotton for which there were no markets until after 1985. The reason lies in the fact that these state agents were becoming less and less agent-like and more and more independent. Local level entities, especially at the county level, were changing along several dimensions: vertical fiscal relationship, horizontal industrial integration and geographic scope of operations. So, while the farmers were assured of sales to the "central" state at favorable above-quota prices along with above-quota grain and chemical fertilizer incentives, they were actually being squeezed by simultaneous reforms of the "local" agents.

Starting in 1981, the government began to return SMCs to their original 'collective roots' of the early 1950s whereby local farmers invested small amounts of money to become members and were rewarded through the occasional distribution of profits in the form of dividends (*fenhong*). In 1981, worker congresses were officially reestablished (though they proved ineffective) and their budgets were increasingly to rely on membership investments (*gujin*) as the local SMC actively began to seek investment capital from locals.[184] While membership investments did rise, they remained a small percentage of the capital needs of these entities. In 1982, the national level SMC also formally changed all local-level SMC's official ownership status from state-owned to collectively-owned.[185]

However, the truly systemic reforms occurred between 1982 and 1985. First, a series of policies altered the fiscal and managerial relations of these units from the grassroots procurement station to the provincial level. The key break from past practices occurred at the county level. Most grassroots SMCs procurement stations had been under

[180] Oi 1989.
[181] *Textile Asia* 10/1983: 48-57, 12/1983: 121.
[182] Ibid.
[183] *Wujia dashiji*: *1978 nian 12 yue – 1985 nian*, 1986: 176; *Renmin Ribao* 10/31/83.
[184] *Shandong sheng zhi: gongxiao hezuo she zhi:* 54.
[185] *Dangdai zhongguo de gongxiao hezuo shiye:* 73-86; *Shandong sheng zhi: gongxiao hezuo she zhi:* 304.

a relatively independent fiscal relationship since 1966 in which their accounting was done independently of the higher levels (*duli hesuan*) and they were responsible for their own profits and losses (*zifu yingkui*) and simply submitted taxes to county SMC. But these grassroots units were under the command of the county level SMCs and hence were limited in their ability to act independently. In 1983, this same fiscal independence enjoyed by grassroots units was conferred onto all levels of SMC, with the addendum that if the profits proved to be "excessive," the local branch of the MOF could negotiate a method for extracting these "superfluous" profits.[186] A year later, even "excessive" profits were no longer required to be shared. But at the same time, fiscal transfers (*bokuan*) ceased to be handed down to the SMCs, except for policy-induced losses (*zhingcexing kuisun*) when dealing in state planned procurement. In essence, the traditional fiscal link with the state was largely broken, with the exception of losses on state quota trading.

After the passage of the pivotal Central Document Number 1 of 1983, in which commercial units were permitted to expand their geographic scope and expand their market channels, the Shandong government in April 1983 and May 1984 encouraged SMCs to breakthrough (*tupo*) their traditional administrative methods and the confines of their local regions, fixed commercial channels and hierarchical position.[187] The goal was to reduce the number of links in the commercial and industrial chain. SMCs were encouraged to integrate forward into industry, integrate backwards by offering more and better services to farmers and establish business linkages (*lianying*) with higher level units. At the same time, they were to continue to be agents of the state in implementing cotton procurement and chemical fertilizer and pesticide provisions, all of which was financed through short-term bank loans for working capital and ultimately subsidized by the state. With the increase in cotton output between 1980 and 1984, the quantity of bank loans skyrocketed in order to finance and ensure procurements.[188] The vertical delinking of the state fiscal relationship and the integration of state agents into up and downstream industries, transformed the horizontal chain relationship of SMCs with farmers. Now, raw agricultural goods could be used for profitable processing and more of these profits remained with the unit itself.

While this partially explains why there was an incentive to *alter* the purchasing value of agricultural goods by suppressing quality and lowering prices, it does not explain why SMCs and MOGs units sometimes illegally *refused* to purchase output. In fact, since procurement was subsidized by central finances, one might expect them to purchase as much as possible to feed their processing plants and earn more profits. The answer lies in the fact that the system of subsidies for procurements did not always operate as planned.

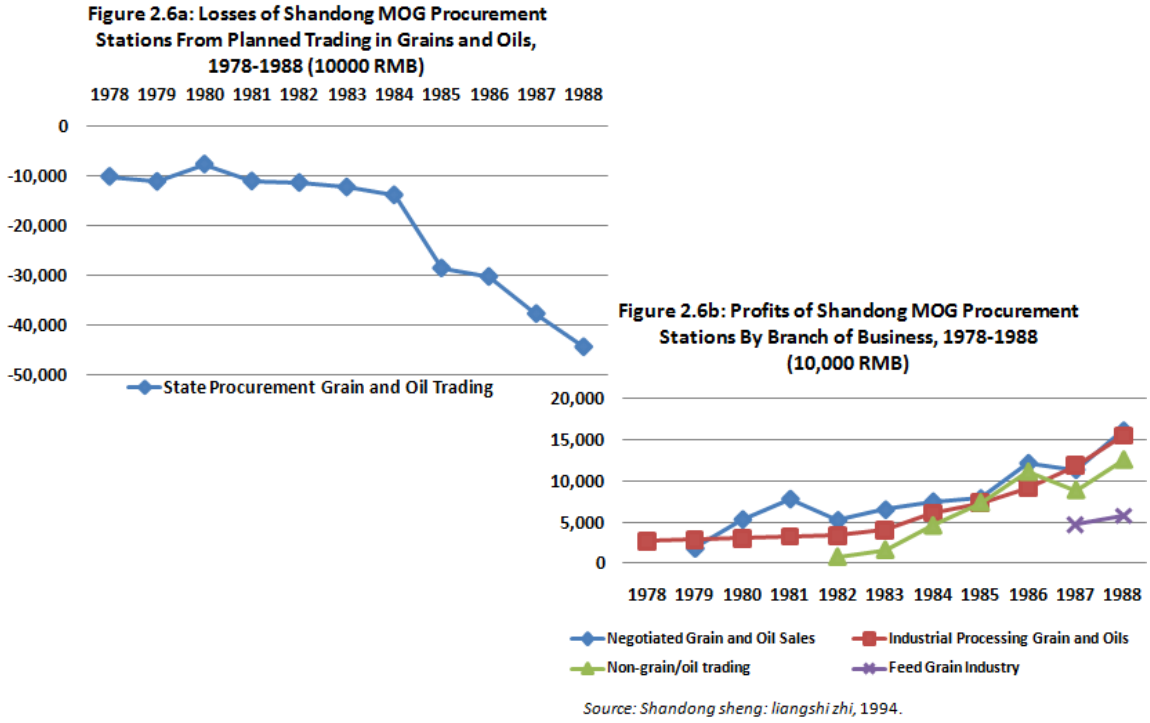
Although local MOG procurement units were assured that policy-induced losses would be compensated, in reality, they often were only *partially* compensated. For instance, grain stations were subsidized through fixed *rates of subsidization* which were calculated by the MOF according to several criteria, including: average sales, inventory

[186] *Shandong sheng zhi: gongxiao hezuo she zhi*: 49. 305.
[187] *Shandong sheng zhi. gongxiao hezuo she zhi*: 54.
[188] Ibid: 314.

size, historic patterns of losses and the general financial health of the MOG stations.[189] Hence, subsidization was not dollar for dollar, but rather done according to specific, calculated rates which were then applied to the actual purchase amounts. If the rates were set incorrectly by the MOF, which had a monetary incentive to low ball, then the amount of subsidies would be less than the actual losses of these entities. Figure 2.6 illustrates both the losses inflicted on MOG units in the conduct of trade in grains and oils, as well as the profits of the MOG in terms of newly permitted business ventures. In Figure 2.6a, it is clear that the losses on trading in state grain and oils in Shandong were severe and growing despite substantial subsidies. The total losses between 1980 and 1988 from this figure were 1.97 billion RMB, of which only 982 million RMB was actually paid out as compensation.[190]

To compensate for these continued losses, MOG stations were increasingly permitted to expand their business scope beyond their traditional scope of business, including state trading (which induced losses) and the marginally profitable transportation and industrial processing businesses. For instance, from 1979 they were allowed to make a certain amount of profits from selling grain at negotiated prices in the periodic markets. As mentioned, these sales were supposed to control inflationary tendencies in the market prices and so the sales prices had to be less than market prices, but never more than double the state sales prices. In this way, the prices charged and the amount allowed to

Figure 2.6: Shandong Province Ministry of Grain's Sources of Losses and Profits



Source: Shandong sheng: liangshi zhi, 1994.

[189] *Shangdong sheng zhi: liangshi zhi*: 337-41.
[190] Ibid: 341.

be sold were limited, but as Figure 2.6b shows, these sales nonetheless provided a rising amount of profits. In addition, from 1982, they were permitted to handle products outside of their traditional scope of grain and oils, which they did with growing enthusiasm. Their industrial pursuits expanded significantly (mostly oil pressing and grain milling) and they were encouraged into new industrial pursuits, such as feed grain production starting in 1987. As Figure 2.6b shows, these profitable activities allowed these entities to turn regular profits and hence permitted the large and sprawling system of commercial procurement to break away from fiscal reliance on the state by engaging in independent businesses. For instance, between 1978 and 1983, the MOG system in Shandong made losses of over RMB 140 million. By contrast, through their newly permitted business activities and in spite of the increasing under-subsidization of grain and oil trading (see Figure 2.6b), they managed to turn significant red ink into a respectable amount of black ink by turning profits of RMB 55.5 million between 1984 and 1988.[191]

Shifting the State Quota and Pricing System

It is clear that the reforms at each node were varied, complex and not always coordinated, but together they significantly altered the milieu within which households engaged in cotton and grain agriculture. If these were not enough, the most important reforms entailed alterations of the pricing and contracting relationship with farmers, which constitute the "pull" factors of agricultural goods. By doing so, the central state not only reduced its overall exposure to purchasing unlimited quantities of output, it began to shift the system of purchasing itself. This was done by replacing the dual price system with a single ratio price. Even more significantly, the state formally ended the decades-old system of unified procurement (*tonggou*) and replaced it with the less restrictive contract procurements system (*hetong dinggou*) in which each spring before sowing, the state contracted *fixed* quantities and qualities of agricultural goods at the now single ratio prices. I explain these changes below.

By 1983, cotton output exceeded the planned levels many times over, so much so that China lacked the capacity to process and use it. In Sept 1984, Hu Yaobang estimated that 3.5 million metric tons of cotton was unable to be stored and rotted in the open air. Downstream, five million metric tons of cotton cloth was lying in warehouses.[192] By the end of the harvest season, China had 18.1 million bales of cotton in stock which was twelve times more than in 1979 and accounted for 47% of world stocks.[193] To ameliorate this, the National Price Bureau, beginning with Shandong in 1983 (and the rest of the country in 1984) annulled the system of over-quota prices and offered just one price, which was lower than the *average* prices the state paid out under the two quota system. The change from dual to single price has been interpreted in two ways. Most agree it was intended to reduce the fiscal burden by lowering the average prices. The fiscal problems were partly a result of the state rigged purchasing arrangement. But, as Kelliher argues,

[191] Calculated from data in Figures 2.6a and 2.6b.
[192] *Textile Asia* 3/1985: 104-05.
[193] *Textile Asia* 8/1985: 166-169.

farmers also figured out how to manipulate this system to their advantage through a variety of illegal ruses to increase the portion sold at the higher bonus prices. Their ingenious tactics have been well documented by him.[194]

While this certainly put strain on central coffers, I argue that the core of the problem resided with the regional distribution of the quota system itself. In essence, each level of government lacked an understanding of the extent to which regional specialization would transform the countryside. Quotas were divided based on *historical trends*, which, in terms of regional specialization, were already distorted from the 'grain-first' policies of the Cultural Revolution; so, the baseline of the pricing system was already heavily skewed. This discriminated against areas that were "old" production bases, while over-rewarding "new" production regions. Areas which were historically strong in the output of grain, cotton or other economic crops were given higher base quota levels compared to other areas. Take, for example, Heze and Weifang prefectures in Shandong. Heze prefecture was a new grain base, so its grain quota was only 52,000 tons in 1983; but it actually sold 325,500 tons, so that each grain farmer received 12.94 RMB per 100 kg of above quota grain. Weifang was just the opposite. Since it was an old grain production base, its base quota was 308,500 tons and it sold a very impressive 502,000 tons. But since its base was higher, their grain farmers made only 6.6 RMB per 100kg over the base quotas, despite producing almost 175,000 tons more![195] This produced skewed results in the early reform era. Those with a high base quota earned less despite producing more; while those with a low base that produced less, actually could earn more. So, areas with low base quotas in a certain crop chased after it that much more fervently. The same logic applied to other crops as well.

This adds yet another way in which the dual track price system as generally conceptualized is too simplistic. From a 'national-level' perspective, it does appear that farmers grew out of the plan by chasing after the market prices. But it was really the *distribution of plan quotas at a sub-national level which was the key*. As our example of Heze and Weifang show, planned quotas were a product of the Maoist history of grain production. The intensity of the attraction of market prices to farmers in the reform period was a function of a region's position in the pre-reform economy. It is perhaps a supreme irony that the intensity of market price incentives was augmented by the degree of regional distortions during the Mao-era plan. The greater the historical distortions in different regions, the more attractive market prices became! The point again is that in a variety of ways, it was the plan which created the motive force that drove market price incentives. The example here adds to this in that there was also a distinct geographic logic to this dynamic.

The change to a single state price eliminated much of this inequality, since all areas and all output were treated equally as a single state price prevailed. Of course, market and state negotiated prices remained, but these did not discriminate and were adjusted according to output levels.[196]

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[194] Kelliher 1992: 128-131.
[195] *Shandong sheng zhi: liangshi zhi*: 190-91.
[196] I hesitate to say that it completely eliminated the regional inequalities as grain quotas were still retained. Consequently, some inequality remained because it inhibited farmers in old bases from readily switching to other, potentially more profitable crops. But, it at least eliminated the price inequalities in the system.

Because of Shandong's precociousness in cotton production, it was chosen as an experimental province by the State Council to implement this new pricing mechanism. In March 1983, before spring planting, Shandong farmers were informed that the dual state price system would be replaced by a new unified state price, called the inverse 3:7 (*dao sanqi*), which is a weighted average of 70% of the old above-quota price and 30% of the old base quota price. On August 1, 1983, the State Council, now realizing the likely size of the Shandong harvest in 1983, also eliminated the 5% subsidy for northern cotton (see Table 2.1). In 1984, these policies were extended nationally (though southern cotton only received an inverse 4:6).

However, the most significant change occurred when Zhao Ziyang, apparently with little consultation, announced an end to the unified procurement system which had existed since 1953.[197] This occurred in cotton in 1984 and the following year for grains and oils. The new system used fixed-quantity contracts for procurement (*hetong dinggou*), in which the state signed contracts with each household before the planting season, often giving advances of cash or materials with the understanding that the farmer was to deliver the assigned output at harvest time.

This may seem to be a subtle shift, but in reality it shifted production risks very heavily from the state onto the farmer's shoulders. The state no longer absorbed unlimited quantities of output, but rather chose their level of purchasing and left the remaining production decisions up to the farmer who was permitted for the first time to sell cotton on the open market. For instance, in the case of cotton, the state announced it would contract nationally only 4.25 million tons in 1985, even though it had purchased 5.2 million tons in 1984. Each province was assigned its own share and Shandong was assigned a hefty 1.1 million tons or 26% of the national quota.[198] Grains were treated a bit more kindly, as the government assured that if the market prices fell below the old (lowest) base price, it would still buy up this grain as well. With rising prices for inputs, however, this would not guarantee profits, but simply reduce a farmer's losses.

The contracting system and partial liberalization, while straightforward and clear, ultimately failed for three reasons. Initially, these were proclaimed to be "voluntary" contracts and spinning factories were allowed to purchase directly from cotton growing regions. As we will see in the next chapter, this caused chaos in the procurement process as buyer tried to match with seller. Before long, however, in September 1985, the State Council approved a MOC request to change the free procurement into planned procurement which effectively stopped the spinning firms from going direct to buy cotton from farmers. This was further reinforced in 1987, when all cotton markets were closed as the state tried to reestablish its monopsony control of cotton sales.[199]

But more crucially, how were farmers to know how much cotton to produce? There was no market information that could approximate future supply and demand. Hence, it proved extremely hard for the farmers to adjust to the new system. In 1984, Shandong contracted for 1.1 million tons of cotton, but the farmers actually grew 1.725 million tons (see Figure 2.5) which, according to the new contracting system, would have been thrown on the market. Some areas had even more difficulty knowing future

[197] Fewsmith 1994: 155.
[198] *Shandong sheng zhi: nongye zhi*: 412.
[199] Ibid.

demand. Purchasing units in Hao County, Anhui province were instructed to purchase 115 tons of ginned cotton, but farmers harvested 750 tons in 1984![200] With cotton in oversupply already, market prices would have plummeted, crippling cotton farmers with severe financial losses. Since 1984 was a glut season, spinning firms had little problem obtaining their supplies and hence the farmers would have been literally stuck holding the bag of unsellable cotton. To avoid such a crash, the state stepped in to absorb the excess cotton. Shandong SMCs were ordered to ignore their contracts and instead purchase all cotton in order to avoid devastating the cotton farmers.[201]

In 1985 and 1986, farmers switched drastically in the other direction as they estimated demand very conservatively causing national output to plummet by a total of 43.4% in these two growing seasons.[202] Without a history of market activity, there was no way for the farmers to know how much cotton could be absorbed by the spinning industry. In a word, they had no information or vision to see down the production chain, and yet for the first time, the production risks were planted squarely on their shoulders.

Finally, the newfound independence of SMCs contributed to the chaos of liberalization. While cotton farmers in some areas had difficulty selling cotton to state purchasing stations, other SMCs ignored higher-level orders and contracted for significantly more than their state allotted quantities. Anqiu County (Shandong) was to contract for 5,900 tons, but actually contracted almost twice that; Dingxing County (Hebei) was limited to 8,250 tons, but contracted 17,500 tons. Other counties in Hebei similarly over-contracted by as much as 63% above official limits.[203]

Cotton: Conclusion

The changing institutional web between 1983 and 1985 ushered a new context along several dimensions. First, the 'face' of the state significantly shifted at the local level. On the one hand, agricultural input prices rose for farmers on account of upstream cost increases in energy and raw materials, such as fertilizers. Material input costs for cotton rose from an average of 83.7 RMB (inflation-adjusted) per mu of land between 1978 and 1983, to 100.6 RMB per *mu*[204] between 1984 and 1990, a 20 percent increase despite continued state price controls on this sector and heavy subsidization.[205]

But much more profound changes were occurring simultaneously. Altogether, they led to declining real profits per *mu* of land in cotton (see Figure 2.7). This is very surprising because the second half of the 1980s is marked by the commodity wars in which agricultural goods, such as cotton, wool and silk, were in short supply compared to industrial demand. One would expect profits for farmers to rise precipitously.

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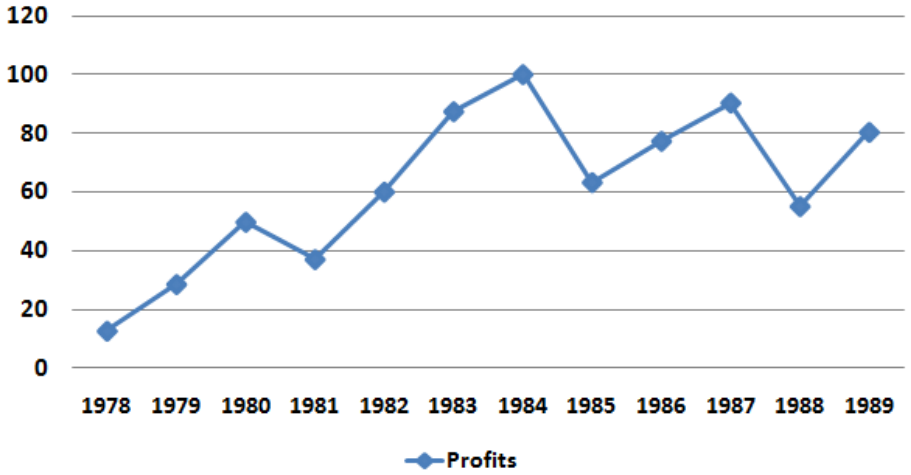
[200] *Textile Asia* 12/1984: 89.
[201] *Shandong sheng zhi. gongxiao hezuo she zhi:* 141.
[202] Calculated from USDA ERS database.
[203] Textile Asia 6/1985: 83.
[204] A *mu* of land is equivalent to about 1/15th of a hectare.
[205] See *Jianguo yilai quanguo zhuyao nong chanpin chengben shouyi ziliao huibian 1953-1997*. The industry shifted again in the 1990s which resulted in the real production costs per *mu* of cotton jumping to 143.6 RMB in the first half of the 1990s..

Figure 2.7: Average Real Profits per *Mu* of Cotton Land in China, 1978-89 (RMB per Mu)



Sources: Ma Kai, *Zhongguo mianhua tizhi gaige yanjiu*: 498-99; *Jianguo yilai quanguo zhuyao nong chanpin chengben shouyi ziliao huibian, 1953-1997.*

Due to the systemic changes surrounding the farming household, selling to local state agents became more combative than before on account of fiscal delinking with lower level state commercial units. During periods when gluts created buyer's markets and when local units were under-subsidized for 'policy-induced' losses, this became especially evident. In addition, in order to compensate commercial agents for losses from this delinking, their geographic scope and range of business opportunities was significantly broadened. This meant they had much more of an interest in raw material purchases as they integrated up and downstream in industrial agricultural processing. While certainly not a fully marketized relationship, these were important steps in this direction.

Most significantly, central state policy altered the economic environment within which household farming was conducted. They not only lowered procurement prices but also ended the dual quota system which created the explosive growth in China's most important branch of agriculture: grains and cotton. A single state price now reigned. Furthermore, policy began to shift the risks of production onto the farmer's shoulders. The costs of over-estimating demand were now bourn by the farmer as the state altered its role from guaranteed buyer-of-last-resort to a single contractor among many (though by far the largest). This was especially true in cotton in which markets were briefly opened for the first time in thirty years, and to a lesser extent grain, in which the state still guaranteed purchasing, but at the very lowest of state prices as a safety valve against the potential for plummeting market prices.

The meaning of 'market' is not singular or stable between these two periods. In the first period (1979-83), the peasant was supported by reduced production costs, high incentivized prices and no risk because the state guaranteed purchases. The rural markets were not 'real' markets because they were simply adjuncts to the state planning system. All the risk, information requirements and potential cruelty of the market were absent, while all the benefits of markets were present. The market was never the dominant, let alone sole arbiter of value; rather it was an adjunct – a 'fake' market – where peasants

could turn to make even more money. While the state quotas may *appear* to be a burden to the peasant due to the higher market prices that could be garnered, this was only the case *because* the state system attracted so much supply away from the markets, hence inflating their prices. Furthermore, in the earlier system, the risk was entirely on the shoulders of the state as farmers did not have to deeply weigh springtime production risks against future autumn price fluctuations. Rather, the state had to make these calculations and adjust prices and incentives accordingly. If the state miscalculated, it took the financial hit. The quantities of rotting crops left in the open air and the bulging stockyards are proof that the state heavily underestimated the productive potential of the farmers and land; but it also indicates that in general, the state made good on its promise to purchase as much as the peasants would produce.

This happy relationship came to an end in 1985. With fiscal pressures too great, the state shifted much more of the risk to the peasant, who for the first time began to experience the true meaning of 'household farming' and 'market reforms.' The farmer was now in a new and precarious position. Decollectivization, in this new context, took on a new meaning. Households now lacked the safety net and resources of the collective system, not least of which was a minimum of grain provision. Second, they now faced a more arms-length and cruel relationship with the local procurement stations, who were decidedly more concerned with their own profits and losses. With the glut situation in grain and cotton, the farmer's bargaining power was reduced that much more. Finally, production risks and the rich informational requirements of predicting the future were thrust upon the farmers. In the first year after 1985, farmers failed in these estimations, and the state stepped in to absorb the excess production. Within two years, production plummeted, forcing the state to eventually reverse its first attempt at market liberalization by closing cotton markets and reestablishing its state monopsony.

Decollectivization and the liberalization of markets (in grains) were only new incentive structures. They appeared to have created the explosive boom in agriculture, but it is only after examining the large organizational and policy context, like state quotas and 'partial' marketization, pricing and material provisions, does the meaning of the liberal-institutional reforms become intelligible. The same institutional changes but without the vestiges of the command economy simply would not have had the same explosiveness. We see the 'miracle' of the market in the changed incentive structures, when in actuality, it was in the continuation of the planned economy.

Wool: A Commodity Divided

Despite its importance for key minority groups and the fragile pastoral lands of western China, central state interests are far less engaged in wool. The sort of multifaceted state support which we saw in the regulation of cotton was not replicated with household herders of pastoral China. However, state commercial institutions remained the critical link for the supply of wool fibers to spinning and weaving mills, which at the beginning of reforms were still concentrated along the coast. Maoist industrial policy had attempted to reverse the effects of the colonial era in which industry became highly concentrated in coastal cities. In wool, substantial state investments were made in major western Chinese cities, like Lanzhou or Huhhot (*huhehaote*) and other

small cities. The intention was to allow inland provinces the opportunity to process locally cultivated raw materials.

Nevertheless, even by the reform era, the wool industry was unusual in the degree to which China's raw material base in the west was geographically separated from its centers of industrial processing in the east. A comparison with the other two textile fibers is telling. Raw cotton harvests are concentrated in seven major provinces where 81% of cotton was grown in 1985.[206] These same seven provinces also produced 50% of pure cotton yarns in that year.[207] Furthermore, the three cities with provincial-level rank (Shanghai, Beijing and Tianjin), which as cities cultivate almost no cotton, are all located adjacent to major cotton producing areas. If their cotton spinning capacity is added to these seven provinces, the total industrial capacity in cotton regions rises to 64%. Sericulture and silk reeling are even more heavily co-located in the same provinces. Sichuan, Zhejiang and Jiangsu are the three major bases of mulberry silkworm cultivation, producing 77% of China's mulberry cocoons in 1985.[208] They also reeled a nearly identical 80% of China's raw silk.[209] Similar to cotton, Shanghai, the other major silk reeling center in China in the 1980s, is located adjacent to two of these provinces (Zhejiang and Jiangsu). Wool is just the opposite. Two-thirds of the sheep and three-quarters of the sheep wool come from the western most provinces of China; but despite Mao-era attempts to reverse the colonial era industrial geography, 56% of wool industrial capacity was still concentrated in coastal provinces in 1980, and this rose dramatically over the following years.[210]

This geographic division was overlaid by a division within the broader sheep economy, something which requires some understanding of the industry to appreciate. There are two 'systems' of wool and wool processing: a higher quality, fine wool called 'worsted' which is the wool used in suits and high quality knitwear, and a lower quality coarse wool used in the manufacture of 'woolens,' such as coats, tweeds, most knitwear products and lower quality wools used in blankets or carpets. The distinction is based on the quality or fineness of the sheep fibers. Fibers longer that 65 mm staple length and under 25 microns are generally considered fine wool and used in worsted goods.[211] This is important because fine wool sheep are generally not slaughtered for their meat and skins, whereas the coarse wool derives from sheep that have this dual usage. This distinction between wool and mutton is important because it mapped onto the geography of the sheep economy in which much of the mutton is consumed in the west of China but wool demand derives from eastern mills. As we will see, this becomes a crucial division after mutton was permitted in 1979 to be exchanged on rural markets while wool fibers remained state controlled.

However, before turning to the effects of marketization, we should examine the effects of the introduction of household farming on the wool fiber node. Compared to crop-based agriculture, the decollectivization of herds was substantially more complex,

[206] *Zhongguo tongji nianjian* 1986: 182.
[207] *Zhongguo fangzhi gongye nianjian* 1986-87: 394.
[208] *Zhongguo tongji nianjian* 1986:184.
[209] *Zhongguo fangzhi gongye nianjian* 1988-89: 456.
[210] *Zhongguo tongji nianjian* 1981: 165; *Zhongguo fangzhi gongye nianjian* 1986-87: 401; *Zhongguo fangzhi gongye nianjian* 1988-89: 455.
[211] Brown et al. 2005: 27.

partly because it had to deal with the flocks themselves as well as the pasturelands for grazing. Decollectivization occurred in three sequential steps. First, the livestock previously owned by the communes was assigned to households on a rental base. This initial division proved an important first step because it was later fixed into place through the selling of the flocks at very cheap rates given the dearth of capital among households. In a final step, the land itself was contracted out to households according to the final flock sizes, but was never sold to them outright. Alienation rights remained with the state.[212] Compared to crop farming, decollectivization did not work very well in the context of sheep and goat rearing. This is because the larger and more homogeneous grouping of flocks of sheep and goats under the collective units had to be divided into smaller and more heterogeneous flocks on account of the relatively egalitarian nature of decollectivization. This division resulted in an intermixing of different breeds and breed types, which had the effect of downgrading the quality of the national stock.[213]

However, in one important area Beijing did take a keen interest in animal husbandry: grassland deterioration. The Ministry of Agriculture's actions in the early 1980s can be seen as simply a reversal of Beijing's previous destructive policy of grain self-sufficiency. As mentioned, the ideal of local grain self-sufficiency was imposed on almost all government units, from the provincial level (where it might be workable) to the lower level commune level (where it often proved disastrous). Even regions where grains were very difficult to cultivate, communes retained the burden of this policy which blanketed the country in its stark uniformity. It goes without saying that the 'reclamation' (*kaiken*) of lands for the sake of grains wreaked destruction on the fragile grasslands of western and northern China.

The agricultural reforms ended this hurtful policy. In 1979, the Ministry of Agriculture's Northern Grasslands Resource Bureau, and various provincial grassland stations and scientific units together organized the National Key Point Grassland Investigations teams which were sent out to survey the land and take toll of the damage. The damage was extensive. For instance, in some of the richest pastoral regions of Inner Mongolia, upwards of 80-90% of the land was found to be in various states of deterioration.[214] In this issue, Beijing moved fast. Starting in 1979 and continuing for the next several years, they began aggressively reseeding the grasslands, both manually and experimentally by airplane. In July 1980 and again in April 1982, large tracks of land were effectively banned from farming and land reclamation and husbandry was declared as this area's primary agricultural activity. These policies were a form of government-imposed regional specialization and reversed the prior policy of government-imposed self-sufficiency. Similar to what we saw in cotton, decollectivization and markets did not restructure the landscape into regions of specialization – the government did.

By mixing breeds and shrinking the size of flocks, decollectivization also made the job of collecting and grading wool qualities substantially more complex. The new efforts required in collecting and grading hairs made the link between the herders and the industrial processors more difficult to bridge and hence raised the importance of state

[212] See Longworth and Brown 1995.
[213] Ibid.
[214] For instance, see *Balinyou qi xumuye zhi*: 21-23.

procurement stations (and later private traders). These middlemen had to take more heterogeneous and smaller lots of wool and sort and grade them into large units which were required by the large spinning factories in the urban regions, enhancing the powers of local governments who came to function as middlemen controlling the commodities of local wool herders.

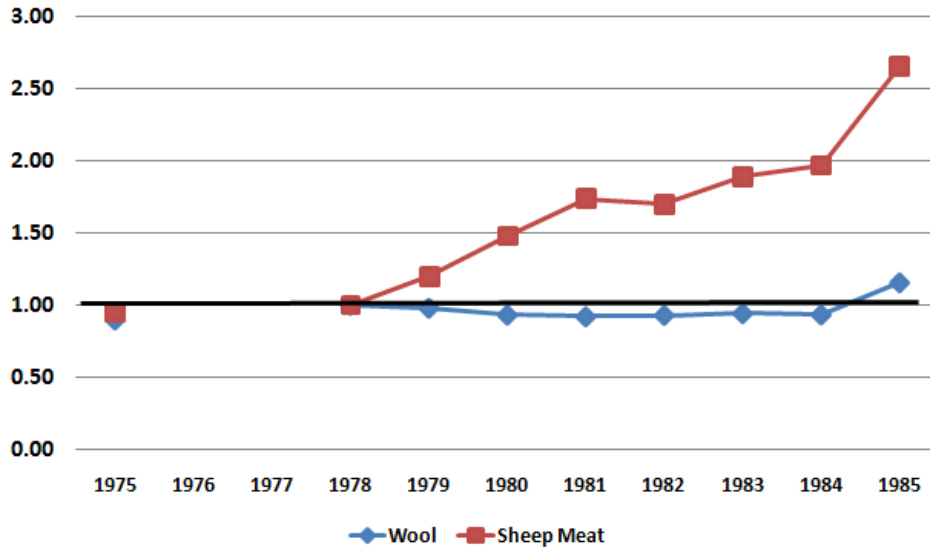
Although household husbandry had a deleterious effect on the wool industry, it was the commodity-specific process of marketization which had the most significant impact. As mentioned, in 1979, free markets for mutton were re-opened but the market track remained banned in wool. All wool was still purchased by state commercial units spread throughout pastoral China. Wool remained under state commercial control because wool textile factories were completely reliant on the supply of domestic wool since imports at the time were still strictly limited. Given the very limited amounts of acrylic fiber production (a common wool fiber substitute), wool mills would have had nothing to process without the steady wool supplies from the west and would be forced to sit idle.

This partial marketization and partial state-controls in co-commodities like mutton and wool, created a dynamic which again illustrates the complex interpenetration of plan and markets in this period. In the case of wool, the dynamic contributed to the degradation of the sheep flocks, created wool shortages and most importantly, split the previous national sheep economy into economic blocks by deepening the division between western and eastern China.

The split between market and plan regulation led to the prices of the two commodities diverging sharply. Some of this price divergence was clearly induced by the government. In contrast to the low 5.5% increase in state-set wool procurement price in 1979, state mutton prices were raised between 25 to 70% in different parts of western provinces such as Inner Mongolia, Gansu, Qinghai and Xinjiang, where the consumption of mutton, particularly among Muslim populations is very high.[215] However, within a year, market prices for mutton far overran the government pricing scheme, as free market prices skyrocketed (Figure 2.8).

[215] *Zhongguo wujia wenjian xuanbian 1979-1983:* 207, 211; *Zhongguo wujia wenjian xuanbian 1979-1983:* 211, 212, 218

Figure 2.8: Wool and Sheep Meat Prices, 1975-85 (1978=1.00)



Source: Watson and Findlay 1992: 166.

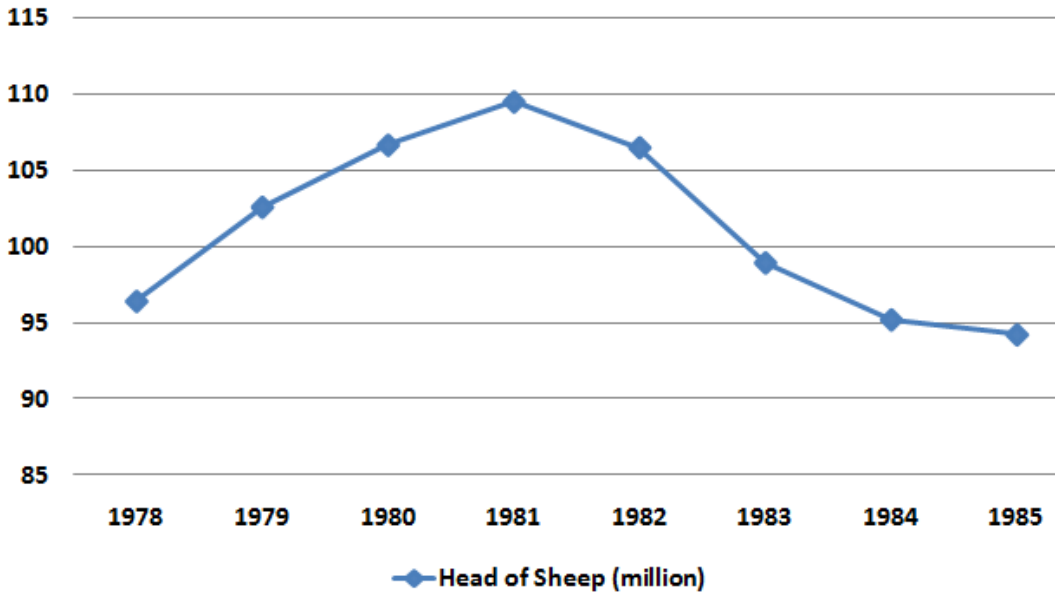
While mutton prices rose over two and a half times between 1978 and 1985, wool prices remained essentially anemic. This divergence in prices has two sources. First, we already saw that within the larger context of rising rural incomes, it was the more liberalized 'sideline' agricultural goods, like mutton, which enjoyed the enormous price inflation in the early 1980s. Apart from agricultural sidelines, all other categories of consumer commodities saw little price inflation. Thus, rising incomes and consumption was heavily 'channeled' into a small sub-set of partially liberalized sidelines agricultural goods, like mutton. By contrast, wool is an example of an agricultural sideline 'exception' which proves the rule. Wool is also categorized as a sideline commodity, but unlike most sidelines, it remained completely state-controlled and suffered no inflation. This further concentrated newfound purchasing power into the marketized segments of the economy, partly contributing to the explosive price inflation we see in Figure 2.8. At the same time, however, the continuation of state quotas on wool restricted the supplies of mutton which could be traded on markets, since sheep had to be reserved for wool quotas. In addition, there were state quotas for mutton which were maintained to ensure supplies for urban consumers, especially in eastern China. This left even less supply for local rural markets in the west. These supply constraints, a function of the combination of plan and market, contributed to the sky-rocketing prices of mutton that concentrated on the market track which directed herders' enthusiasm to switch to lower quality mutton wool sheep.

Because wool and mutton are so intimately tied, however, there were more dynamics between the more marketized mutton and state-controlled wool. The attraction of high market prices in mutton meant that herders increasingly shifted out of breeding the more risky fine wool sheep and into the less risky and more diversified coarse wool/mutton 'dual usage' sheep. Even though China's State Statistical Bureau does not regularly categorize according to sheep varieties, we can see the trend indirectly. On the

one hand, to take advantage of the growing price gap between wool and mutton, herders at first limited slaughtering and expanded their flock. In three years, China's flock had grown from 96 million head to nearly 110 million. With this rise in flock numbers, of course, wool production necessarily expanded simply as a function of more sheep, even though wool prices remained flat. These animals had to be sheared in the summer months, regardless of the price of wool. Raw wool expanded 46% between 1978 and 1981.[216]

However, by 1982, with the young calves now maturing, their flocks growing and lamb prices too attractive to resist, herders began rapidly slaughtering and selling meats and skins (see Figure 2.9).

Figure 2.9: Head of Sheep in China 1978-1985



Source: Zhang et. al, 1996: 139

Moreover, the shift among herders into less risky coarse wool/mutton sheep influenced the industrial structure of wool processing which dramatically downgraded to the lower quality woolens. The proportion of total wool spindles which processed the finer 'worsted' wool declined sharply from 59% in 1978 to 45% in 1985.[217] Further, it is impossible that imported wool could have fed the rapid new installations of coarse wool spindles since wool spindles rose an alarming 130% during this period, a capacity expansion which far exceeded the meager increase in wool imports.[218]

Finally, the marketization of mutton and state-control of wool deepened the division between western and eastern China. On the one hand, the supply of wool to eastern mills was still conducted through the state commercial system. Before 1985 (the year that wool regulation was decentralized to the provinces and liberalized in some

[216] Quantities rose from 138 million kilograms to 202 million.
[217] *Huihuang de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99.*
[218] See data in Chapter 4.

regions), between 95-100% of wool procured from herders was purchased by state commercial units.[219] As we saw, most of this flowed west to east, where most of the processing capacity was installed. With marketization, however, mutton became rapidly 'localized' as state purchasing of mutton declined and local rural markets took up the slack in mutton exchange. In contrast to wool, state commercial units were pushed out of the mutton business as their share of total mutton procurement declined from an average of 95% between 1975-78 to a mere 26% in 1985.[220]

A large portion of this decline was replaced by local markets which included herders selling directly in western cities as well as intra-rural trade in the local periodic markets. For instance, surveys of rural markets show that the share of total mutton which flowed through rural markets rose from 10% to 45% over this period. The two numbers (95% and 10%) do not add up because intra-rural trade is not considered 'procured' (*shougou*) in Chinese statistics, so it is impossible to know the exact shares. However, the change in proportion is relatively clear proof of the process of the localization of mutton.

Altogether, this meant that the marketization of mutton and state control of wool created a dual dynamic. On the one hand, herders shifted to lower quality coarse wool sheep and then slaughtered them, lowering the aggregate amount of available wool fibers. Second, this shift of emphasis to mutton localized the sheep economy in the western regions as local markets came to dominate exchanges. The de-nationalization of the sheep economy in itself is not necessarily a problem. However, during this same period, the demand for wool in eastern China was skyrocketing. Between 1978 and 1985, the installation of new wool spindles rose 132%, meaning the demand for wool more than doubled along coastal China. Thus, while herders were chasing after the artificially pumped prices for mutton and in the process localized the sheep economy in the west, eastern mills were ballooning their industrial capacity. The traditional geographic structural division between western wool supplies and eastern processing – something Maoist development policy had worked hard to reverse – was immeasurably reinforced through the complex dynamic between partial markets and state-control. As we will see in the next chapter, this deepening structural division contributed greatly to the 'wool commodity wars,' which were struggles between local governments over control of local raw materials. It also pushed the central government to re-regulate wool in the process which reinforced the geographic divide between east and west China even more.

The Simplicity of Silk

Unlike cotton and wool, commodities in which the domestic economy and domestic reforms held sway, understanding China's silk economy requires constant reference to the global economy. This is because China regained the mantle as the center of global raw silk production, the basic raw fiber. Although the disturbances of the Japanese occupation and civil war before the revolution allowed Japan to replace China as the new center of cocoon cultivation, by 1970, China came to equal Japan's production

[219] *Zhongguo shangye waijing tongji ziliao.*
[220] Ibid: 230.

of raw silk, each producing about 35% of global production.[221] By 1980, China's share rose to 52% and climbed to 78% by 1994, the peak year of global silk trade; and China's re-emergence occurred despite attempts by other countries to try their hand at developing sericulture, including India, Brazil, Vietnam and Thailand. Sericulture is particularly attractive to poor, labor abundant countries because of its very high profit margins for an agricultural commodity and because of the stubbornness to which it has resisted mechanization. However, it is not an easy commodity to master, and thus it is one of the few globally traded commodities to retain high value-added in agriculture.

In China, silk's importance is due to its foreign exchange earnings. As mentioned in the previous chapter, for a relatively minor industry, it composed an enormously outsized portion of China's net foreign exchange in textiles. Silk earned for China about as much net foreign exchange (exports less imports of the same product categories) as cotton textiles in the 1980s, despite being a fraction of its size; while other subsectors, like wool were net foreign exchange losers. Since textiles had replaced petroleum by 1986 as China's largest foreign exchange earner, the importance of silk within textiles and by extension as an export item over the first decade and a half of reforms should not be underestimated.

These high foreign exchange earnings were the result of China's position in the global geography of silk. Since by 1980 fabric processors in Europe, Japan and Korea were largely dependent on China for raw silk, China was in the position to set world prices. Furthermore, in contrast to wool in which China came to import raw greasy wool or cotton in which there was extensive import-processing of various semi-finished cotton textiles, in silk the direction of trade was only *one-way*: from domestic production to exports, in other words pure foreign exchange.

Of course, there is a difference between dominating world production and being able to set global prices. The latter requires precise control over the domestic agro-industry and of course foreign trade. Accordingly, China had created an organizational structure tailored to its dominant global position in the commodity. In most commodities, each 'node' along the production chain was regulated by different agencies and oftentimes more than one. This means that the cultivation of most other agriculture commodities were regulated by certain government institutions and as the commodities transferred hands through the downstream nodes of agriculture procurement, multiple stages of industrial processing and domestic and foreign trade, it passed through the regulatory arena of different government agencies and ministries. By contrast, because of China's unique global position in silk, Beijing entrusted the entire chain, from silkworm procurement through foreign and domestic trade, to a single corporation under the foreign trade ministry (called MOFERT in the early 1980s).[222] To take better advantage of global trade, in April 1982, the unified management of the industry was reinforced by MOFERT which created a new company, China Silk, which was split off from Chinatex, the company that handled state trading in other textiles. Top officials from Chinatex, including its general manager Wang Mingjun, were transferred to China Silk. While administratively the two were of equal rank, China Silk's scope of operations were much

[221] *Zhongguo sichou nianjian* 2000: 568.
[222] In 1982, this ministry was created through the union of the Ministry of Trade and the Ministry of Foreign Economic Cooperation.

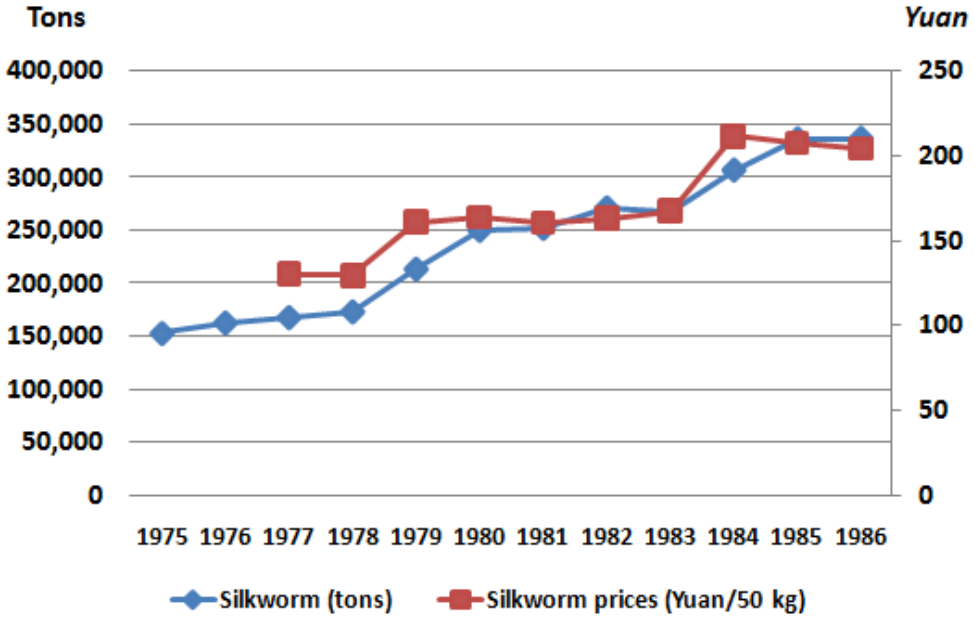
wider than Chinatex's since the later only dealt with foreign trade, while China Silk handled the entire production chain from raw silk to final goods. According to Han Fangyu, China's former chief textile negotiator with the U.S. and the then E.C.C and a top official in Chinatex, China Silk was a new institutional structure which the Chinese officialdom copied from the Japanese trading firms, but with a Chinese twist, "the difference is that Japan has many companies, but China only has one."[223] Even textile processing, which for all other fiber subsectors fell under the jurisdiction of the Ministry of Textile Industry, in silk, industrial processing fell under the single specialized corporation. This offered Beijing substantial control over the production chain and helped ensure it could set global prices.

In addition to this organizational structure, silkworm cultivation has certain features which contribute to the successful regulation of silk. In China, raising silkworms is generally a sideline industry. It is an opportunity for small cultivators to earn extra income without completely relying on it for their sustenance, though in flush years it can certainly prove substantially more profitable than growing other crops. The growing of silkworms requires tracks of land for mulberry trees (*sangyuan*), the leaves from which are fed to the voracious worms before their hibernation within their silk cocoons. These parceled lands are often of secondary quality to the prime tracks reserved for food crops, and thus farmers may devote more or less resources to their cultivation according to the generosity of state incentives. Furthermore, unlike wool and cotton which have important co-commodities, there are no alternative agricultural goods for which the price of silkworms must be balanced or adjusted. There are also no alternative uses for the leaves, trees, worms, moths or cocoons than the reeling of silks, so there is greater 'lock-in' for cultivators, which is reinforced by the fact that mulberry plantations require more long-term investments of resources. This is because similar to tea trees or many fruits, the growing of mulberry trees requires many years to reach maturity and so land usage is more permanent than annual crops. For these reasons, relative to other agricultural goods, state price adjustments are much more straightforward and more likely to have their intended effect. As we saw in cotton and in wool, state regulations in prices, non-price incentives, quotas and open markets might have any number of unintended consequences, depending on the broader institutional context of related commodities – grain in the case of cotton and mutton in the case of wool. In silk, market exchanges were banned and investments in mulberry trees were long term, without alternative usages.

Thus, it is hardly a surprise that the two-time state price adjustments in 1979 and again in 1984 created a relatively neat 'two-step staircase' as cultivators reacted in a straightforward manner to state incentives (Figure 2.10). This contrasts sharply with what happened in raw cotton and wools in which complicating factors made the link between prices and incentives far harder to predict, contributing to the massive overproduction (in cotton) and the slaughtering of sheep (in wool).

[223] *Textile Asia* 11/1982: 11

Figure 2.10: Silkworm Cultivation and Prices: 1975-1986



Sources: Production: *Xin zhongguo sichou shiji*: 948-955; Prices: *Jianguo yilai quanguo zhuyao nong chanpin chengben shouyi ziliao huibian 1953-97.*

In these early years in particular, this is not to say that state price policy was somehow 'automatically' effective; they too needed active political involvement to be implemented. Grassroots cadres needed the assurance and encouragement of higher level cadres. Given its importance as a foreign exchange earner and the fact that China was then importing entire industrial complexes, sericulture received strong political blessings from top leaders, who intended to signal to lower level cadres and households the political correctness of grasping the state incentives newly dangled before them. Accustomed to dramatic swings in the political winds of the Cultural Revolution, it was understandable that those at the grass roots would be weary of yet another zigzag in policy trends. Accordingly, in 1979, during a plenum meeting of the Sichuan Provincial Party Committee, Zhao Ziyang (at the time Provincial Party Secretary of this poor inland province but soon-to-be Premier of China and main architect of the 1980s economic reforms) urged cadres and direct producers to expand their economic horizons and 'liberate' themselves from the Mao-era's 'grain first' constraints. He stressed the stimulating role of 'diversified farming' (*duozhong jingying*) and as the Party Secretary of Sichuan province, one of China's three major producers of silkworms, he urged, "plant mulberry trees, raise worms, reel silk and make silk cloth. The road is wide and much can be accomplished – grasp the opportunity."[224] With 20-30 percent of Sichuan's total foreign exchange earnings derived from the silk industry and with the world in the midst of a silk trading boom, he had every reason to stimulate his grassroots direct producers.[225]

[224] *Sichuan sheng: sichou zhi*: 28.
[225] Ibid: 261.

Further simplifying coordination, China at this time was linked into the international economy very heavily at only a single link along the chain: exports of reeled silk. From 1978 to 1985, between 40-60% of its total silk industry exports in U.S. dollars were composed of some form of simple processed silk threads. In fact, the dollar value actually underestimates the importance of the upstream agricultural and processing nodes since in value added terms reeling was quite low, requiring much higher proportion of the total silkworm cocoons (in quantity terms) to register such large percentages of foreign exchange earnings.[226]

Despite China's dominance in the silk industry, its dependence on a single upstream node was a consequence of the global structure of the industry. Because the main intermediate and final goods silk producers in Europe and Japan had retained their full industrial capacity and infrastructure, they only needed China's unprocessed raw materials. Accordingly, trade agreements between these countries and China required China to support their home industries through provisions of raw silks only. According to China's chief textile negotiator, in terms of the much more lucrative finished goods, "China can only capture these markets slowly."[227]

In all of these ways, China's institutions and policies were tailored to the structure of its global position in silk. As a result, when household farming was introduced, it had no apparent impact on Chinese sericulture. As we saw in Figure 2.10, the first price increase in 1979 (before decollectivization) and the second one in 1984 (after decollectivization) produced identical and predictable reactions from first collective farms and later household cultivators. In fact, during the period of transition to household farming (1980-83), there is no change in the production of silkworm cocoons. It was the larger institutional context that accounts for this difference with cotton and wool.

In 1979, the foreign trade ministry was simply taking advantage of changing demand in global silk markets. The late 1970s saw a significant boom in silk demand via European and Japanese processors. China's internal orderliness across the silk chain and its insertion into international trade paid off handsomely. Across the various categories of traded silk textiles,[228] world trade more than tripled between 1976 and 1985 and through incentivizing their grassroots direct producers, China's foreign trade ministry very ably captured 77-81 percent of the total worldwide increase in the upstream raw silk and silk yarn links.[229] It also captured a respectable 40% of the increase in the midstream silk fabrics links. Both of these figures far exceed China's successes in the cotton and wool textile sub-sectors (Table 2.2). Although it may be rightfully argued that the global cotton textile industry is too massive for China to have captured such large percentages, this is not the case in wool textiles in which China captured almost none of the much larger *eight-fold* increase in global trade of wool textiles between 1976 and 1985.

[226] *Xin zhongguo sichou shiji*: 952-55.
[227] See whole interview, *Textile Asia* 11/1982: 11-19.
[228] Using the United Nations' Standard International Trade Classification Revision 2 trade statistics, I have included all items in categories 261 and also 6511 and 6541.
[229] See online data of the United Nations Commodity Trade Statistics Database for the categories listed in footnote 112.

Table 2.2: Percentage of Total Increase in Global Trade Captured by China by Sub-sector, 1976 – 1985.

	Percentage
Raw Silk and Silk Yarn	77 – 81%
Silk Fabrics	40%
Cotton Yarns	13%
Cotton Fabrics	16%
Wool Yarn	2%
Wool Fabrics	2%

Source: United Nations Commodity Trade Statistics Database. Using SITC Rev. 2, the categories included are: Raw Silk and Silk Yarn (261, 6511), Silk Fabrics (6541), Cotton Yarns (6513, 65166), Cotton Fabrics (6521, 6522, 65341), Wool Yarns (6512, 65167), Wool Fabrics (6542, 6543, 65342).

The foreign trade ministry was the doorkeeper between the peasant cultivators and global demand. Their procurement price increases in 1979 mirrored the global changes and the collective farms, still in place in 1979, responded to the price stimulus. Earnings per *mu* of mulberry tree plantation[230] shot up with global markets and then just as quickly declined with the global recession of the early 1980s. Decollectivization had no apparent influence on cocoon cultivation. It was not until the next global boom and state price increase in 1984 that household farmers kicked into action once again. Even at this early date, global market forces were guiding collective farms' income earning, not directly, but through the prism of the foreign ministry grip on sericulture. As we will see in the next chapter, however, the decentralization of foreign trade in silk ('market' reforms) in the late 1980s led to the 'cocoon wars' and to China losing control over global prices and the domestic industry, which undermined both the domestic and global industry.

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The liberal-institutional explanation of China's agriculture boom, focusing on decollectivization and marketization, rest on a more straightforward understanding of incentives, institutional change and economic development. New institutions like household farming and markets were so effective because they properly realigned work with rewards, creating an agriculture boom which collective agriculture failed to deliver. In this interpretation, there is no sense in which state institutions, policies and commodities interact with each other in the way I have proposed in this chapter. One reason that this liberal-institutional explanation appears so neat and straightforward is that it remains fixated upon a highly abstracted, macro-narrative analysis in which markets and plan are clearly demarcated and their interpenetration through different

[230] A *mu* is 1/15th a hectare.

combinations of commodities, state organizations and policies are not considered. This sort of simplification and abstraction lends itself to examining agriculture in the aggregate through measures like GVAO, which rely on an uncritical use of price data.

Through the lens of the value chain approach, it is possible to perceive the many ways in which institutional changes interact within a broader organizational and policy environment. This is illustrated by the three commodities considered here. In all three, the market track was banned, collective assets were divided among households and state-set prices were increased. And yet, the outcomes could not have been more different. Cotton experienced historically unprecedented harvests which together with grain undermined state fiscal balance; wool stagnated and fiber quality declined; and silkworm cultivation remained unchanged across the collective and household farming periods. The key explanatory variable, then, does not appear to be household farming or marketization themselves, but the interaction of these institutional changes within the broader organizational 'environment' – an environment closely tailored to each commodity. This required an investigation of up- and downstream state organizations and policies, several co-commodities and the interaction between commodities in the formation of prices. These factors were unique to each commodity in China, which intervene in how decollectivization or marketization influenced the agriculture boom.

For a period of time, the seemingly miraculous effects of household farming and marketization were hard for China's top leaders to deny. With four to five years of consecutive record-breaking harvests in major staples, like grains and cotton, reformers like Zhao Ziyang and those in the State Council's Rural Development Research Center initially believed that household farming and open markets had quickly solved China's structural problem of producing sufficient grain and cotton on China's limited arable land to achieve both food security and feed the textile mills.[231] This is why in 1985, the State Council fully marketized almost all agricultural goods, including the all-important cotton and food grains. But it was a mirage. By 1987, Zhao was forced to quickly reverse course as farmers failed to maintain record harvests after liberalization. Without the state plan in agriculture, the push towards cotton and grain marketization in 1985 was unsupportable and the plummeting harvests between 1985 and 1987 sufficiently spooked reformers to return to the assurances of their former institutional set-up, which included state quota contracts, provision of underpriced inputs and closed markets. Perhaps this is why by 1987, after witnessing how thoroughly agriculture and agriculture markets relied on the maintenance of the planned economy, Zhao had a change of heart. In 1988, Zhao and other reformers hosted Theodore Schultz, the famous American economist whose scholarship forms the bedrock of the 'rational peasant' theories. In response to Schultz's praise of China's decision to decollectivize – a reform which appeared to offer unassailable proof of his theories – Zhao remained more skeptical, stressing the "follow-up policies" (*houxu zhengce*) needed to sustain Chinese agriculture and the problems of "dispersed" (*fensanxing*) household farming.[232]

This chapter offered an in-depth look at the three agricultural commodities which 'supply' the textile industry. In the next chapter, I examine another node down the value

[231] *Guowuyuan nongcun fazhan yanjiu zhongxin 1985*.
[232] *Renmin Ribao* 05/17/88.

chain to examine how industrial demand in the three textile subsectors interpolates with these changes in agriculture.

Chapter 3

States, Markets and Three Paths to the Commodity Wars 1985-1994

The previous chapter raised questions about the liberal-institutional account of decollectivization and marketization in creating the agriculture boom of the 1980s. This is quite different, however, from arguing that they had no impact on rural China whatsoever. One area in which decollectivization did have a very profound influence was in releasing rural labor into non-farm occupations.[233] One negative consequence of collective farming was that it tightly constrained rural labor within a narrow handful of agricultural pursuits. This, together with the lack of labor mobility, meant that local underemployment of labor was endemic.

Decollectivization expanded the menu of choices available to household labor, opening new avenues of employment, especially off-farm. Secondly, a return to household farming replaced the basic unit of capital accumulation in the countryside. For one, many collective farming assets were divided among households along with the distribution of land rights. Secondly, through state price increases, a substantial portion of national income was transferred from government control to household control. In these senses, decollectivization was undeniably a momentous reform. One of the points of the prior chapter was that the *mechanism* by which households acquired this income was not primarily household farming and markets alone, but rather the complex ways in which the planned economy and state institutions interacted with these liberalizing reforms. However, regardless of the mechanism of income earnings, rural households did gain control of a much larger share of the rural income pie, which itself had expanded dramatically.[234] Altogether, decollectivization offered farmers greater choice in the use of their labor both on- and off-farm, put substantial new assets under their control as well as augmented their income through government transfers of a large share of national income.

This continuous flow of labor and capital out of agriculture into non-agricultural pursuits are the types of structural changes which so occupied the attention of development economists in the post-war period. However, China is distinctive in that it occurred in a highly 'localized' manner, best exemplified by the government slogan '*litu bu lixiang*,' or 'leaving the soil but not the countryside.' While there is evidence that a degree of interregional labor flows occurred in the 1980s, such as the well-known outflow of Wenzhouese to major cities, in general, the flow of labor off the farm and the accumulation and intermediation of capital was a local affair. [235] This is best exemplified

[233] This is a point made in Phillip Huang's research on the early reform era. P. Huang 1990.
[234] Given the large state transfers of income through procurement price increases, even without decollectivization, some version of an agriculture boom may still have occurred (though undoubtedly through a different mechanism and sequence of events). But, in this case, households would not have had control over the newfound income transfers.
[235] My interviews with Wenzhouese who have resided in Beijing, some for decades, indicate that their early experiences making a living in petty production and trade, often in apparel goods, just outside the walls of Beijing was

by the phenomenon of township and village enterprises (TVEs), China's unique form of rural industrialization and services. While there has been much debate over how to understand these firms in terms of ownership, there is agreement that the management, labor and capital utilized by them were largely sourced locally.[236]

In addition to being localized, rural industrialization during this period created a dynamic of 'extensive growth.' The excess labor and newfound income and savings, which were intermediated by rejuvenated rural bank cooperatives, were channeled into the expansion of industrial capacity. For instance, Yasheng Huang's recent research shows that capital circulated locally in the 1980s, rather than being siphoned off to urban areas.[237] During the 1980s, growth was achieved in these regions largely by adding capacity, utilizing underemployed sources of labor and entering industries and services which offered the easiest returns.

China's extensive growth of the 1980s also relied on its 'native' technology and machinery manufacturing, utilizing capabilities that had been built up over the period of autarky in the Mao-era.[238] Unlike in advanced countries where scrapping machinery for technological upgrading is the norm, in China textile machines were rarely scrapped until they were completely worn-out, inoperable and irreparable. A large share of China's machinery in the 1980s was very old, some of it even dating to the pre-revolution period. This is partly because when state-owned firms acquired new machinery, most purchased Chinese-made textile machinery. This machinery was very cheap, specially tailored to process China's raw materials, and was labor-absorbing compared to foreign technology which was intentionally designed to reduce labor costs. After SOEs purchased new Chinese-made machinery, their older second-hand machinery was passed down to the newly arising TVEs as a hand-me down (often accompanied with subcontracting agreements).[239] In this way, China's period of extensive growth was further abetted by its native machinery industry.

How did these broad structural changes and extensive, localized growth influence the commodities and sectors considered here? China's period of extensive growth over the 1980s meant that raw material supplies, like agricultural commodities, often became the key bottleneck and the focal point of conflicts between regions. The local nature of China's new regime of accumulation meant that local governments began to intervene in raw material exchanges. This combination contributed to one of the more dramatic events in China's economic reform period: the 'commodity wars,' the main topic of this chapter. The wars consisted of intense, prolonged and at times violent struggles over the agricultural harvests of many commodities. Local governments[240] were pivotal in instigating them as they sought to control the cross-border flow of raw agricultural

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precarious, arduous and thus rather unusual. This was due in no small measure to the hostility of the local population and government towards them. See Zhang 2001 for a particularly dramatic illustration of such hostility.

[236] Byrd and Lin 1990, Oi 1992.

[237] Huang 2008.

[238] Cheng 1971.

[239] See Christiansen 1992 and Buck 2002.

[240] There are many possible meanings for local government in China due to the extensive administrative hierarchy. In this chapter, local government is used generically to refer to all administrative units from the province down to the township.

goods.[241] As such, the conflicts waged most fiercely on the borders between administrative units, such as between provinces and between counties within provinces. As I argue in the next chapter, the wars were transformative because the struggles over limited commodities increased the price of China's raw materials to the point where domestic prices were rapidly inflated up to international price levels. By 'squeezing' industrial processors, price inflation in upstream raw commodities (which well exceeded the general inflation of the late 1980s) created both an industrial crisis and caused China to lose its competitive edge in textile exports, which by 1986 had become its largest foreign exchange earner.

The wars were indicative of how well and by what means the 'supply' of agricultural commodities matched with expanding industrial 'demand' under the conditions of China's 'extensive and localized' production in the 1980s. Much like the literature concerning decollectivization and marketization, the mismatch between agriculture supply and industrial demand which ignited the commodity wars are also analyzed in an institutional economics and macro-narrative perspective. In particular, most explanations of the wars highlight the role of *fiscal decentralization*, which realigned incentives for local governments towards local industrial development. This led them to over-invest in industrial capacity, setting off struggles over increasingly scarce agricultural commodities. These explanations are couched in terms of 'government distortions' which created artificial imbalances between supply and demand.

This common macro-narrative does not hold up when examined through a commodity and industrial lens. This chapter's method of comparison is different from Chapter 2, when I argued that similar institutional change (household farming and markets) across different commodities resulted in very different outcomes. The method of comparison here is a bit more tricky. Here, I argue that a similar institutional change (fiscal decentralization and its effect on the rise of TVEs) *appears* to have a similar outcome across different commodities, (the commodity wars in all three goods); however, upon closer examination, this is a mirage. Through close process tracing and an examination of different links along the chain, I argue that the underlying reasons and pathways to the commodity wars in cotton, wool and silk differed. This is primarily accomplished by paying close attention to the *timing of events*. I look closely at the timing of the wars and in particular, the timing of local government investments in industrial capacity across otherwise very similar industrial subsectors. By combining what we learned in the previous chapter on the institutions and policies shaping agriculture supply, with an examination of the institutions shaping industrial demand, we can know if, when and why supply-demand imbalances occurred which led to the wars in each commodity. It is reasonable to presume that because cotton and wool spinning and silk reeling are nearly identical industrial subsectors and because fiscal decentralization was a broad reform affecting all local governments, these three subsectors would present equally attractive investment opportunities to local government. However, I find that on account of the organizations and policies shaping the nodes of these three commodity chains, both rural and urban local governments differed widely in terms of the timing and extent of entry into each subsector, despite sharing identical incentive structures and

[241] Similar struggles occurred over non-agricultural commodities as well, such as coal and final consumer goods. In this chapter, I focus largely on those agricultural commodities associated with textiles: cotton, wool and silk.

despite the same technological and economic barriers to entry. In addition, I find that imbalances occurred only in cotton and wool, whereas the silk agro-industry exhibited no imbalances between supply and demand; and yet, it too fell victim to the same intense struggles between local governments over silkworm cocoons. This further confirms that the pathways to the wars varied widely.

However, if 'government distortions' did not create imbalances in silk, then why did the wars occur in all three commodities (and in many others)? It is reasonable to assume that a common outcome (like the commodity wars) across different industries might seem to suggest a common, economy-wide cause (like fiscal decentralization). In other words, there appears to be a strong correlation between institutional change and the commodity wars, which likely led scholars to identify fiscal decentralization as the common factor. However, we have to separate out broad *institutional reforms* like fiscal decentralization from underlying *state capacities*, both of which are common attributes shared across local governments. The reason that wars erupted in so many commodities is that local governments shared in common a similar *institutional capacity* to intervene in agriculture exchange; a state capacity that grew from China's particular version of state socialism which placed control over agricultural harvests at the center of agriculture policy. However, local governments' rationale and purpose for intervening at different points in time and in different commodities cannot so easily be reduced to 'partial' market reforms, 'government distortions' or mono-causal and economy-wide institutional changes, like fiscal decentralization. It was not an economy-wide institutional change like fiscal decentralization which is the common factor, but rather a latent local state capacity that local governments shared in common.

Through close process tracing of the institutions and policies that shaped agriculture supply and industrial demand, this chapter narrates the different pathways which led local governments to intervene in agricultural exchange in cotton, wool and silk. Institutions and policies regulating each commodity were tailored to underlying structural conditions. For the same reasons as the regulation of cotton harvests, Beijing heavily regulated the cotton industrial and commercial links as the commodity worked its way downstream into a sellable final product. By looking at the whole chain from cotton to foreign and domestic trade, we can see how different constellations of agencies and ministries, each with their own sets of objectives and resources, pushed and pulled the cotton agro-industrial chain in different directions – something I call 'inter-arena politics.' It was these contending interests which ignited the cotton commodity wars. In wool, I examine the reasons why the decline of domestic wool in western China was so mismatched with skyrocketing industrial expansion in eastern mills, leading to the wool wars and forcing Beijing to substantially deepen the long-standing east-west division of the wool economy. Finally, as with all things silk, it was changes in the conditions of global silk and how China was organizationally linked into global markets which sparked the cocoon wars. In the case of silk, however, the cocoon wars which waged in China's domestic economy were transmitted outward onto the global industry, which undermined both the global and Chinese industries alike.

Introduction to the Wars and Literature Review[242]

The main weapons of the wars were prices. Local procurement depots which purchased a particular agriculture commodity usually set off a local war by offering prices higher than the official prices set by Beijing. For commodities whose price-setting had been decentralized to provincial governments, as was the case for wool after 1985, the same logic applied in pricing by counties within provinces.[243] Higher bid prices induced neighboring counties to raise the ante by offering still higher counter-offer prices. Given these emerging regional price differences, local processing firms were forced to dispatch representatives to scour the countryside in search of cheaper materials.

This was not necessarily a novel activity for industrial firms. During periods of political and economic turbulence, such as the Great Leap Forward and Cultural Revolution, China's state material supplies system sometimes proved defunct, failing to deliver planned quotas. Consequently, by the reform period, some industrial firms were already quite skilled in sourcing their own inputs.[244]

Price competition, however, posed a threat to local governments and their local firms. In order to enforce local prices and control the exchange of commodities, local governments had to be highly proactive. Their arsenal of defensive strategies reads like a typical list of protectionist measures in international trade, including import and export duties, and a host of 'non-tariff barriers.' Local commercial units found themselves the target of preferential or disciplinary treatment according to their willingness to comply with local commercial objectives. By this means, local governments sought to enforce locally set prices and local agricultural quotas in a form of 'export protectionism.'[245]

The wars could lead to truly bizarre situations. For instance, Zhejiang province, which shares a border with Shanghai, is one of China's foremost mulberry silkworm cocoon cultivating regions. But starting from 1987, local governments increasingly blocked the flow of raw and dried cocoons into Shanghai, which at that time was still an important center of silk processing and silk goods production. In the first half of 1988 at the height of the cocoon wars, Shanghai received only 40 tons of their allotted quota of 2000 tons of raw silk. In a bizarre twist, Shanghai firms had to purchase silk on international markets using their precious retained foreign exchange despite the fact that China produced over 60% of world raw silk output and provided 90% of world exports.[246] Similar situations occurred in wool, cotton and other commodities.[247]

Commercial exchange occasionally turned violent. In some cases, deficit regions set up purchasing stations along the border of surplus areas to more easily lure local farmers to sell to them. In reaction, local governments from surplus areas occasionally countered by deploying local police or private security forces under the employment of

[242] The following briefly summarizes the many works on the commodity wars cited below.
[243] After decentralization of wool prices, some major wool-producing provinces such as Inner Mongolia chose to maintain a fixed provincial price, while others such as Gansu liberalized their wool prices.
[244] Walder 1986.
[245] These included low-interest loans, fines for marketing non-local goods, legal restrictions on price differences between local and non-local goods, and local purchasing quotas. See Wedeman 2003.
[246] Young 2000
[247] Findlay and Watson 1992; Alpermann 2006.

local processing firms and Supply and Marketing Cooperatives (SMC), to physically block roads during harvest season. In many documented cases, farmers would be met at county borders by a line of police to prevent these exchanges from occurring.[248] Riots, some involving fatalities, were not uncommon outcomes of these open conflicts with farmers. To avoid these open conflicts, farmers or middlemen found ways of conducting trade under the cloak of night or away from the main roadways.

While specific narratives vary by commodity and timing, all explanations of the wars focus on *imbalances* in the supply of agricultural commodities and the demands from industrial processors, like spinning and reeling factories. Scholars agree on supply and demand imbalances as the sources of the wars, but they differ as to the root causes underlying them. One explanation stresses *economic rents* created through 'partial' reforms of government price controls; while a second and much larger group of explanations emphasizes the link between *fiscal decentralization and rural industrialization*. Both sets of explanations agree on the role of 'government distortion,' but differ slightly as to the principle institution at fault.

The intellectual roots of the *economic rents* version lie in the vast literature on the pathologies of post-socialist 'partial marketization.' In this instance of partial reforms, economic rents were derived from price distortions, which were holdovers of the pre-reform era.[249] The argument is that, similar to the pre-reform era, agricultural prices were artificially suppressed and final goods consumer prices were artificially elevated, creating the infamous 'price scissors,' through which the central government extracted fiscal revenue.

The existence of these rents, it is argued, attracted local government and private investments in rural industrial firms (mostly township and village enterprises or TVEs) which entered into low-technology, labor-intensive industries, like textiles, tea and tobacco processing. The price rents are the key mechanism as they provided the necessary incentives for the explosive rise of the TVEs. Local governments, having heavily invested in TVEs and deriving significant tax revenue from local industry, then interfered in cross-border exchanges in a bid to capture more rents within their borders. In the scramble to set up TVEs, major imbalances arose between limited agricultural goods and the 'blind' expansion of industrial capacity. According to Andrew Wedeman, who is the main advocate of this first explanation, the wars destroyed the state commercial system, balkanized the Chinese economy through local 'export protectionism'[250] and nearly derailed the entire reform trajectory. As these rural industrial concerns mushroomed, they quickly consumed the economic rents composed of the price differentials. However, this decentralized competitive rent-seeking did not ultimately destroy the economy. Quite the contrary, rents were eaten up and controlled

[248] See Wedeman 2003 for an exhaustive account of these many local conflicts.

[249] This is the primary argument of Andrew Wedeman's book, see chapters 1 and 2 (Wedeman, 2003). Alwyn Young also sees price controls and rents as the "most destructive element" (p 1103), but he stresses the regional price differences permitted by the center as the main problem, rather than simply the centrally imposed price scissors. (Young 2000)

[250] This is Wedeman's term which he contrasts with 'import protectionism.' He argues that once the boom ended with the reining in of credit, local governments turned to creating 'import protection' barriers to protect their home industries against 'imports' from other areas of the country.

prices were driven to their 'true' market-clearing level. In essence, *partial but decentralized* reforms created a market economy in China via the dangerous but ultimately salubrious commodity wars.[251]

The second and much more widely accepted set of explanations sees the link between *fiscal decentralization and rural industrialization* as the root cause of the war. Fiscal decentralization is seen as one of the most crucial and transformative reforms in China, which stimulated local government to take a greater interest in local economic development.[252] This is because it changed local government from mere tax collectors to stakeholders in tax generation. Local governments have long acted as the primary tax collectors for Beijing. For most of the 1970s, local governments collected six to seven *times* more revenue than the center, but traditionally the overwhelming portion of it was handed over to Beijing.

Fiscal decentralization over the 1980s left more revenue in local hands. Although there are diverse versions, the basic innovation consisted of negotiating a fixed tax quota level and then sharing over-quota residual taxes between any two levels of government. The base tax level and the shared ratio were open to regular negotiation and enormous disparity existed across geographic and administrative units. But, overall, it gave greater incentives for local governments to take an active role in local economic growth (no doubt skewed to high-tax sectors), and it sought to achieve greater efficiency in budget management. By placing resources in the hands of local governments and stimulating their interest in the local economy, investments in industrial firms grew robust.

These tax incentives meant that the more industrial processing performed within their boundaries, the greater their aggregate tax returns (after sharing with the next level up), not to mention the benefits of local employment absorption and the residual profits for enterprises in which local governments were direct investors. But, TVEs were forced to source for themselves raw materials, capital, skilled workers, technology, customers and everything else to bring industrial or commercial concerns into operation. They rushed headlong into those 'niches' of the economy where profits could be most easily and quickly earned, such as low technology and labor-intensive light industry. This was particularly pronounced in industries engaged in agricultural processing, which increased demand for raw materials and created the underlying conditions of the wars.[253] Among scholars of the commodity wars, the rise of TVEs is understood as creating the 'demand' imbalances which ignited the conflict over commodities. Across many light industrial processing sectors, including cotton ginning,[254] wool scouring,[255] cotton and wool processing,[256] crude and refined tea processing,[257] tobacco processing,[258] silk processing

[251] By contrast, using price and other quantitative data, Young argues that regional protectionism has continued well into the 1990s. (Young 2000)
[252] The literature on this topic is enormous. The most accurate and insightful scholars include the work of Christine Wong 1988 and Jean Oi 1992, 1999.
[253] For cotton, see Alpermann 2006, Zhang et al 1996; for wool, see Watson and Findlay 1989: 235, 239; Longworth and Brown 1995: 36, Findlay and Watson 1992: 171; For tea, see Forster and Etherington 1994: 177.
[254] Alperman 2006.
[255] Longworth and Brown, 1995.
[256] Zhang et al, 1996: 132, Watson and Findlay 1992: 167, Longworth and Brown, 1995: 21, 24, 27, 36.
[257] Forster and Etherington 1994: 148-53.
[258] Peng 1996.

and reeling, TVEs are cited as the reason for the 'imbalanced' growth in demand for raw agricultural commodities.

Evidence for the Existing Explanations

While TVEs were undeniably a powerful force in transforming the Chinese economy, there is empirical evidence which calls into question both explanations. This is observable through a careful examination of the *timing* of events. Let's take the issue of economic rents. This argument rests on the proposition that state-set prices in agriculture were below 'true' market prices, while state-set prices in industrial goods were above market prices, the difference creating 'a rich diet of rents.'

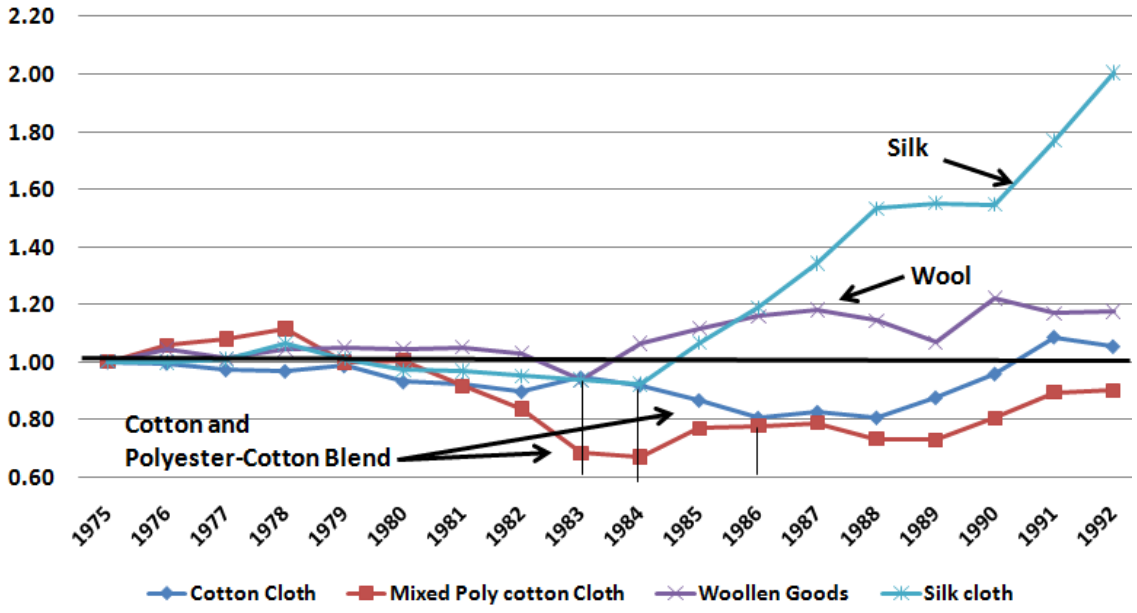
If this is true, then one would expect that the artificially high consumer goods retail prices would precipitously decline during the war years, as industrial competitors entered what used to be the largely exclusive domain of state-owned enterprises. However, inflation-adjusted prices of retail products across a range of textile and garment goods run contrary to expectations (Figure 3.1). Real prices bottomed out between 1983 and 1986, *before* the beginning of the commodity wars and the rapid entry of TVEs in the latter half of the 1980s. Most real prices actually rose during the commodity wars period, exactly when the inflated industrial prices should have been declining given the intense competition of new TVE entrants.[259]

Similar to the dynamic we observed between staple and non-staple foods, Figure 3.1 highlights once again the interpenetration of the market and plan track, this time in consumer textiles. The substantial price suppression in cotton and polyester blend cloth prices and the clothing subsidies offered to urbanites allowed Chinese purchasing power to shift to non-staple consumer textiles. Furthermore, the commercial sale of 'luxury' items, like worsted wool and silk cloth, were liberalized on the domestic market earlier and more thoroughly than the staple cloths. This included ready-to-wear garments which prior to the reforms were still relatively rare 'luxury' consumer goods.[260] Changes in the real domestic retail prices for these goods over the 1980s offers a visual illustration of how the state-controlled and highly subsidized textile goods of the planned economy became the 'base,' which allowed the wool and silk goods of the market economy to 'fly.' (Figure 3.1)

[259] It is necessary to deflate prices because the latter half of the 1980s witnessed a period of significant general inflation, so *all* prices were rising.

[260] In the early 1980s, only about 20% of all clothing consisted of ready to wear garments. Most consumers bought cloth fabrics and used tailors or sewed their own clothing at home.

Figure 3.1: Real Retail Prices for Various Textile Goods, 1975-1992 (1975=1.00)



Sources: *Shangye waijing tongji ziliao 1949-1988; Guonei Shichang Tongji Nianjian 1990, 1991, 992, 1993.*
Note: Vertical lines indicate the year when real prices reached their lowest point, indicating that the price distortions of the pre-reform era on these goods had been competed away.

In addition to unit prices, the pattern of industrial investments across subsectors also does not match expectations regarding the timing of the wars or the entry of TVEs. It is true that the 1980s was the period of the most rapid growth in TVEs, and much of this early investment first entered light industries. However, a more disaggregated examination of investments shows substantial variation between otherwise identical low-technology, labor intensive sub-sectors of the textile industries. If the center-local tax relationship was the common institutional change driving the spread of TVEs and over-capacity across light industry sectors, then there ought to be a relatively similar pattern to the growth of industrial capacity. However, this was not the case. In wool, spindle capacity was feverishly added between 1981 to 1987; the cotton industry, by contrast, was essentially moribund until the 'investment rush' between 1988 to 1991; and finally, the silk industry's most sustained and rapid addition of reeling capacity was not until 1990 to 1994 (see Figure 3.2 below). For three industries which share nearly identical industrial processes, capital and labor intensities and which would be equally attractive to rural governments in terms of their ability to surmount entry barriers, this pattern of investment simply does not fit. Why might local governments enter some light industries immediately (wool) and yet wait almost a decade before entering others (cotton and silk)?

This question will be answered in greater detail below, however a quick comparison of TVEs across textile and garment sub-sectors offers a clue. Tables 3.1 and 4.2 both measure the degree to which TVEs entered into each sub-sector. Despite nearly identical barriers to entry, the massive cotton spinning and weaving sub-sectors stand out

in that TVEs clearly avoided the cotton sector. Even during the heat of the cotton wars, TVEs had a small presence in cotton spindle capacity (11%) and not much more in the output of cotton cloth (16%), despite the even lower entry barriers for weaving. By contrast, they vigorously entered into industries like wool, silk, knitwear and garments.[261] Despite the same incentives from fiscal decentralization and the high profits in all sub-sectors given the artificially high prices of industrial goods under the price scissors mechanism, TVEs shunned cotton processing. If TVEs were not the primary new entrants into the cotton industry, then what firms were and why were TVEs so intent on avoiding the subsector even though industrial capacity skyrocketed between 1988-91? As described below, I find that unlike in wool and silk, the cotton wars were not sparked by TVEs but rather by a new breed of state-owned 'mini-mills' which appear only in the cotton sector. Clearly, something else, something *commodity-specific*, was afoot.

Table 3.1: Township and Village Enterprise Installed Machinery as a Percentage of State-Owned Firms within the Textile Ministry.

	1980	1986	1990
		SPINNING	
Cotton Spindles	3.4%	6.5%	11%
Silk Filatures	22%	28%	31%
		WEAVING	
Cotton Looms	19%	23%	29%
Silk Looms	26%	68%	60%
Wool Looms	---	554%	499%

Sources: *Huihuang de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99*: 326,330; *Zhongguo fangzhi gongye nianjian* (various years).

Table 3.2: Township and Village Enterprise Output as a Percentage of Total National Production

	1982	1986	1989
Cotton Cloth	----	14%	16%
Silk Cloth	15%	35%	31%
Woolen Cloth	----	19%	38%
Woven Garments	----	36%	44%

Source: *Huihuang de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99*: 325; *Zhongguo fangzhi gongye nianjian* (various years).

From a sub-sectoral perspective, then, there seems to be substantial evidence which questions the explanations commonly given for the cause of the commodity wars. In particular, the timing of events and a comparison across otherwise identical subsectors

[261] It should be noted that Table 2 is for cotton, wool, and silk *cloth* production. This is important because in contrast to the spinning sector which requires much larger investments, the weaving of cloth requires very little start-up capital. In fact, a small investment in several looms (or even one) can turn a profit, so the barriers to entry were not only equivalent but *very* low across the three sub-sectors. This is true of textile production in many developing countries.

highlights these problems. And yet, it is undeniable that conflicts over the harvest occurred across many commodities, including cotton.[262] How can these be reconciled?

Part of the confusion arises because scholars have not distinguished between broad, economy-wide *institutional reforms*, like fiscal decentralization, and *state capacities*, both of which are shared in common across local governments. In other words, the wars occurred across different commodities because local governments shared in common the *institutional capacity* to interfere in cross-border exchanges. During the agricultural collectivization era, local states were organizationally empowered to be highly proactive in agricultural harvests in order to ensure grain and other procurement for state quotas and to control personal consumption. With a very high population to arable land ratio, China's structural challenges dictated substantial state intervention in agriculture harvests. However, as the following pages suggest, a common institutional capacity can be wielded for any number of underlying reasons and in a number of different ways.

'Imbalances' at the Agriculture-Industry Link in the Chain

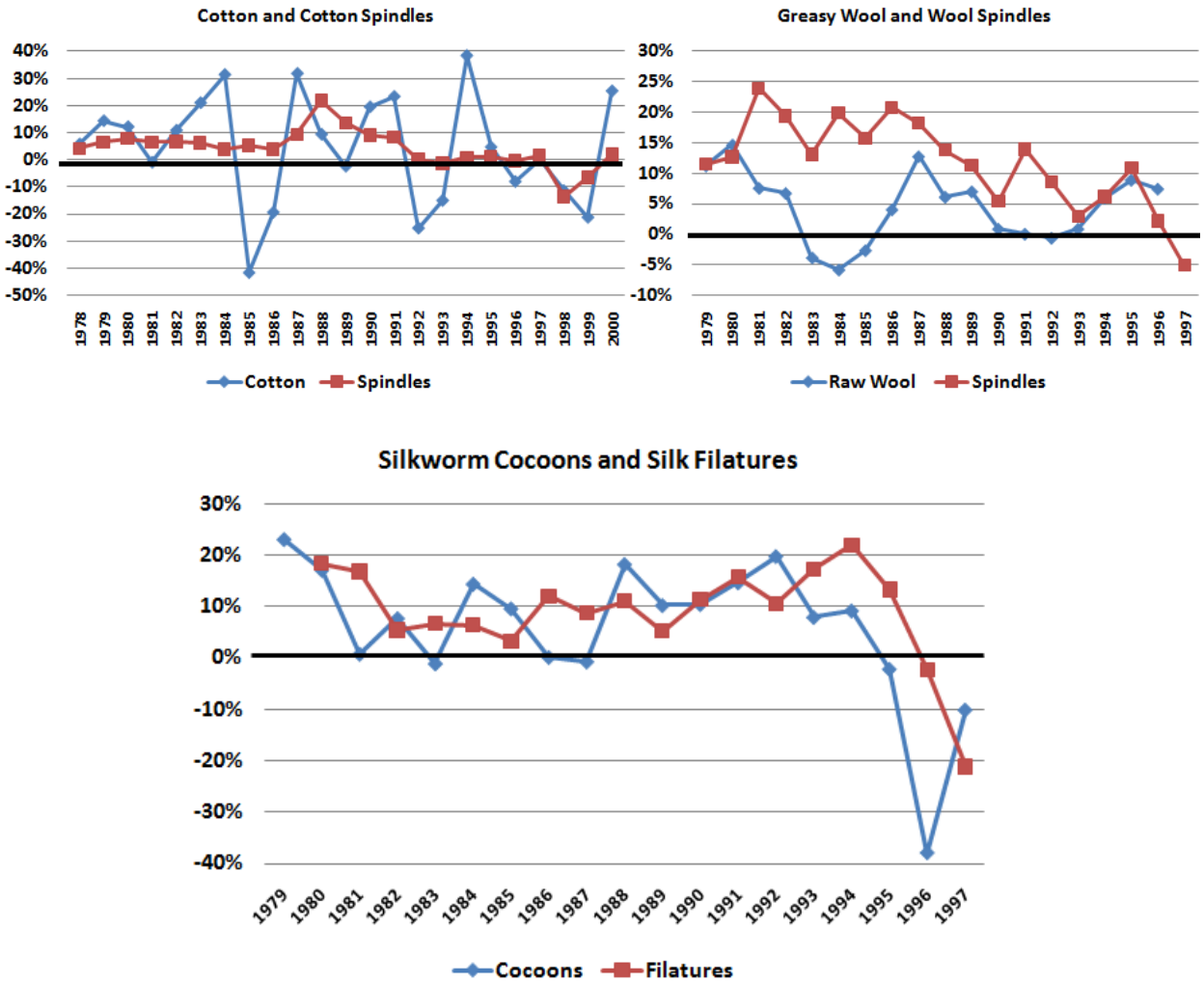
Imbalances between agricultural supply and industrial demand are the common theme underlying all of the explanations for the commodity wars reviewed earlier. If the above theories are correct, then we should find mismatches between supply and demand in each subsector. However, a close examination reveals clear differences across sub-sectors in the degree to which farmers and industry were remained integrated. While cotton and wool do appear to exhibit very substantial imbalances, silkworm cocoon supply and silk-reeling industrial demand remained in balance, for reasons explained later. While admittedly crude as a measure (below I use more precise measurements), Figure 3.2 overlays the percent change in the yearly harvest of each agricultural commodity (net of imports and exports) with the annual change in industrial machinery capacity. Since there are no viable alternative usages for all three commodities, nearly all of the fibers must go through spinning machines or be wasted.[263] On the one hand, the cotton and wool agro-industry have shown clear and sustained patterns of imbalance over much of the reform era, while cocoon farmers and the reeling industry show a nearly perfect pattern of coordination, with a year of high cocoon production alternating with the addition of reeling capacity.[264] This pokes another hole into the earlier explanations. It

[263] These graphs include net imports or exports of the commodity.

[264] There are three caveats which must be addressed. First, raw fibers can be stored, and hence need not show annual balances. While inventory for a year or at most two (for cotton) is possible, the general pattern over time should still remain in-sync, much like the 1-2 year delays between changes in cocoon cultivation and silk reeling machinery. The pattern of the cotton and wool agro-industries, by contrast, shows little balance even over longer periods. Secondly, there is the issue of chemical fibers which can 'replace' natural fibers. I address the chemical fiber industry below in greater detail, however during the 1980s China had a small chemical fiber industry relative to its usage of natural fibers. In addition, the production of chemical fibers over time has been steady and monotonic expansion and thus would not suffice to make up for the rapid drops in agriculture, particularly cotton. Finally, imports and exports have to be considered which I do below. I find that they played a pivotal role only in wool. In this crude comparison then, the silk industry raises questions as to whether agro-industrial 'imbalances' are even a necessary condition in fostering struggles over the harvest. Even a well-balanced agro-industrial nexus can produce these conflicts.

shows that local governments intervened in silkworm trade not necessarily because of supply-demand imbalances caused by either over-investment from fiscal decentralization or price distortions, but for other reasons altogether.

Figure 3.2: Annual Percent Change in Agriculture Harvests and Industrial Capacity



Sources: Silk: Wang Zhuangmiao: *Xin Zhongguo sichou shiji* and *Zhongguo sichou nianjian 2000*; Wool and Cotton: Huih*uang de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99, Zhongguo fangzhi tongji nianbao* (various years), *Zhongguo fangzhi gongye nianjian* (various years).

Figure 3.2 also helps us trace changes in each subsector over time. In the case of wool, we can see from Figure 3.2 that the supply of raw wool declined rapidly in the first half of the 1980s while industrial capacity was added at the feverish pace of 15-25% each year. Recall from the last chapter the reasons for raw wool's plummet: after the division between the localization of newly opened mutton markets and state-controlled wool, western herders rapidly shifted to coarse wool sheep which they quickly slaughtered, starving eastern mills of wool supplies. In the section below, I examine the demand side or why eastern mills more than doubled industrial capacity, at the same time that herders were turning away from wool.

Like most things in cotton, the role of Beijing was heavy-handed. We already saw the many devices by which central planners manipulated and cajoled household cotton farmers. Below, I apply a wide-angle lens to the full length of the cotton production chain to show how Beijing heavily regulated every link along the chain, including cotton, chemical fibers, industry and domestic and foreign trade. This perspective reveals that each segment of the chain was regulated by different sets of government bureaus and ministries which were not often coordinated with each other, and pulled in different directions, at times negating each other's efforts, at other times compounding their effects. I narrate how the lack of coordination between four political arenas (two in fiber supply, cotton and chemical fibers, and two in downstream domestic and foreign trade) created the wild pendular swings in cotton harvests (1982-1998) and the spurt of investment in industrial capacity between 1988 and 1991 (Figure 3.2). This degree of hands-on regulation by Beijing is of course a by-product of the central importance Beijing attributes to the cotton agro-industry. China's structural challenges in food and clothing security as well as in inflation in basic needs have led to a thicket of institutions which regulate every node along the chain. As Beijing began reforming institutions along parts of the chain, they created imbalances and ultimately the wars arose through these inter-arena dynamics. Between the gaps of supply and demand, a new breed of state-owned firm quickly arose after 1988 which because of their ability to access raw cotton, denied TVEs a chance to enter the cotton industry. This notion of inter-arena politics well illustrates how a value chain approach can be adapted to domestic politics and helps to pinpoint the process of market creation.

As we saw, silk is distinctive in that there were no imbalances in supply and demand. Silk was well-coordinated for several reasons, including the relative coherence of the foreign trade ministry, the local 'clustering' of the agro-industry, as well as the way China was linked into global production. So, if supply-demand imbalances do not explain the wars, then what does? As the dominant global supplier, we must examine the link between global silk and the foreign trade institutions which connected industrial clusters with global markets. 1987-88 witnessed the beginning of a global boom in silk as well as the decentralization to provinces and cities of China's silk foreign trade apparatus. The wars were struggles over these newly decentralized foreign exchange opportunities. Local governments linked directly into global demand and rapidly expanded cocoon and reeling capacity. Since silk was so well geographically clustered, supply and demand remained in balance. But the skyrocketing prices for silk and the ramping up of capacity in China began to restructure the entire global industry. As the global economy fell into recession, China's domestic industry entered downstream fabrics and garments in order to utilize the sunk costs of installed capacity. This upset the old division of labor between China and advanced countries in silk and undermined the global industry. Thus, in silk the influence of the cocoon wars in China were projected onto the global industry leading to the rapid decimation of the agro-industry after 1994 (see Figure 3.2).

The Case of Wool: Proving the Rule or Proving a Case?

We already saw why western herders shunned wool in favor of mutton in the early 1980s. It remains to explore why eastern mills did just the opposite by more than doubling their industrial capacity *before* 1985, the date usually associated with the beginning of the TVE take-off and much earlier than other light industries. In the 1980s, woolen fabrics and garments were non-staple, luxury items in China and like many luxury items, they were both much desired by consumers and much taxed by governments.

First, the consumers. In the early reform era, cotton fabrics were not only the staple clothing item, they were also highly subsidized and, for urban consumers, strictly rationed. Until 1983, each urban resident was issued coupons for about 7-8 kilograms of cotton fabric which they bought at a local cloth shop to be stitched by a local tailor.[265] As Figure 3.1 above visually illustrates, it was because the basic clothing needs of the population were subsidized that 'luxuries' like woolen piece goods were more easily within grasp of many rural and urban consumers, pushing demand high.

Starting in 1984, prices of wool goods rose rapidly (Figure 3.1 above) and sales rose 110% in that one year alone.[266] This marked the beginning of the 1980s 'wool craze.' In China, Western blazers and business suits (*xifu*) rapidly replaced the 'old' Mao-style clothing as the garment of choice for any aspiring male. The nearly ubiquitous monochrome blue, grey or black Mao-style jackets, run of the mill monochrome green army fatigues and plain white cotton shirts were increasingly replaced by suit jackets and colorful cardigans, accompanied by neckties. Apart from perhaps the most conservative cadres, worsted Western wear became a signifier of 'modernity.'

Like many things in the textile industry, this fad entered China's gates via Hong Kong. Hong Kong investors were the earliest and by far the most numerous representatives of foreign capital to enter China. Apart from their money, technology and market savvy, their fashion presence sparked a wave of change. If it is true that an English industrialist of the 1840's once dreamt of persuading every person in China to lengthen their shirt tail by a foot, then the wholesale shift to an entirely novel line of clothing could surely create a sea change within China's industry.

At the same time, as luxuries, Beijing sought to take a larger piece of the pie compared to the staple textile goods (cotton) and important export items (cotton and silks). At almost every point along the production chain, wool was taxed at higher rates. For instance, wool is unique among the textile fibers in that a wool tax of 10% was paid by the purchaser (often the local Supply and Marketing Cooperative) to the local government before being sold to industrial processors.[267]

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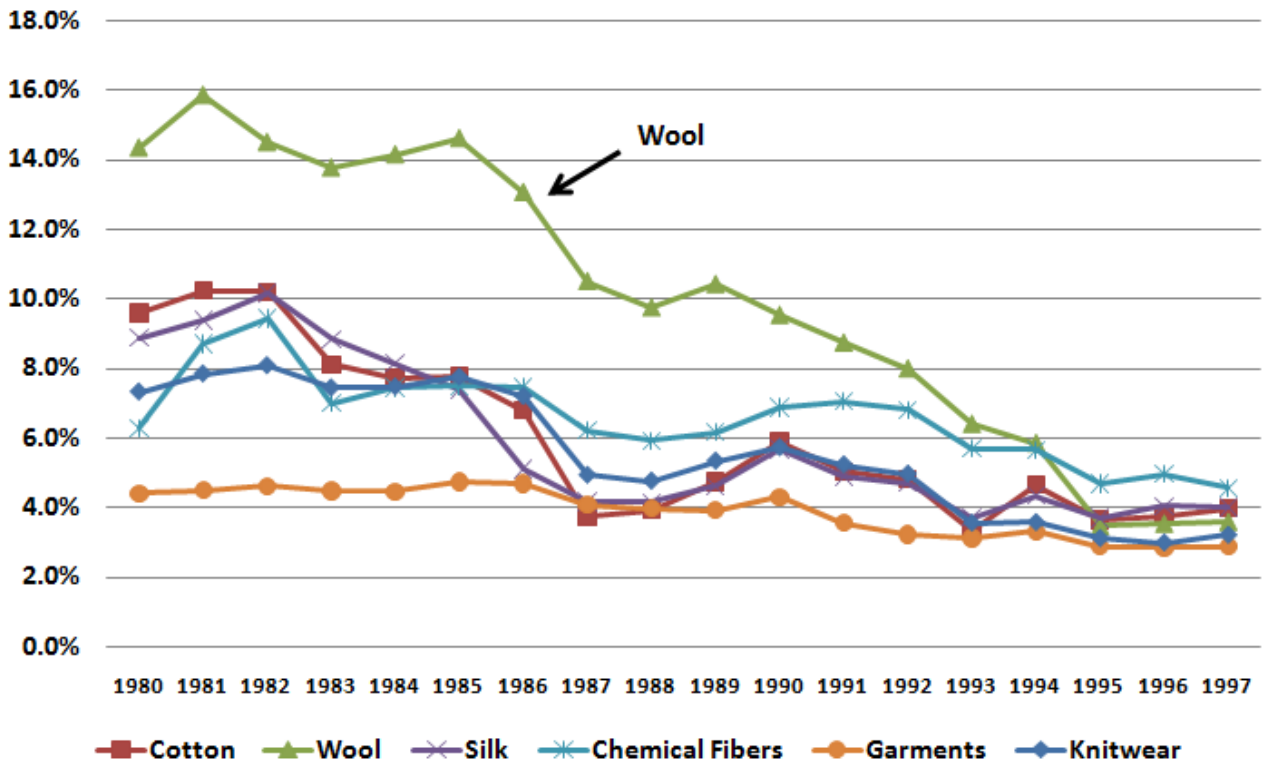
[265] Although China's turn to export-orientation eliminated the independent tailor in urban China, in the early and mid-1980s ready-to-wear garments were still relatively uncommon.

[266] *Zhongguo fangzhi gongye nianjian 1984-85*: 1.

[267] Dating from 1950, this tax was introduced given the difficulty of collecting taxes on wool since it was largely produced by nomadic herders ranging over a vast landscape in western China. For ease of taxation, it was levied at the point of sales. In western China, the wool tax often accounted for 10 to 25 percent of tax revenues for many counties. Furthermore, when the wool wars increased prices tremendously, this automatically increased local revenues in line with prices. Longworth and Brown 1995. See also Findlay and Watson 1989.

In the next link in the chain, wool yarns were taxed the most. After two tax reductions in 1978 and 1983, cotton yarns enjoyed a low 4-7% industrial tax rate; by contrast, wool yarns and fabrics both were taxed at 18%, the highest rate within the textile industry.[268] Finally, in the downstream final goods industry as well, the tax on wool garments, accessories and knit goods in the late 1980s was 20-23%, while all other textile goods were taxed at 14% or below.[269] While tax evasion was often endemic in China, these were not simply numbers on paper. The wool industry turned over a significantly higher percentage of its sales revenue in the form of taxes compared to all of the other sub-sectors (Figure 3.3).

Figure 3.3: Taxes as a Percentage of Revenues across Sub-sectors



Source: Calculated from Huihuang *de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99* : 229-331. *Note:* Total taxes for each sub-sectors was calculated by subtracting profits (*lirun*) from total profit-taxes (*lirun shuijin*).

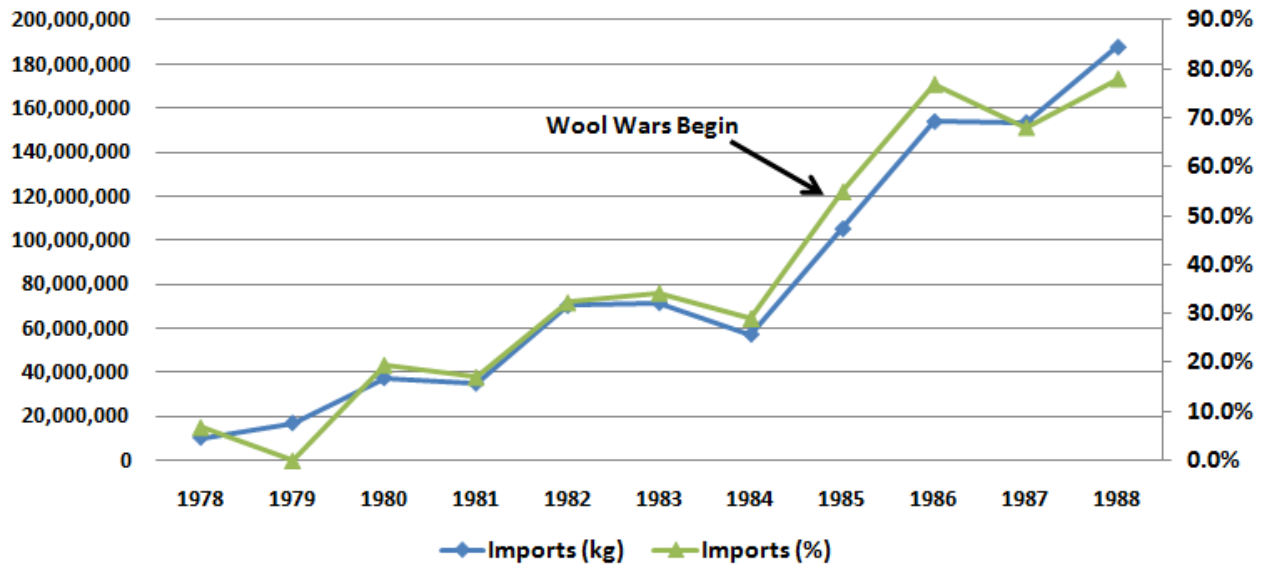
Of course, it is not uncommon for governments to tax luxuries more heavily. However, in China, a heavier tax load was not an indicator of progressive taxation. The tax reforms in 1980 meant that compared to cotton and silk, local governments were substantially more attracted to the higher tax rates of wool goods. Almost immediately after the tax reforms, local governments flooded the wool industry, leading to a drop in

[268] <<*Guanyu miansha jianshui he gaijin fangzhipin zhengshui banfa de tongzhi*>> in *Zhongguo fangzhi gongye nianjian 1983-84*: 154.
[269] <<*Guanyu jiangdi fangzhi pin zengzhishui shui fudan de tongzhi*>> in *Fangzhi gongye fagui huibian*.

real wool piece good prices, until the 1984 'wool craze' started to re-inflate them. Unlike silk and cotton, industrial machinery capacity was installed at an exceptionally rapid pace in wools and at a much earlier time (Figure 3.2 above). This may seem to support the view that tax decentralization to local governments really was the core problem. However, rapid additions of industrial capacity among TVEs did not occur in the other textile sub-sectors at this time, indicating that this was a phenomenon unique to wool textiles during this period.

If local governments were inspired by the tax incentives and consumers were creating strong demand signals, then the incentives were in place. There were two things lacking: raw wool and machinery. Since the preponderance of industrial capacity in wool remained along the coast, mills relied on allocations of domestic wool from the inland western regions. But if raw wool was not forthcoming from western herders, coastal mills had no choice but to fight to acquire limited and expensive imports (domestic production of acrylic was insufficient at this time). Wool imports required access to import licenses and foreign exchange, both of which the coastal provinces were able to acquire more readily, though Beijing limited the quantity through quotas and licensing in order to keep foreign exchange usage in check. From almost no reliance on imports in the late 1970s, to the equivalent of nearly 35% of total domestic production by 1982-83, wool entered China at unprecedented levels, largely for coastal firms (Figure 3.4). By contrast, this sort of 'flexible' turn to imported raw materials was physically impossible in the case of silk since China was the source of 90% of trade in raw silks, and it was politically impossible in cotton given the enormous cotton farming population and the burden it would impose on China's foreign exchange. However, after the wool wars commenced in 1985, coastal mills became even more severed from western supplies, forcing Beijing and coastal mills to source much more wool through imports which rapidly rose to almost 80% of domestic production (Figure 3.4).

Figure 3.4: Raw Wool Imports (Kg and Percent of Domestic Production)



Sources: United Nations Commercial Trade Statistics Database

There was one element of the wool wars, however, which was common to all textile sub-sectors: China's 'native' machinery. China's pre-reform textile machinery industry was shaped by two basic trends: a very large and underemployed workforce and closure to the global economy during the 1960s and 1970s. While I discuss machinery in greater depth below, in general, China's native textile machinery industry turned out equipment that was very basic, mass-produced and not highly automated by advanced country standards. Unlike in developed countries, China's domestic industry produced machinery extremely cheaply. For instance, in contrast to imported spinning frames or shuttleless looms which might take 10 to 20 years to amortize the debt in China, domestic machinery firms furnished China's standard 1511 series automatic looms for only ten to thirty thousand *yuan*, a sum that could be paid back after only a year or two of production.[270] Given these price differences, only the large-scale urban mills could afford imported equipment (let alone gain access to foreign exchange to buy them). Domestic machinery, however, was well within the grasp of smaller-scale firms.

Secondly, similar to many developing countries, machinery in China was rarely scrapped until it was completely inoperable. Workable machinery even from the 1950s would find takers for second-hand usage.[271] Chinese textile firms had to be incentivized to scrape their old equipment.[272] In advanced countries, machinery replacement rates are

[270] See the price schedules in <<*Tiaozheng bufen fangzhi jixie chanpin chuchang jizhun jiage mingxi biao*>> in *Zhongguo fangzhi gongye nianjian 1988-89*: 2115-18. Also, see the relative prices of machinery in Textile Asia 7/1993: 10-11.
[271] Informant #112
[272] Informant #78 (Dezhou, Shandong).

often quite high, each year usually hovering around 10-15%.[273] In advanced spinning and weaving, replacement of older machinery is particularly important because the key to profitability lies at the delicate intersection of labor costs, skill levels, maintaining very high machinery utilization rates and the quality of the machines.[274] The key is that in these countries, old machinery was *replaced*, either scrapped or exported as second-hand machinery to other countries. In either case, there were built-in incentives to eliminate machinery at a regular pace from total domestic industrial capacity.

This is not the case in populous, developing countries. This is why 'technical upgrading' schemes often end up as 'machinery expansion' schemes. As we see below, this was certainly the case in China during the 7th Five-Year Plan (1986-90), as well as in other countries like India.[275] In a poor country with much underemployment, it is very difficult to justify the elimination of an asset that in a developing country's context retained value. The point is that during the pre-reform era, China had developed a 'native' machinery industry which was already geared towards rapid overcapacity on account of the cheap and basic machinery which produced only a narrow set of products, and in which there was no built in 'market' incentive or necessity to scrap. It was only in the 1990s, after more than a decade of trying to control overcapacity that the State Council began to use substantial financial resources to destroy China's older spindle capacity.

During China's 6th Five-Year Plan (1980-85), the proliferation of wool spindles went largely unchecked. Given the combination of Beijing's investment shift to light industries, the tax incentives and a hot consumer market in wool, TVEs added enormous capacity compared to both cotton and silk. While actual installation of spindles exceeded planned production by only 4% in cotton and fell *below* the plan by -2% in silk reeling, wool spindles exceeded the plan by 54% (Table 3.3). China's native machinery industry was an instrumental condition in creating this overcapacity by lowering the barrier to entry.

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[273] See several references to this in the interview professor and MOTI vice-minister Chen Weiji in Textile Asia 11/1982: 17-23.

[274] These are obviously interrelated. An older machine is more likely to breakdown, and hence requires skilled labor to fix and maintain. However, some older machinery in the hands of skilled labor can produce higher quality goods than the newer, faster machinery. In the hands of less skilled labor, however, older machines will produce more flaws in the yarns, creating imperfections in the weave. Depending on the quality of the fibers fed into the machinery, breaks in the yarn must be quickly repaired and unevenness in the cloth must be adjusted for. Thus, an optimal investment strategy in advanced countries is to replace equipment at the moment when the cost of the skill-level and work-hours of one's labor force exceeds the cost of newer and often faster machines, assuming a strong market to avoid machinery slowdowns or stoppage.

[275] For instance, India's Technology Upgrading Fund Scheme (TUFS) of 1999-2004 and its predecessor the Textile Modernization Fund Scheme (1986-93) were similarly plagued by "being far more expansion than upgrade, contrary to its name." Informant #125 Coimbatore, India and Tiruppur, India. The schemes offered formal sector textile companies reductions on their lending agency's interest payments for certain qualifying types of machinery upgrades. The Union government placed no caps on the amount of funding. While the money has been available to all textile firms, the spinning firms in particular have been granted well over half of the money. This is for two reasons. First, because most spinners are larger firms and thus part of the formal, organized sector, their accounting books are formalized and transparent, thus qualifying them for TUFS funds. Secondly, because of the heavy restrictions on the flow of yarns due to spinning firms' longstanding hank yarn obligations and restrictions on exporting yarn, spinners were largely barred from various export-oriented incentives. Thus, for them, TUFS was a rather new and unique opportunity.

Table 3.3: Planned and Actual Expansion of Installed Upstream Industrial Equipment in the Cotton, Wool and Silk Industries, 1980 – 1985.

	Planned Expansion	Actual Expansion	Difference
Cotton Spindles	26.4%	30.6%	4.2%
Wool Spindles	78.3%	132.3%	53.7%
Silk**	23.0%	20.7%	-2.3%

**The 6th Five Year Plan does not specify the planned expansion of silk filatures per se, but rather the planned expansion of silk production. This may slightly impair direct comparison since this later figure includes the changes in machine efficiency over these years. However, given that the output of cotton and wool yarn mirrors closely the expansion in spindles, this difference is likely quite slight.

Sources: Planned expansion: The Sixth Five-Year Plan of the People's Republic of China for Economic and Social Development (1981-1985): 72-75. *Actual expansion: Zhongguo fangzhi nianjian* (various years).

By 1985, all of the elements were in place for the start of the commodity wars in wool. China was in the midst of a retail 'wool craze' and between 1980 and 1985 machinery capacity was added at the alarming rate of 15-25% per year. Finally, in 1985, while herders were refusing to supply more wool, domestic trade in a variety of agricultural goods, including raw wool, was liberalized. This provided the final trigger creating the wool wars. In wool, the power to price and regulate was decentralized to provincial governments which were freed to decide to set up their raw wool economies in any way they saw fit. Provincial regulations ranged from complete liberalization to the re-creation of Beijing's system of unified purchase and sales at the provincial level. Some of the major wool-producing provinces, such as Inner Mongolia, maintained the planned economy system, while others, such as Gansu and Liaoning, liberalized trade in wool. With the conditions for the wars already in place, they erupted immediately after Beijing decentralized domestic trade in wool.

These changes had an impact on the east-west structural cleavage in wool. The year before wool's decentralization, Beijing had unwittingly reinforced the east-west division and deepened the fragmentation of wool which the wars then solidified. In the process of granting more import licenses to coastal wool mills, Beijing simultaneously banned the allocation of raw wool import licenses to the western mills – those mills closest to China's domestic raw wool supplies. The reasoning was two-fold: since western wool supplies were plentiful, there was no need for them to be allocated import quotas; secondly, since the coastal mills, such as in Shanghai, were best equipped to use imported raw wool and were more likely to export and earn back the foreign exchange, they continued to be allocated import licenses. In order to enforce this separation, Beijing implemented the "Three Selfs" policy which meant that western mills were forced to "self-produce, self-process and self-sell" their own provincial wool supplies. Coastal mills, by contrast, retained the flexibility to source from China's interior or draw from global markets (though still within Beijing quota limits).[276]

The decentralization of control over raw wool in 1985 further deepened this 'split' between east and west. Western provinces, and even more precisely, county governments sought to exert control over their herdsmen by forcing the sale of wool to local government departments, most commonly the Supply and Marketing Cooperatives (SMCs). Foreign trade bureaus in the cities were also legitimate contenders in the fight

[276] Longworth and Brown 1995.

to acquire wool as certain amounts of high quality wool were exportable items. However, once prices for raw wool began to rise, nearly every local branch office of the government (and even military units), found it profitable to participate in the commodity speculation.

Of course, decentralization led to disruptions in the traditional quotas and deliveries to other provinces, cutting off this critical supply of materials. While mills had long been accustomed to circumventing the official allocation system to source a certain amount of wool on account of inevitable shortfalls, now the entire pipeline was being shut off making the 'private' sourcing of raw wool absolutely critical to keep the spindles whirling and the shuttles whizzing. Lest the coastal mills completely shut down from lack of wool, Beijing was forced to allow them access to much more imported wool. Before the severing of the east and west on account of the 'Three Selfs' policy, imported wool rose from almost nothing, leveling off at around 30-35% in 1982-84. After the 'Three Selfs' policy and the decentralization of the internal market, this quickly shot up to 80% by the peak of the wool frenzy. Nearly as much wool was being imported as China's hundred million sheep were producing each year.

In the heat of a boom, an industry almost always appears to be healthy. Raw material prices rose, intermediary and final goods prices rose and consumers continued to buy. So long as the final good prices rose slightly faster than the upstream prices, the entire chain could profit. It is only on the downside that the underlying structure and weaknesses of an industry become apparent. And from 1985 through 1988, it was boom time in China. In fact, too much so. In the summer of 1988, the economy had reached a peak of overheating. Inflation was rising so fast that people rushed to buy everything before they rose again. With an overheated economy coupled with China's most serious political crisis in Tiananmen Square, liberal reformers were ousted and conservatives in Beijing took control and instituted austerity measures to reduce overheating. With it, China's wool markets collapsed in 1989. Given the extent to which China had been drawing from world wool markets, China's sudden exit also partially contributed to sending global wool markets into one of their deepest recessions.

Cotton: Pendular Swings between 'Political Arenas'

Unlike wool, cotton and cotton textiles are staple commodities. In the late 1970s, over 80% of total fiber consumption in China consisted of cotton.[277] As China's most important cash crop, it was heavily regulated by Beijing, whose influence equally extended into the cotton textile industry given its massive workforce, importance in basic clothing needs and inflation, and as China's largest foreign exchange earner. At every node along the production chain, different constellations of agencies and ministries – what I call 'political arenas' – were heavily involved in coordinating the flow of the commodity through the production chain. The objectives of each arena, however, diverged markedly, pulling the chain in different directions and ultimately creating the severe imbalances leading to the cotton wars.

[277] Naiz 1979.

The cotton agro-industrial chain consisted of four separate but entwined political arenas. In the upstream raw fiber node, *cotton policy* and *the chemical fiber industry* were each regulated by distinct sub-groups of financial and government agencies whose interests and objectives were often at loggerheads. The State Council, however, viewed these two fiber branches as sharing a common strategic objective: alleviating China's precarious population-to-arable land ratio, one of the highest in the world. Since cotton was most commonly intercropped with China's major food grains, the relative attraction to farmers of growing grains and cotton was central in balancing the harvests each year. As we saw in the prior chapter, farmers could be easily cajoled through official prices, production material incentives and subsidies. On the other hand, chemical fibers held the promise of reducing the amount of acreage devoted to cotton in the first place. For instance, a mere 300 acre synthetic fiber factory was capable of replacing about 600,000 acres of cotton fields.[278] Given that grain self-sufficiency historically has been of primary concern to Beijing planners, cotton policy and by extension chemical fiber development were heavily driven by concerns over the grain harvest.

Apart from cotton and man-made fibers, the remaining two arenas concerned the textile industry's downstream linkages into the state-run *domestic commerce* and the *foreign trade* arena. Over the course of the 1980s and early 1990s, both commercial arenas were rapidly liberalized, opening many new channels to the provision and export of consumer goods. Cotton and polyester fabrics, however, retained a special place in these systems. Domestically, they were the staple commodities for consumers and remained directly subsidized for the first half of the reform period; and in terms of exports, they composed a large share. Though the imbalances which created the underlying conditions for the wars involved all four arenas in the raw fiber and commercial links, the spark which ignited the cotton wars derived from the two commercial arenas over the 1987-89 period. Below, I contextualize the operations of each of these four arenas, including government objectives, policy formulation and implementation, and utilize these elements to narrate the initiation of the cotton commodity wars.

Arena 1: Cotton

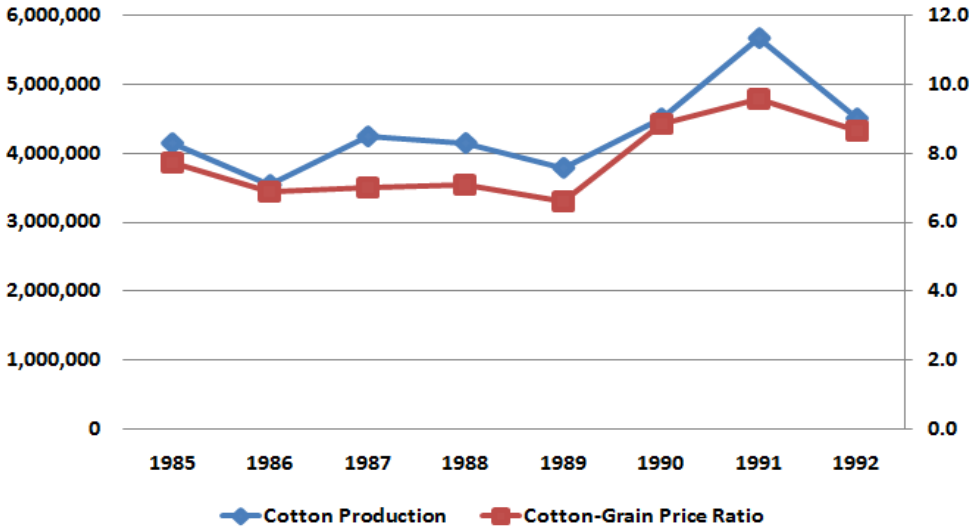
More than any other agricultural commodity, cotton has experienced the most dramatic swings from glut to famine and back again (Figure 3.2 above). These pendular swings were caused in no small part because cotton is perhaps the most controlled agricultural commodity in China. Except for a few years of experimentation with free markets, cotton has remained one of the few Category One goods under allocation by State Planning Commission, although substantial liberalization has occurred since the late 1990s.[279] Even during 1983-84, when the number of controlled commodities (Category One and Two) was twice reduced from 46 to 21 and then to 12 categories, cotton was not even permitted to be bought and sold on free markets, whereas even grains and edible oils had been allowed onto rural markets since 1979.

[278] Kadolph and Langford 1998: 69.
[279] See Alpermann 2006, 2010.

The arena of regulation in cotton price-setting, procurement, and distribution each year was dominated by five main central agencies and ministries under the State Council. These included the State Bureau of Commodity Prices, the Ministry of Commerce, the Bureau of Supplies and Sales, the Ministry of Finance and the State Planning Commission.[280] Each year, representatives from these five agencies decided on a slew of issues concerning the operation of the cotton crop. These included: official state price-setting, non-price incentives for farmers (such as chemical fertilizers and diesel fuel), estimating aggregate demand for cotton, the production quotas and allocation plans for each province, as well as the amount, timing and means of providing credit to farmers (during sowing) and the Supply and Marketing Cooperatives (during the harvest).

The bureaucratic orientation of these five agencies is telling. In four out of the five agencies (all but the SPC), their chief concern was heavily weighted towards *price control and inflation*. The textile ministry (MOTI) was conspicuously absent and along with it, the voice of the textile industry. As argued in the prior chapter, this is because the cotton harvest had to be balanced with grain to ensure a sufficient balance between them. The grain-cotton price ratio remained of central concern to planners and is the best indicator of farmer's decisions on growing cotton (Figure 3.5).

Figure 3.5: Cotton Production (Tons) and the Cotton-Grain Price Ratio



Sources: Cotton Production: ICAC World Cotton Survey (various years); Cotton-Grain Prices and Ratio: Textile Asia 08/1994: 66.

Of course, how the plan formulated in Beijing translated on the ground was critical.[281] The procurement depots under the Supply and Marketing Cooperatives (SMCs) were where the government met farmers face-to-face. SMC depots not only procured most of the farmer's cotton each year, they were also the major suppliers of production materials and credit. While Beijing's price-setting and incentive provisions any one year may favor cotton growing, the treatment of farmers by the SMC grassroots

[280] Textile Asia 2/1992: 111.
[281] See Alpermann 2006 for an excellent treatment of this issue during the late 1990s and 2000s period of liberalization.

agents during the prior growing season influenced the farmers' decision to engage with cotton in the following season, contributing to the pendular swings in the cotton harvest.

There were innumerable ways in which the conduct of these grassroots agents influenced the willingness of the farmers to plant cotton. Their influence derived from the SMC purchasing depots' greater controls over cotton, even in comparison to grains. Unlike grain, which had multiple channels for exchange and usage, including personal consumption, state purchases, free rural markets and local food processing mills, cotton had a very delimited set of potential buyers. In addition, except for a few 'experimental' years, free markets in cotton were banned. While not perfectly monopsonistic buyers, the state SMC network was the only major game in town and thus the opportunity for malfeasance was enhanced.[282]

Given their monoposonist position, SMCs have received a bad name among scholars on account of their machinations in fleecing farmers – and there were certainly many clear cases of local abuse by the SMCs.[283] However some of their maleficent behavior was intimately tied to larger systemic problems which entangled SMCs within long webs of debt along the agro-industry chain. This is the case with the infamous IOUs or 'white strips' (*bai tiao*) which SMCs offered as payment to farmers instead of cash. Farmers despised IOUs since they were not recognized by banks or rural credit unions, and were not cash equivalents so could not be used to purchase supplies, like fertilizers, for the next round of winter or spring sowing. Farmers became perpetually indebted to others since IOUs were notoriously difficult to convert back to cash by the miserly procurement agents.

However, the SMCs were miserly partly because they too were enmeshed within their own webs of debt. Before sowing, the SMCs relied on the banking system to release bank credit as a forward to farmers on their fall harvest and were responsible for distributing and selling necessary production supplies. During the harvest and procurement seasons, banks had to release funds to SMCs to buy, store and organize the transport of the crop. The timeliness of delivery of these funds and supplies determined the SMCs ability to pass on provisions; these also affected the financial health of SMCs who as middlemen needed substantial amounts of working capital, kept large inventories and paid interest on bank loans. For instance, during the 1990-92 seasons, when there were cotton surpluses, SMCs were not simply reluctant to purchase the harvest, they were quite simply not able to. For instance, by the middle of 1992, Henan's depots were storing 330,000 tons of ginned cotton, triple the normal amount and tying up 2 billion Yuan of working capital.[284] In Hebei, cotton depots and raw material supply corporations cancelled their subsidy arrangements to farmers on account of the 200,000

[282] Alpermann 2006.

[283] Wedeman 1997, Alpermann 2006. For instance, one particularly fruitful area of ambiguity was the procedures in determining the quality of the cotton fibers offered on sale by farmers to the SMCs. In most areas of the country, quality was determined by sight using a sample at the point of purchase (the SMC depot stations) and in theory, payment was supposed to be made immediately in cash. There was no objective way to determine this, particularly since China had not spread the use of electronic fiber measurement instruments which at least provided the potential to contribute to a more objective system of appraisal. Furthermore, given the enormous network of SMCs, China had a major dearth in personnel to ensure trained eyes made these determinations. Consequently, the interests of the local SMC depot generally prevailed and they were at their most maleficent during periods of cotton gluts, such as in 1983-85 and 1991-92.

[284] Textile Asia 10/1992: 71.

tons in storage, freezing 1.3 billion Yuan.[285] Xinjiang, which grew the best quality cotton in China and was regularly flooded with eager buyers each season, also became clogged under surplus conditions.[286] As newly freed market prices plunged below state prices, farmers had no choice but to accept IOUs in huge amounts. Under buyer's market conditions, the textile industry forced SMCs to supply cotton on credit to the city- or county-level raw materials supply corporations which then supplied them to SOEs factories. From the SOEs, the web of debts spread even wider down the chain into wholesale, retail and foreign trade.[287] Thus, the web of debts stretched the full length of the chain, and the SMCs were simply passing the hot potato onto the farmers' lap.

The point is that the severity of the web of debts and the timeliness of the release of bank and MOF funds, influenced the behavior of SMCs towards cotton farmers and thus the farmers' 'enthusiasm' (*jijixing*) to which they took to cotton relative to other 'freer' crops. There was a distinct cycle of events which occurred three times between 1983 and 1997. In general, the cycles ran like this: seasons of cotton glut instigated abusive SMC practices at the grassroots and prompted the State Council to believe that cotton could be liberalized, leading them to open free markets in 1985 and 1992. However, the combination of SMC abuses and plummeting market prices (given the gluts) led to a reverse pendulum as farmers fled from cotton growing. The ensuing collapse in cotton harvests made Beijing planners skittish, leading them to reverse course, close markets, and re-impose state quotas and pricing. Further, because of the SMC abuses, it required often exceptionally better incentives and higher prices to reinvigorate cotton production. This then created the next cycle of cotton gluts, followed by busts. This goes a long way to explaining the boom and bust cycles in cotton supply which were so sudden and sharp (Figure 3.2 above). However, if these coordination problems weren't enough, cotton harvests also had to be coordinated with the new and rising 'unnatural' fibers: synthetics.

Arena 2: Chemical Fibers

The problem with this system of centralized commodity price-setting, grain-cotton balances and the triangular debts was that cotton growing became completely divorced from the primary users of the cotton harvest, the textile mills. It seemed like everyone had their hand in the cotton harvest *except* the industrial processors! Apart from perhaps representatives of the planning commission, the voice of the textile industry, including MOTI itself before it was disbanded, was essentially sidelined, something which large integrated cotton mills complain about even today.[288]

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[285] Textile Asia 11/1992: 78.

[286] By 1992, Xinjiang was stocking 350,000 tons of cotton and all of it allocation channels were refusing to offload. Only 45,000 tons of 173,000 ton allocations to other provinces were offloaded. Less than 50% of a further 200,000 tons through unofficial channels was accepted and the foreign trade department took only 31,000 tons of 75,000 tons contracted. Textile Asia 9/1992: 84-5.

[287] After 1983, the state-run commercial wholesale and retail system was delinked from state factories and the range and quantity of products they were required to purchase was liberalized. For those goods which remained under centrally-fixed quota purchases (most importantly cotton and cotton-polyester blend fabrics), the commercial units were most reluctant to buy, only offering to 'purchase' them on a consignment basis. The foreign trade system had even more authority to refuse purchase and return unsellable items to textile factories.

[288] Informant #79 (Dezhou, Shandong); #91 (Shanghai).

However, an opportunity for MOTI to neutralize its lack of control in cotton arose through the man-made equivalent of cotton: chemical fibers. Synthetic fibers are hydro-carbon based man-made fibers which are manufactured through a variety of processes to be woven into the same fabrics as natural fibers. They are at once complementary and competitive with natural fibers.[289]

In export-oriented late developers, including Japan and later South Korea and Taiwan, the primary motivation for developing a synthetic fiber industry was to create a domestic raw fiber base. Cotton was a very minor crop for these countries and primarily sourced from the United States. A chemical fiber industry diversified fiber sourcing, reduced dependence on the US and allowed them to better serve export markets in advanced countries where over half of total fiber consumption was synthetic materials.

Unlike in these East Asian countries, Zhou Enlai and Zhao Ziyang aggressively sought to expand chemical fiber production in order to alleviate pressure on China's severe population-arable land ratio, in a perpetual quest to free up acreage for grain production.[290] Thus, in broad strategic objective, cotton policy and the development of the chemical fiber industry dovetailed nicely for the State Council by intersecting at the problem of the grain harvest. The similarities ended there, however.

Since cotton procurement and circulation remained completely outside the purview of MOTI and the large state factories, they were forced into a largely passive role in sourcing their most important and expensive production input. The chemical fiber industry offered the opportunity to exercise greater control over their fiber requirements. In addition, the new industry had the full backing of the State Council for several reasons in addition to freeing up grain acreage.[291] The resources and political will were there for rapid development.

MOTI joined with the rising petrochemical industry and devoted an enormous amount of resources to the development of chemical fibers. At first, because China had very limited domestic availability of petroleum and gas fossil fuels, the industry began on a very modest scale in the 1960s.[292] However, with the discovery and development of oilfields, such as the famous one in Daqing, it became increasingly feasible for China to mass produce synthetic fiber.

In the early and mid-1970s, plans were laid to establish four new fiber plants in Shanghai, Liaoyang, Tianjin and Sichuan, some of the major rising centers of China's petrochemical industry. In an industry where scale economies are critical, these first factories were actually quite modest by global standards. Their scale was constrained by the substantial sum of foreign exchange required to pay the Japanese, German and French firms for the engineering, licensing and construction of these plants. Although at the time

[289] Although it was once thought that synthetic fibers would make natural fibers obsolete, this has never happened. Each fiber has its own virtues and drawbacks, making pure natural, pure synthetic and blends all appealing for different usages, climates and conveniences.

[290] See Zhao Ziyang's comments on the 6th Five Year Plan in *Renmin Ribao* 1/18/1983. This is repeated by textile minister Hao Jianxiu in her speech to the National Textile Plan Meeting. See *Zhongguo fanghi gongye nianjian 1984-85*: 181.

[291] For this last point, see Solinger 1991. Apart from its contribution in freeing arable acreage, the industry also offered the possibility of diversify the production of Chinese textiles, particularly for export and it also fit within a more general policy shift in 1979-81 away from the heavy industries to light industry.

[292] *Dangdai zhongguo de huaxue qianwei 1988.*

China retained a favorable exchange rate for imports, the plants collectively cost US$2.7 billion, a princely sum for China at the time.[293]

By the late-1970s, some of these plants had entered into production, but the quantities were still rather minimal in alleviating MOTI's fiber problem or the grain problem for the State Council. Thus, in 1978, the State Council approved the construction of two new massive petrochemical fiber plants: one in Shanghai with a production capacity of 200,000 metric tons of fiber, and the crown jewel of the industry at Yizheng, located near Nanjing and next to one of Sinopec's massive petrochemical processing facilities. By the time the final production line was fully operational in 1987, Yizheng was the fourth largest chemical fiber company in the world with a capacity of 550,000 metric tons of fiber, equivalent to about 667,000 hectares of cotton or about 10% of a typical year of cotton acreage.[294]

These complexes were financed by MOTI and CITIC, relying heavily on a combination of state budget allocations through MOTI, domestic loans and foreign loans. The quantity of investment absorbed by chemical fibers was staggering, taking up the majority of MOTI's state budget. In the 1980 state plan for textiles, 21 of 34 new plants approved for MOTI were devoted to expanding production capacity for different synthetic fibers. In many years, chemical fiber projects, including chemical feedstock plants, absorbed over 80% of the entire fiscal allocation for the textile industry.[295]

Apart from financing, however, MOTI, Sinopec, and the other joint venture partners also required State Council assistance to ensure the fossil fuels ultimately ended up in the closets of Chinese consumers. By 1983, well before the massive Yizheng complex fully came online, polyester-cotton fabrics were already experiencing the pressures of overproduction because they were not sufficiently flowing through the commercial pipeline into Chinese households. Loathe to see these new projects post losses, the State Council reacted to the growing threats of overproduction by ordering the Ministry of Commerce and the State Price Bureau to cut state retail prices for polyester-cotton and polyester-viscose fabrics in November 1981 by an average of 0.66 Yuan/meter, the equivalent of an 8.25% to 22% price decline (depending on fabric type).[296] As more synthetic fiber production came on line, they instituted a second, steeper price reduction in January 1983 on blended and pure synthetic fabrics, ranging from between 20 to 30%. At the same time, they doubled the attractiveness of synthetic fabrics to Chinese consumers by also increasing the price of pure cotton fabrics by 20% on average.[297] Consumers abandoned cotton products in droves. Chemical fibers were both novel and now affordable as an item of mass consumption. The shift in consumer purchase was rapid as the consumption of pure synthetic and blended cloths rose from under 20% of total purchases in 1978 to nearly 80% in 1983. Soon realizing it overshot its targets, Beijing modified its cotton-synthetic balance once again.

[293] Textile Asia 3/1995: 44-46.
[294] Textile Asia 6/1990: 72.
[295] *Xinhuashe* 2/9/1980.
[296] See *Zhongguo fangzhi gongye nianjian 1984-85*:, 152.
[297] Textile Asia 3/1983: 93-94.

Piecing Raw Fibers Together

The problem was that these retail price changes in the chemical fiber arena clashed with the cotton harvest. As we saw in the previous chapter, during these same years, Chinese farmers were breaking all records in the production of cotton. So, just as consumers were abandoning cotton for polyester, the farmers were harvesting their historically largest cotton crop. We already saw the many rigged pricing schemes and incentives that the cotton arena agencies utilized to create the cotton boom which nearly tripled the harvest to a record 6.26 million metric tons (MMT) by 1984. By 1983, cotton output exceeded the planned levels many times over, so much so that China lacked the capacity to store, process or use it. As we saw in the previous chapter, this turnaround in cotton was a complete surprise to planners and they were unable to either finance or physically store the harvest, leaving untold millions of tons rotting the open air.

Given the unsupportable fiscal burden, in 1985, the central government decided to alter its system of procurement and purchasing prices by switching to 'contracted' quotas and allowing excess cotton to be sold on newly freed cotton markets – the first opening of cotton markets in China since 1954, a momentous but quickly reversed experiment in agriculture market liberalization.

Given the cotton and grain gluts, economic reformers believed China had overcome its historical structural constraints on food security and felt assured in introducing free markets. They assumed that it was best to introduce the market mechanism at the point when the country was most flush with abundant harvest. This is a conservative strategy which ensures for the government that if the market fails, there will be plenty of reserves to keep the mills running.

With the cotton gluts, SMCs became very reluctant to purchase the full harvest (let alone offer honest appraisals of cotton quality). During these glut harvest seasons, long lines of farmers, sometimes stretching for miles, awaited to dispose of their crops to the SMCs, who took advantage of this buyer's market to underpay farmers. Innumerable State Council directives and public warnings from China's top leaders made clear Beijing's disapproval, but there was almost no practicable way to prevent the fleecing of the farmers during glut years.[298] The backlog also meant that the web of debts stretching from retail back to the SMCs skyrocketed and farmers were forced to settle for IOUs or store cotton and take their chances the following year.

The original cotton-grain price ratios clearly overshot their intentions and the Beijing planners needed to recalibrate by lowering prices. State prices were reconfigured in 1985 which reduced average prices by between 7% and 14% in 1985 and another 2.4% in 1986. Subsidies and grain provisions were also reduced.

Between the new contracting relationship with Beijing, lower state prices and incentives, the abuses of the SMCs and plummeting market prices, cotton became very unattractive to farmers. Predictably, farmers quickly turned away from cotton and within

[298] *Wujia Dashiji*: *1978 nian 12 yue – 1985 nian*, 1986: 176; Vice-Premier Tian Jiyun's comments are indicative. *Renmin Ribao* 10/31/83.

two years sown areas plummeted and cotton production almost halved, from 6.25 MMT in 1984 to 3.32 MMT in 1986. The fiber pendulum swung back.

Zhao Ziyang's gamble on cotton markets unfortunately failed to have its intended effect. When supply is super-abundant, market prices tumble, offering no temptation to farmers to enter the market. In fact, the farmers did not even fulfill their state quota contracts in 1986, let alone feel the attraction of market prices.

The anemic cotton harvests at this time were a major problem because as discussed shortly in the four years from 1988 to 1991 China added an unprecedented 16 million cotton spindles, a quantity it took over 20 years for China to build up prior to 1988! Unnerved by such dramatic shifts, Beijing rapidly back pedaled. In 1987, the first year of the cotton wars, Beijing instituted a 'reverse course' by closing cotton markets and re-establishing the old system of unified purchases and sales.[299] Each year, it increased official prices and subsidies. Although official cotton prices still rose substantially, this was because *all prices* were rising as China suffered its worse bout of inflation. Cotton is also more expensive and riskier to grow in terms of chemical fertilizers, plastic sheeting, and insecticides, so during an inflationary period, the cotton policy planners had to factor in even more price increases to attract farmers to grow enough cotton. Again, the key was the cotton-grain ratio. From 1986 through 1989, this ratio remained flat as prices for both cotton and grains rose quickly (Figure 3.5 above).

However, the explosion of 16 million new cotton spindles sparked a struggle over the dwindling harvest. This forced planners to raise cotton prices much faster than grain prices in 1990 and 1991 (Figure 3.5). Predictably, the pendulum swung back once more as sown acreage and production recovered, reaching its second highest peak in 1991 at 5.68 MMT. Like 1985-86, this new surplus in the cotton harvest inspired state leaders once again to make their second attempt at market liberalization in 1992 which, similar to the first attempt also failed. In cyclical fashion, the cotton wars were reignited in 1993-94 and Beijing again backtracked on open markets. As a result, government controls of cotton remained until the end of the 1990s when a degree of liberalization was achieved, partly due to China's WTO accession.[300]

The point is that the supply of raw fibers, consisting of two separate arenas of central agencies regulating cotton policy and chemical fibers, operated under different sets of objectives and with little integration with each other or with industry and commerce (addressed next). From glut to famine and back again, the supply of raw fibers swung wildly, creating half of the conditions for the cotton wars.

Arena 3 and 4: Domestic and Foreign Trade

The final piece of the puzzle is explaining why 16 million cotton spindles were added and why this occurred in a sudden burst of investments between 1988 and 1991. After all, wool spindles more than doubled between 1980 and 1984. Why the delay in cotton? Furthermore, we saw that unlike in wool, silk and garments, TVEs did not enter into cotton processing, despite nearly identical technologies and entry barriers. If TVEs did not add much to this new capacity, what sort of firm did? Sixteen million spindles is

[299] Blecher and Wang 1994
[300] Alpermann 2006.

an enormous amount of capacity, and a comparison with India is instructive. For decades China and India had approximately the same sized cotton textile capacity, which in 1987 totaled around 25 million installed spindles in each country, a substantial portion of which constituted an industrial inheritance stretching back several decades. Over the next four years, India added only another 1.3 million, while China added 16 million.[301]

Clearly, the availability of cotton was not a constraint on investments. Neither the freeing of cotton markets nor the easy availability of cotton attracted the interest of local governments in expanding industrial capacity. The fiber gluts appeared in 1983-85 and free markets in 1985-86, but the rapid expansion in the cotton industry did not occur until 1988-91 (Figure 3.2). What provided this spark in industrial expansion at this time? To answer this, we need to turn our attention to the other two arenas within which cotton mills were intimately enmeshed: domestic and foreign commerce.

Similar to the cotton harvest, cotton yarns and fabrics (and cotton-polyester blends) were heavily controlled commodities linked into both the state-run domestic system of wholesale and retail circulation, as well as the state foreign trade apparatus. As a planned commodity, large amounts of SOE textile production were automatically sold into both the domestic commercial networks or to Chinatex, the textile arm of the ministry in charge of foreign trade. Reforms in these two arenas sundered the intimate link between commerce and industry, creating a 'production void' into which a new breed of firms could enter. Unlike wool and silk, this new breed of cotton mills was not collectively-owned TVEs. Rather, they were state-owned mini-mills under the local bureaus of textile industry (BOTIs). The 'spark' igniting the expansion of industrial capacity resulted from state retail price changes and foreign trade reforms over the 1987-88 period. In essence, the gap between the cost of raw fibers in the upstream and the prices of downstream final goods widened for the first time since the beginning of reforms, creating a rush of new investments.

First, let's consider the creation of the 'production void' between state industry and state commerce. In the pre-reform system, fabrics were heavily rationed and subsidized through a system of fabric coupons – the same system that existed for China's other crucial commodities, grains and other basic needs goods. In 1983, with the new abundance in cotton and chemical fibers, this system of rationing and coupons was abandoned.[302] Around the same time, state-run commercial units were no longer required to purchase the *entire* output of state-run textile factories, though they continued to have quotas on basic cotton textiles. Although state-run commerce was 'liberated' from industrial producers, they were faced with new competition from independent garment shops and *getihu* vendors (individual sellers), which grew to 40,000 and 8 million respectively by 1988.[303]

By delinking state commercial units from state production, power shifted to the commercial sector. For instance, in new rules set forth by the State Planning Bureau, negotiating power between MOTI factories which produced textiles and MOC state commercial units which bought them, decisively shifted to the later. Although

[301] International Cotton Industry Statistics 1986: 11 and 1991: 11.
[302] See <<*Shangyebu guanyu quanguo linshi mianshou bupiao, rumianpiao dui mianbu, rumian shangkai gongying de tonggao*>> in *Zhongguo fangzhi gongye nianjian 1984-85*: 160.
[303] Textile Asia: 9/1994: 64-6.

mediations could be arranged when a commercial dispute arose, the SPB gave MOC the upper hand by ruling that if no agreement could be reached, then the commercial units could negate the contract.[304] An indication of this shift to commercial power was the rapid transfer of the burden of holding and financing stockpiles. In 1980, state-run commercial units financed the storage of 6.6 billion meters of cloth as inventory, while the industrial sector held a negligible 180 million, a ratio of 37 to 1. As the commercial sector delinked, this ratio was reduced to only 1.4 to 1 by 1989.[305]

In order to understand the significance of the commercial reforms, it is necessary to know how China's industrial technology and production was 'tailored' to this commercial system. Traditionally, the business of state-run commerce consisted of large order volumes of basic goods at low prices with large inventories. This was especially the case for the state-controlled staple cotton goods, well illustrated by the uniformity of clothing in the pre-reform period. China's system of foreign trade in textiles was quite similar; the only difference being that Chinatex had to cater to a more picky clientele of foreign buyers. Nevertheless, apart from silks, China's initial strength in global textile markets was very large orders of basic cotton goods at rock-bottom prices.

This sort of commercial system was an outgrowth of China's industrial production system which consisted of mass production, long production runs, utilizing Chinese-made textile machinery. As mentioned, China's native textile machinery industry was highly developed and had evolved largely cut off from both capitalist and communist bloc countries over the 1960s and 1970s. In textiles, it produced vast amounts of basic spinning frames such as the A-512, and looms such as the 1511 – the 'Model-Ts' of Chinese textile machines. These were simple but reliable machines which required quite a bit of attention from semi-skilled workers – the perfect machine for developing countries and frequently exported to other labor-abundant countries.[306] Unlike the labor-saving innovations of the European and Japanese machine works or the super-productivity of the Soviet Union's open-ended rotors, Chinese machinery required many more semi-skilled workers who were needed to repair frequent yarn breaks, manually role yarn cones and so forth.[307] The machines were also tailored to China's heavy reliance on its domestic cotton. The high frequency of yarn breakage was often due to the lower quality of northern Chinese cotton whose short staples were hard to spin into a hardy twist during the spinning process.[308] Lower speed spinning machines like the A-512 were necessary because China's short staple cotton created weaker yarns, prone to breakage and knotting. In turn, yarn breakage required immediate attention from workers to repair and the frequent knotting meant that yarns had to be rolled manually, since automatic cone winders could only be used on sturdier and knot-free yarns.[309] Thus, in all of these ways, China's native machinery manufacturers 'linked' into the broader agro-industry.

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[304] See <<*Guanyu jinyibu guanche fangzhipin anzhi lunjia zhengce de zanxing guiding* >> in *Zhongguo fangzhi fagui huibian*.
[305] Textile Asia 8/1991: 132-33.
[306] Informant #92 (Shanghai), #97 (Tianjin)
[307] Informant #78 (Dezhou, Shandong).
[308] Informant #73 (Binzhou, Shandong).
[309] Informant #81 (Dezhou, Shandong). As discussed in the next chapter, by the early 1990s, after the State Council had realized the damage done by China's technological trajectory and switched course to high-tech machinery, automatic

As mentioned, China was capable of adding a huge quantity of cheap, ordinary machinery. By some estimates almost 12 million spindles or 37% of China's total spinning capacity consisted of the old A-series spinning and frames, whose technological level dated from before the 1949 revolution. An additional 7.38 million spindles consisted of the ordinary but reliable A-512 model frame, and 8.09 million of the slightly more advanced A-513. This left only 12% of capacity as the more advanced, machines capable of producing higher count yarn (thinner yarns of higher quality), such as the FA-series.[310] Thus, given the relative lack of diversity in domestic equipment and the lack of automation on the shop floor, Chinese manufacturing consisted of long and very large production runs within a narrow range of goods using substantial amounts of semi-skilled labor. The point is that this 'native' production system integrated perfectly into the domestic and foreign commercial system. As discussed below, it also limited Chinese exports to a narrow product range, something that needed reform in order to better integrate into international production.

With the severing of ties with state factories, state commercial units were also free to diversify their product range. For commerce, product diversification is a relatively easy and straightforward affair. But, for industry, it requires substantial reorganization of production, especially for China which never developed a system of flexible and diversified production. Part of the problem was the lack of integration between the 'old generation' Mao-era textile industry and the 'new generation' Deng-era ready-to-wear garment manufacturers. In early reform-era China, ready-to-wear garments were still a largely novel consumer good, both in terms of domestic consumption and as an export item. Most domestic items of finished clothing were made after purchasing basic cloth and then having the cloth individually sewn at home or by neighborhood tailors. In urban areas, tailors were often formally state-owned or collective-owned firms, but essentially just small-scale workshops. Furthermore, in terms of garment styles, Mao-era austerity meant that the product ranges were quite narrow and circumscribed. Over the reform era, the increasing political permissiveness of private (*siren*) enterprises and TVEs meant that garment manufacturing began to replace the urban tailors. This was reinforced by Beijing's desire to move down the value chain to begin exporting higher value-added garments, rather than remain trapped in exporting basic cotton textiles. The problem was that the old textile manufacturers were not equipped to serve the diversifying needs of garment producers, exporters or the diversification sought by China's commercial sector.

This industrial mismatch between a pre-reform textile sector and the new reform-era garment sector was a major concern of the State Council and MOTI. Some within the State Council believed it was a problem of pricing. Garment prices were marketized and flexible, while cotton textiles and cotton blends were state-controlled. Price reform was urged so the two halves could arrange prices on their own and permit 'flexible pricing' (*linghuo jiage*), otherwise the colors, order sizes, quality and delivery required by the

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cone winders became a priority project. Erfangji in Shanghai and Schlafhorst, the global giant of spinning machinery, established a joint venture for their production in 1993.

[310] See the machinery comparisons in <<*Guanyu xiada dier pi fangzhi jixie taotai chanpin de tongzhi*>> in *Zhongguo fangzhi gongye nianjian 1992:* 109-112. See also *Zhongguo fangzhi jingji* 04/1990. Also, see Textile Asia 12/1990: 89 and Textile Asia 7/1990: 96.

garment industry could not be met.[311] However, given the importance Beijing placed on cotton textiles due to concerns with domestic inflation, industrial employment and cotton growers, price liberalization was not attempted. The solution which was finally adopted was largely an administrative one. In 1986-7, the State Council reshuffled the regulation of the garment industry by removing it from the Ministry of Light Industries and placing it under the textile ministry as a means to encourage deeper 'horizontal linkages' (*hengxiang jingji*) between them. The textile minister at the time, Wu Wenying, urged the two halves to create a 'grand textile industry' (*da fangzhi*) and urged them to 'leap across the large bridge' (*tiao da qiao*) which separated them.[312] But the problem was technological and required not just price incentives or ministerial reorganization or exhortations, but a technological retooling and reorganization of the industry. Thus, compared to the state commercial sector, diversification for the urban state-owned factories meant that they needed to reconfigure their entire production system, technological base and worker training. This reconfiguration was expensive and complicated, and in the 1980s, most firms had very few independent sources of capital to accommodate retooling. In addition, as previously mentioned, the vast majority of investment within the central textile ministry (MOTI) was being devoted to the expanding chemical fiber industry. These constraints, coupled with the endemic problem of triangular debts and the new large inventories to finance, created a major 'production void' between a commercial system free to pursue greater product diversity and a production system incapable of retooling to meet these demands.

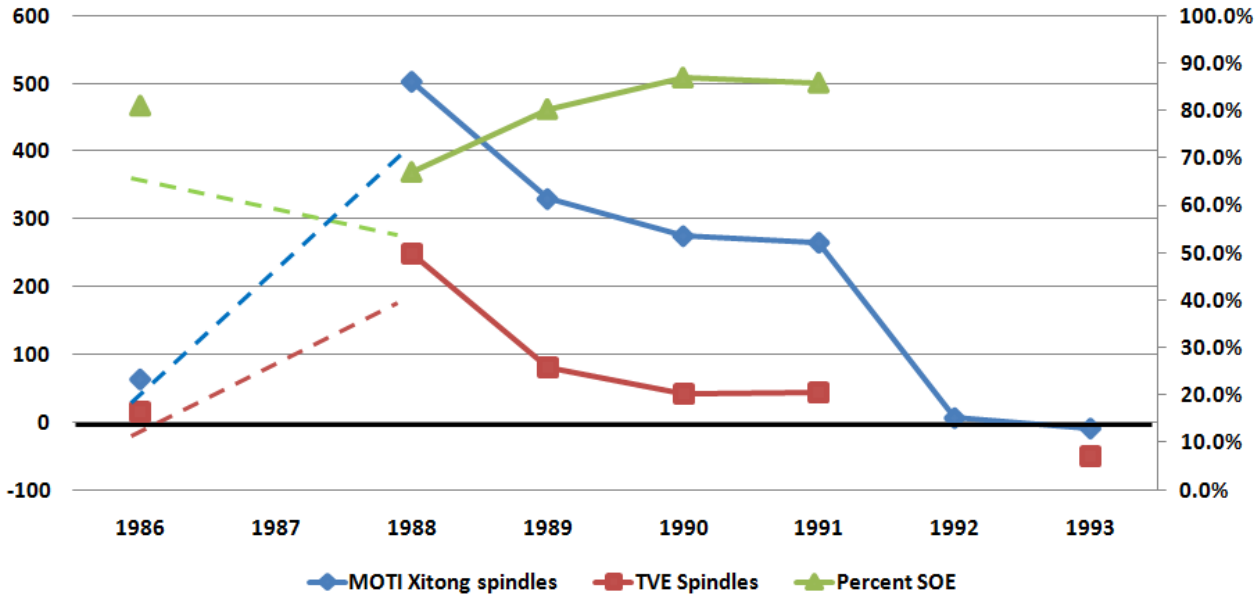
A new breed of smaller firms could more easily enter into this void by offering a wider selection and new types of fibers, fabrics, colors and designs. This is not to say that these smaller firms were *individually* capable of the type of flexible and diversified production so admired by scholars of advanced countries. Similar to the large firms, they were specialized within narrow product ranges and with a limited set of machinery. But, *as a group*, smaller firms, each highly specialized, could provide a wider range of goods.[313] Given the capital scarcity in the existing SOE firms under MOTI, it was too expensive to retool the large SOEs in the major cities, whereas smaller specialized investments were more feasible.

However, because raw cotton, chemical fibers and cotton and polyester blend textiles were all heavily controlled commodities, this new breed of small firms needed to have ties with the state system of distribution. It is for this reason that unlike in wool, silk, knitwear and garments, TVEs were largely shut out of cotton textiles. Rather, the production void was populated by a new breed of cotton 'mini-mills' under the local bureaus of textile industry (BOTIs) scattered throughout the country. These bureaus were part of the hierarchical ministerial system of MOTI, and thus were more closely tied into the state systems of raw material supply corporations, domestic commerce and

[311] For examples, see *Renmin Ribao* 11/29/1986 on State Council statements on the ministerial reshuffling of the garment sector under MOTI.
[312] *Renmin Ribao* 2/19/1987. See also *Renmin Ribao* 12/31/1986 and 11/29/1986.
[313] This is how several manufacturers in Keqiao township in the Shaoxing region described China's fabric and garment manufacturing. This is also evident from the goods sold in the shops of China's massive wholesale markets of which the Keqiao one is the largest in China. These shops are often conduits for manufacturers' own factories as wholesaling has not become a completely specialized industry. Informants #108, 109, 111, 113 (Shaoxing, Zhejiang).

foreign trade. This is why the vast majority of the capacity additions in 1988-91 were made by state-owned enterprises, not collectively-owned TVEs (Figure 3.6).

Figure 3.6: Newly Installed Cotton Spindles Within and Outside Textile Ministry and Percentage Added Within System (10,000 Spindles and Percentage)



Note: Unable to find sources for 1987 and 1992, 1986 is the base year for 1988 data and 1991 is the base year for 1993 data.
Source: Zhongguo fangzhi tongji nianbao (various years).

The case of cotton textiles shows that TVEs sculpted themselves very closely to the contours of the central state apparatus, even within low-technology, easy to enter industries. While TVEs came to dominate the downstream garment industry, they were largely shut out of upstream cotton. In cotton, the primary direction in the flow of raw materials was still through the state procurement and textile ministry system, but instead of being directed to the large mills in the major urban areas, like Shijiazhuang, Handan, Zhengzhou, Wuhan, or even Shanghai, the commodity was increasingly diverted by the BOTIs to their mills. Essentially a new system of firms was created within the state system, while the TVEs remained minor actors in the cotton drama. For instance, even as early as 1984 during the cotton boom, local BOTI firms, especially in major cotton producing provinces like Shandong, were encouraged to consume more cotton as a way to more quickly process the excess raw materials and clear the system for the following harvests.[314] Although capital was tight and the larger urban firms would take priority, China's native machinery industry made it possible for cash-strapped BOTIs to begin entering the production void.

Apart from the direct purchase of domestic machinery, BOTI mini-mills were also equipped from the expanding market in second-hand machinery. As mentioned, to the great detriment of the textile industry, during the 7th Five-year Plan (1986-90), the State

[314] Textile Asia 3/1991: 82-3.

Council did not develop a system of scrapping older machinery as the larger firms were permitted to sell their old machines as hand-me downs. For instance, over the 7th Five-year Plan period (1986-90), Shandong renovated only 300,000 cotton spindles or 60,000 per year. The provincial BOTI estimated that at this rate, it would take 37 years to update the 2.27 million obsolete spindles, compared to a general norm for technical renovation of just 15 years.[315]

The point is that the potential for a massive expansion of capacity was already built into the particular production-commercial system, a legacy of China's pre-reform era. As production and commerce were severed with the separation of state-run commerce, a new breed of firms came to fill the void.

Thus far, we have examined transformations in various arenas regulating the cotton agro-industry which together created the underlying conditions for supply-demand imbalance. However, the *conditions* for rapid transformation do not themselves spark the wars. On the fiber supply side, the industry was divorced from cotton policy which itself was divorced from the nascent synthetic fiber industry. Further downstream, the severing of production from commerce created a 'void' into which a new breed of cash-strapped state-owned, 'mini-mills' could enter given China's native machinery industry. All of these underlying conditions were in place, but what set in motion the explosion of industrial capacity starting in 1987-88, igniting the wars and balkanizing cotton exchange? The triggers consisted of a reversal of the raw cotton, ex-factory and retail price trends of the early 1980s, as well as a major reform in the foreign trade arena.

The change in ex-factory and consumer textiles retail prices constituted a direct attack on the urban subsidies of cotton goods. Given that cotton yarns and fabrics remained state-controlled at subsidized prices for urban consumers, price-setting on both ex-factory output and commercial retail was heavily influenced by the National Price Bureau and MOC. However, official and unofficial price increases in raw cotton put increasing pressure on the cotton mills. For years they had been squeezed between rising raw cotton prices and stagnant ex-factory and retail prices. Beginning in 1987, alleviation was offered to cotton mills when the cotton textile price gap was widened. In May 1987, July 1988, and early 1989, both ex-factory and retail prices for most basic cotton and polyester goods were raised in rapid succession by 5-7%, 22-25% and 33-36%.[316] More importantly given the rapid general inflation at this time, the *gap* between these cotton textiles and raw cotton prices was dramatically widened, reversing the trend of years past (Table 3.4). For the first time since reforms began, cotton textile prices rose faster than general inflation (see Figure 3.1). BOTI mini-mills were immediately attracted into the production void and added capacity.

[315] Textile Asia 5/1992: 102-03.
[316] Textile Asia 5/1990: 71-2.

Table 3.4: Differential State Price Increases Across Cotton Production Chain

	1987-88	1988-89
Ginned Cotton	11.3%	34.0%
Pure Cotton Yarn (ex-factory)	17.8%	52.0%
Cotton Cloth (ex-factory)	21.7%	92.0%
Fine Cotton Cloth (retail)	36.4%	74.3%

Sources: Ginned Cotton, Ex-factory Yarn and Cloth: *Zhongguo wujia nianjian* 1989: 348-350 and 1990: 398-402; Fine Cotton Cloth: *Zhongguo wujia tongji nianjian* 1988,1989,1990.

In addition, given that both ex-factory and retail prices were raised, BOTI mini-mills could take advantage of *two* new profitable channels for their production: first via the state-run commercial channels (ex-factory prices), as well as the market channels outside of state commerce (retail prices). In reality, these two commercial channels had been open to BOTI enterprises since at least 1983, but given the relative price suppression of subsidized staple cotton goods, there was little incentive to enter the production void until these 1987-88 price changes. When the controlled commodity prices were raised, they became highly profitable and attractive options and the mini-mills entered the market with a vengeance.

There was yet another simultaneous spark for the mini-mills. During the same two years of 1987-88, China instituted a series of reforms to restructure its foreign trade system. For many years, China had exported a narrow range of basic and very price-sensitive cotton goods, largely relatively low count plain cotton yarn and bleached or unbleached greycloth, the very simplest of unfinished textile goods, containing the least value-added. In 1986, textiles replaced petroleum as China's leading foreign exchange earner and China's ambitions were to move down the value chain. However, China's technology was not only very aged but in some cases incompatible in integrating into East Asian production networks. For instance, China's major domestic loom manufacturers, such as Erfangji in Shanghai and Jingwei in Xian, produced looms whose cloth was substantially narrower than international standards. Out of China's total stock of cotton looms in the mid-1980s, only about 10% were of international standard width.[317] Thus, China possessed a technological system which in many ways simply did not properly link up with the demands of the international economy.

Furthermore, China was unable to meet the strict quality and time requirements of international trade, a necessary prerequisite in moving up the value chain. Wu Wenying, minster of MOTI at the time, met frequently with Hong Kong and Taiwanese textile industrialists to discuss China's areas of weakness compared to other cotton powers, like Pakistan or India. Their complaints with Chinese production centered on communication problems with factories and the timeliness of delivery. Most cotton yarns and greycloth are basic and not very time-bound commodities. By contrast, fashion fabrics, color schemes, patterns, and the blends of particular materials abide by the much faster and more fickle taste of the seasonal shopper and corporate retailer in advanced economies. In the late 1980s, standard delivery times between an order from a foreign buyer and shipping from an ocean port for most textile goods was 3-4 months. Chinese

[317] See interview with former Vice-Minister of MOTI, Textile Asia 11/1982: 17-23.

manufacturers by contrast required 6 to 12 months, reasonable for the export of simple greycloths in large volumes, but impossible for smaller, specific orders.[318]

The foreign industrialists also complained that even China's main advantage, low prices, was being jeopardized. One major problem was the illogical pricing under China's foreign trade system in which cotton yarns (of certain count) would sometimes be priced higher than greycloths or greycloths higher than dyed and printed cloths![319] This was because foreign trade corporations had significant power in the pricing of goods (even those under central price-fixing), and they might chose to sell at whatever cost in order to earn foreign exchange. This put a squeeze on state-owned factories whose goods were taken from foreign trade corporations on consignment. The final pricing of these goods would be determined *after* they were sold abroad, so factories had little idea whether their export orders would ultimately prove profitable at the time they were being produced. The attraction of retaining 12.5% of total foreign exchange offered a certain amount of incentive, but for many factories, exports often turned out to be a losing affair, and they grew to rely on the domestic market for their profits.[320]

Thus, similar to domestic commerce, China's foreign trade system was tailored to China's particular production system and SOEs were accustomed to large volumes of simple export orders. As others have noted, the system was also cumbersome and bureaucratic requiring centralized approval for most orders, and there was little opportunity for producer and foreign buyer to meet.[321] All transactions officially were channeled through Chinatex, the only officially recognized entity for trade in cotton (and wool) textiles.

In a word, if China wished to transform into an export powerhouse, the entire chain had to be reconstructed and recalibrated. Higher quality cotton fibers and the new polyester fibers had to flow through the appropriate machinery in a timely manner through foreign trade departments. At the same time, China had ambitions to expand its trade in garments, the most time sensitive and risky, but ultimately the most value-added work in the chain. If it could create its own manufacturing base in fashion fabrics as well, then the entire value-added, from raw cotton to garments, could be internalized.

Over the course of the 1980s and 1990s, there were many reforms of the foreign trade system. Individually, none of them could be said to provide the silver bullet transforming China into the export powerhouse it is today, but all of them in one way or another reshaped the interaction between China's domestic and the global economy. Between 1986 and 1988, a series of reforms began. On the one hand, China substantially broadened the scope of its export processing operations and secondly, it decentralized foreign trade. Although these reforms were not commodity specific, they had a substantial impact only on cotton and as we will see next, silk. This is because the sale of wool textiles was largely oriented towards the domestic market, especially during the 'wool craze,' as mentioned earlier. The fact that China captured almost none of the

[318] Textile Asia 10/1990: 123.
[319] Textile Asia 2/1990: 79.
[320] Textile Asia 8/1990: 130. Also, the low 12.5% foreign exchange retention rate was insufficient for firms to renovate their production equipment. This was especially the case if they needed to use some for importing raw materials. Of course, firms located in special economic zones were treated differently, able to retain 100% and a few firms in the late 1980s were especially selected to experiment with retaining 75-80%.
[321] Moore 2002.

increase in total global trade in wool textiles over the 1980s is an indicator of wool's domestic orientation (see chapter 2). This explains why wool investments and markets collapsed after 1989, while cotton and silk investments soared during the same period. I narrate the two changes in China's foreign trade system in the remainder of this section.

By 1988, China had fully established an export processing system that stretched well beyond the original SEZs established in 1979 and the Open Coastal Cities established in 1984. Unlike in these earlier periods, starting in 1987 foreign firms were allowed to import duty-free so long as these imports were subsequently re-exported. However, given the relatively limited amount of foreign investments at this time (see Figure 4.16 in chapter 4), the new system did not have as large an impact as in the following year when domestic firms were permitted the same rights.[322] Apart from duty-free imports, China also initiated a system of export promotion with tax rebates, subsidies through an export rewards system and an export development fund, and easier access to bank credit at concessionary rates for investments leading to exports.[323] Compared to the mid-1990s, especially after the VAT tax was introduced (and rebated to exporters), this was more limited promotion, but still a significant new booster to foreign trade.

Secondly, the decentralization of foreign trade authority had two components to it. On the one hand, it meant that local branches of the sprawling foreign trade bureaucracies were made significantly more independent to engage in trading as they became increasingly responsible for their own profit and losses. In 1988, the procurement plan for exports was abandoned and replaced by a system of foreign exchange contracting with provinces and foreign trade corporations. Thus exporting firms had an interest not only in meeting bureaucratically-determined export quotas imposed on each province by Beijing, but they had an abiding interest in the success of these exports and increasing their own foreign exchange earnings. They were empowered to keep a larger share of these earnings, and their relative affluence now depended on their competitiveness. Except for certain firms with export autonomy rights (addressed next), this reform did not allow the producing factories to directly deal with foreign buyers since transactions still had to be made through foreign trade departments, however the incentives of the foreign trade department became more aligned with the factory to 'win' in global markets. In theory, it was hoped that the traditional middleman would become a true merchant in supplying and organizing trade through better information flows, better service, timely delivery, speedier transacting and so forth.

Secondly, the number of units which were granted the right to conduct foreign trade was vastly expanded from 1200 in 1986 to 5000 in 1988.[324] So, not only did the nature of the trade channels change, but the number of new opportunities did as well. To a certain extent, some factories were also granted export autonomy rights and some new incentives. Furthermore, on an experimental basis, especially in Shanghai, some factories were permitted to retain a higher percentage of the foreign exchange earnings which could be used in upgrading their technology or for importing raw materials. In addition, the number of large textile SOE factories granted automatic export rights was

[322] As noted below, domestic firms were still constrained because apart from a small handful of them, they were still required to conduct trade via foreign trade corporations

[323] "*Yi zengjia chukou chuanghui wei tupo tiaozheng fangzhi gongye chanye jiegou*" in *Jingji Ribao* 12/27/1986.

[324] Lardy 2002: 41.

expanded, which meant that these firms no longer had to go through the foreign trade departments at all to deal with foreign buyers. While the number of factories granted such rights was limited to only about 100 in textiles by 1988 and they were only granted to the large urban firms, these firms frequently subcontracted with smaller firms, thus broadening the number of firms engaged in foreign trade. Of course, the intent of sharing the foreign exchange was that firms, like their foreign trade middlemen, would adapt themselves to the rigors of export trade. It may appear that my argument here regarding foreign trade reform falls into the same institutional economics framework of narrating change in incentive structures and not incentives. However, in the case of foreign trade, this is less problematic. This is because there were huge price gaps separating domestic and international prices, so incentives to earn from trade were already ubiquitous, given the air-tight nature of China's foreign trade system up to this point and the suppression of domestic prices in China.

Thus, although the production-commerce void had been widening since 1983, the BOTI mini-mills did not flood in until a variety of *new channels* in both domestic and foreign trade opened up and the gap between raw cotton and domestic retail prices widened. Over the 1980s, including through 1987, cotton spindles had been added at the very slow pace of 5-7% per year, nothing like the 15-25% experienced in the wool industry during that same period (Figure 3.2 above). Then suddenly in 1988, this reversed. Over the next four years, with the opening of new channels, Chinese spindles were installed at a feverish pace. But while the BOTI mini-mills were entering the new channels of the two commercial arenas, the raw fiber arena was heading in the opposite direction. Spindles were exploding, while cotton harvests were withering as the cotton-grain ratio remained unchanged. A yawning gap was the result. The new commercial channels and higher prices in 1987-88 added the flames and the cotton wars erupted.

Silk: 'Balanced' on a Bubble

Although for different reasons and via different pathways, both the wool and cotton wars resulted from supply-demand imbalances. Silk is distinctive in that no mismatches between supply and demand are evident during the wars in the late 1980s and early 1990s, when battles raged over silkworm cocoon purchases. While all students of the wars agree that imbalances were symptomatic of the wars, the case of silk runs counter to this claim. Why did silk avoid the imbalances between the supply of cocoons and the demand from silk filatures and if they were no imbalances, then why all the fighting over cocoons?

I argue that imbalances did not exist for two reinforcing reasons. First, over the 1980s, silk cultivation and reeling became increasingly 'clustered' together and interlinked largely in local rural or peri-urban areas. Thus, it avoided the deep east-west geographic divisions which plagued wool. Second, although cocoons and raw silk are similar to cotton in being highly regulated, they lack cotton's 'conflicting arena' problems because as we mentioned earlier, silk was distinctive in that the entire production chain from cocoon procurement to export trade was organized under a single government corporation.

However, these differences do not mean that local governments had nothing to fight about. Like before, in silk we have to look for answers in the interaction between China and global silk markets. The latter half of the 1980s was a period of high global growth, and as a luxury good, silk experienced a major boom. During the boom, global processors and retailers purchased almost whatever China could produce, so domestic cultivators and reelers rapidly and simultaneously expanded capacity to meet this demand as prices skyrocketed. If this were not enough to fight over, in 1987-88, as part of its broader reforms of foreign trade just discussed, China altered the organizational structure regulating the silk chain by decentralizing trade in silk.

Ultimately, the silk wars were not caused by 'government distortions' or 'imbalances' at all. Rather, they were the result of an overheated global market – a bubble – and changes in how China organized to meet global demand. China was both perpetrator and victim of this bubble and local governments and industry were simply utilizing their power over cross-border commodity exchange in order to better ride the global bubble upwards.

However, after the bursting of the Japanese economic bubble and the onset of a global economic recession, silk demand dropped off and China was saddled with huge industrial capacity. Unwilling to let this go to waste, with the assistance of Hong Kong and American retailers, Chinese producers upended the traditional global division of labor by entering downstream fabrics and especially garments. This undermined the global silk industry and led to a new international trading regime. In other words, China's domestic commodity wars were transmitted onto global markets. This undermined the global silk industry and ultimately devastated China's silk industry from 1994 as evident from Figure 3.2 above.

The silk industry in China is best understood as global-local. The primary market is through exports, but cocoon cultivation and reeling are suited to relatively poor, rural regions with excess labor. Unlike the cotton and wool agro-industries, silkworm cultivation and reeling have consistently resisted high levels of automation and mass production.[325] The cocoons and filaments are simply too delicate to be profitably mechanized for mass processing, something the Japanese industry learned in the post-war period.[326]

China replaced Japan in the 1970s to become the dominant global producer and trader. Although it offers the rare combination of high profits and suitability to poor, labor-abundant rural environments, mulberry plantations and sericulture also take substantial time and skill to cultivate, and thus are not easily commodified like other agricultural goods.[327] Over the past decade or so, Brazil, Vietnam, Thailand and India have all actively promoted sericulture cultivation, but still none come close to challenging China's position.

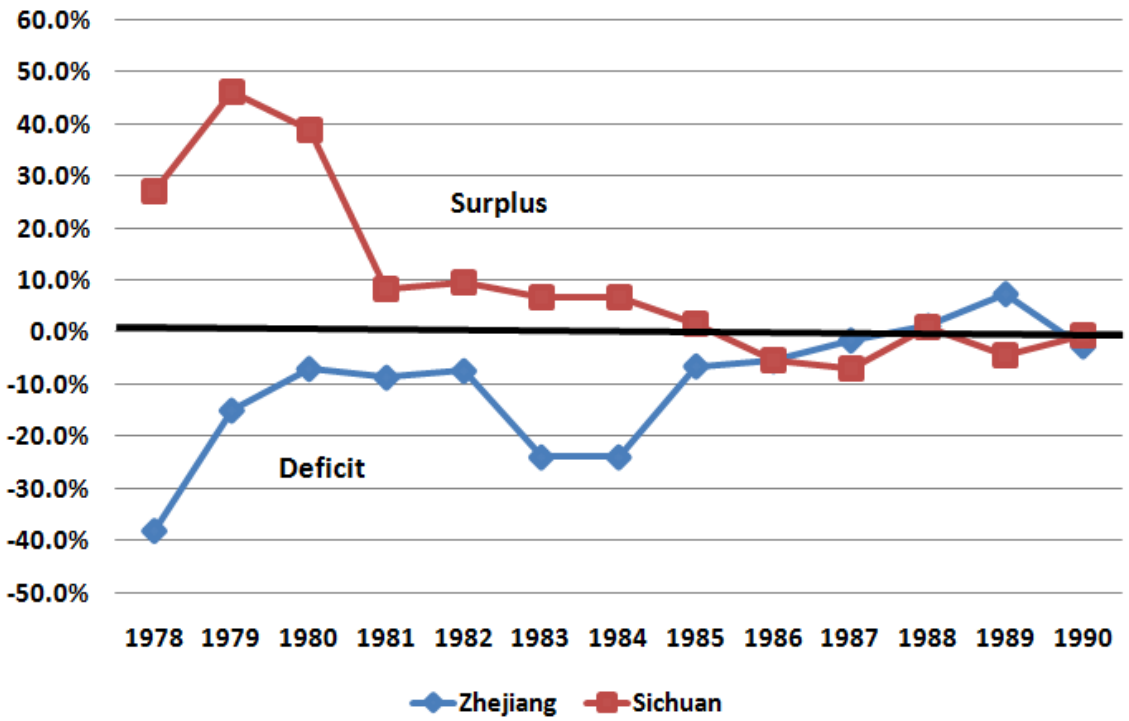
[325] All stages *after reeling,* however, from weaving through garments, are automated.

[326] Prior to China's reemergence as the world's principal supplier of raw silk, Japan was both the world's largest producer of cocoons and silk, as well as the world's largest consumer, particularly for kimonos. Japan's rising labor costs after the war made the traditional modes of labor-intensive sericulture and reeling unprofitable. Apart from some basic automatic reeling machines, most attempts at mechanization failed to dislodge the labor-intensive practices of reeling, leading to the decline of the industry in Japan (and later in South Korea).

[327] The ILO recommended sericulture as an ideal industry for labor-abundant countries.

During the 1980s in China, the rise of silk TVEs signaled the return of silk reeling to its 'natural' roots in rural regions. Reeling became increasingly clustered in the same regions as silkworm cultivation. For instance, Sichuan province was a major cocoon producing province, cultivating 25-30% of China's total cocoons. However, during the pre-reform period and much like the wool industry, a large share of these cocoons were purchased by local state depots and shipped for industrial processing to provinces along the coast, in particular the Yangtze Delta region (Shanghai, Jiangsu, Zhejiang) or Guangdong. During this period, cultivation and reeling were geographically separated but integrated through the foreign trade commercial apparatus.

Figure 3.7: Cocoon Surplus and Deficit as a Percent of Filature Capacity: Zhejiang and Sichuan Provinces



Sources: Cocoon Production: *Sichuan sheng zhi: sichou zhi:* 30 and *Zhejiang sheng sichou zhi:* 576-77 ; Filatures: 1978-84: *Zhongguo fangzhi tongji nianbo:* 1984; After 984: *Sichuan: Sichuan sheng zhi sichou zhi:* 136-7; *Zhejiang sheng sichou zhi:* 635-36. Filature capacity converted to cocoon at rate of 250kg/year calculated from Textile Asia April 1990: 94.

However, the rise of rural TVEs in the 1980s pushed silk from a regional division of labor between agriculture and industry to increasing agro-industrial balance by the time the wars commenced in 1987 (Figure 3.7). In other words, the industry became 'clustered' around its raw material bases even at the sub-provincial level (Table 3.5). Many regions in Sichuan began to move downstream and installed their own industrial capacity to reel at home. In reaction, provinces along the coast, like Zhejiang were forced to rapidly expand their mulberry plantations and thus become self-sufficient themselves. Although the idea of China's 'honeycomb' or 'cellular' local economies is generally associated with the Mao era, in silk, this is more true of the reform era, as

depicted graphically in Figure 3.7.[328] The odd-man out of this rapid process of regional 'balancing' was Shanghai, which as a city relied on other provinces for its raw materials. Thus, when foreign trade was decentralized in 1987-88, local foreign trade bureaus that were located in raw material base areas directly linked up with international markets. This cut off the pipeline to places like Shanghai (and other large city factories), but was a boon to poor interior provinces like Sichuan, which drew about a third of its foreign exchange from silk. Over this period, silk had transformed from an integrated 'national' industry via state commercial units to become global-local.

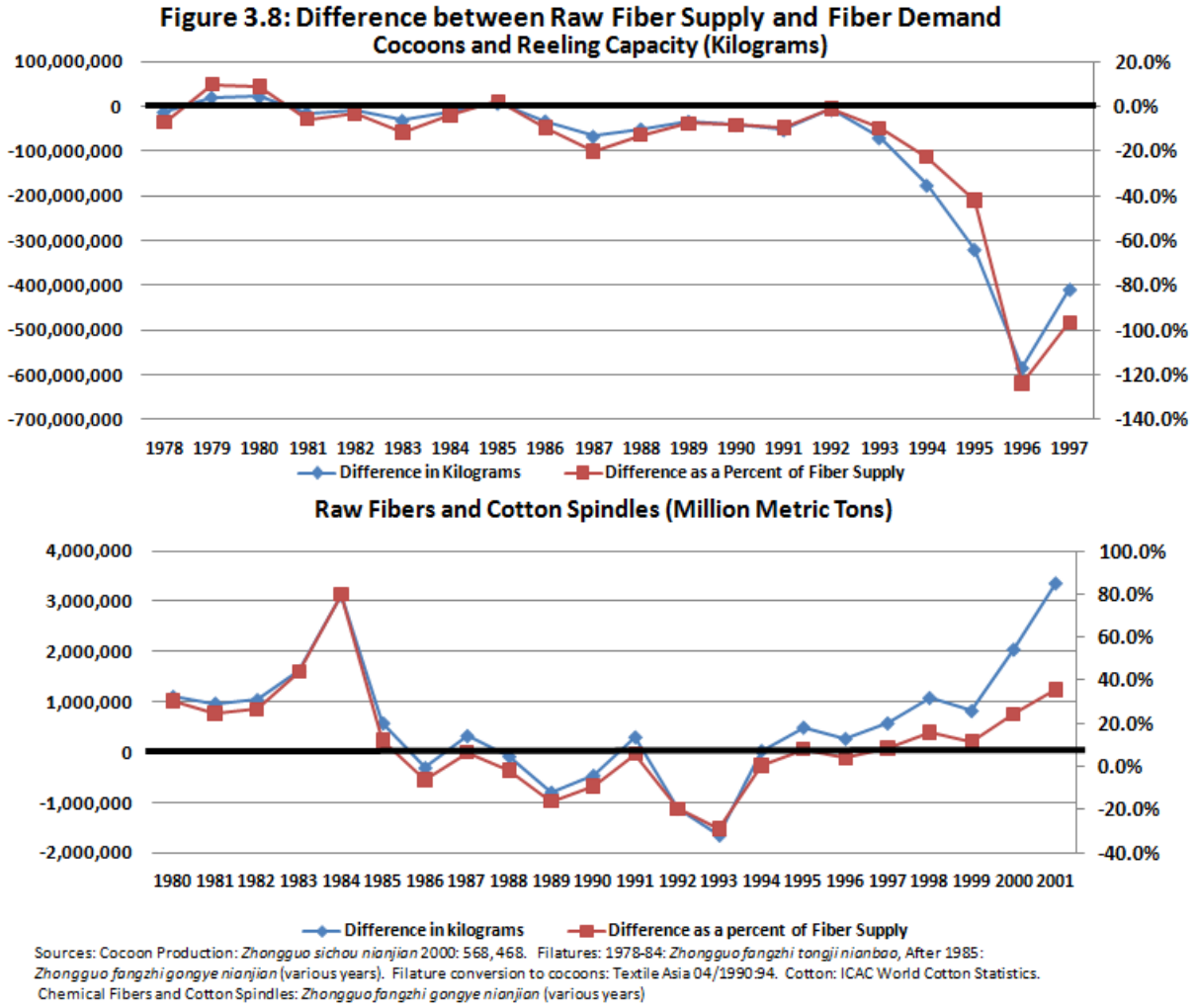
Table 3.5: Percentage of Cocoons and Silk Filatures Clustered in Each Region, 1990

Region	Cocoon Cultivation	Silk Filatures	Difference	Region	Cocoon Cultivation	Silk Filatures	Difference
Nanchong	20.14%	19.39%	0.75%	Peiling	3.25%	3.61%	-0.36%
Chongqing	19.53%	18.76%	0.77%	Zhanzhou	2.84%	2.55%	0.29%
Mianyang	10.53%	9.46%	1.07%	Zigong	2.59%	3.65%	-1.06%
Wanxian	7.37%	8.63%	-1.26%	Guangyaun	2.06%	1.98%	0.08%
Neijinag	6.98%	8.16%	-1.18%	Liangshan	1.58%	1.45%	0.13%
Deyang	5.20%	3.52%	1.68%	Chengdu	0.68%	2.38%	-1.70%
Suining	5.10%	5.43%	-0.33%	Qianjiang	0.34%	0.00%	0.34%
Daxian	4.13%	4.05%	0.08%	Panzhihua	0.29%	0.00%	0.29%
Yibing	3.65%	2.77%	0.88%	Yaan	0.23%	0.43%	-0.20%
Leshan	3.50%	3.78%	-0.28%	Ganmai	0.01%	0.00%	0.01%

Source: *Sichuan sheng zhi:sichou zhi*: 33, 136.

Although reeling was rapidly reorganizing and clustering around its rural raw material bases, it maintained overall balance. A comparison with cotton is telling. Figure 3.8 illustrates the 'balance' between total fiber availability and the total fiber demand from cotton spindles and silk filatures. These figures incorporate all sources of raw material supplies, including domestic production, total imports and exports, and the share of man-made fibers processed.[329] Total industrial capacity is converted to estimate the quantity of raw material required to keep the machinery operating at a 'normal' rate of production. This includes ring spindles and other spinning machinery like open-ended rotors, as well as automatic and non-automatic reeling machines.[330]

[328] For these depictions, see Donnithorne (1972), Lyons (1987) and Shue 1988.
[329] Man-made fibers are used extensively in silk fabrics, but reeling machinery is exclusively used to process the cocoons.
[330] Cotton capacity is calculated as 'spindle equivalence' using a 4:1 ratio with each open-ended rotor machine and with each spindle equivalent capable of processing 150kg of cotton per year, which is the quantity China's Ministry of Textile estimates in their cotton allocation plans in China. For filatures, automatic and non-automatic machines are included with 250kg of fresh cocoons as a typical processing quantity per filature. See Textile Asia 4/1990: 94.



Sources: Cocoon Production: *Zhongguo sichou nianjian* 2000: 568, 468. Filatures: 1978-84: *Zhongguo fangzhi tongji nianbao*, After 1985: *Zhongguo fangzhi gongye nianjian* (various years). Filature conversion to cocoons: Textile Asia 04/1990:94. Cotton: ICAC World Cotton Statistics. Chemical Fibers and Cotton Spindles: *Zhongguo fangzhi gongye nianjian* (various years)

While this sort of calculation is admittedly inexact, the *general shapes* of the two trend lines speak for themselves. In cotton, raw fibers were in abundance both before and after the cotton war years (1987-1994), while fiber supplies became quite tight during the intervening years of the war (in other words, U-shaped). In silk, the late 1980s war years show very little difference with the early 1980s. It is only around 1993-94 and thereafter that a serious drop in cocoons becomes evident, a topic addressed at the end of this chapter. To put the absolute quantities in context, I also calculated the surplus or deficits as a percentage of total fiber supply. In contrast to cotton, silk supply and demand remained largely balanced, though it was geographically restructuring by clustering in rural areas.

At the same time, Beijing regulated silk quite carefully. As mentioned, in terms of *net* foreign exchange, this relatively minor industry earned as much, and in some years more, than China's massive cotton industry, which employed many times more workers and utilized many times more fixed assets. However, the way Beijing regulated the silk industry differed markedly. As we saw in cotton, an alphabet soup of different agencies

and ministries set plans or regulated different chunks of the overall chain. It was these distinct regulatory arenas which created the imbalances that resulted in the cotton wars. Silk was spared a similar fate since Beijing has consistently entrusted the entire agro-industrial chain to a single monopoly corporation, usually under the foreign trade ministry. Before 1977, the foreign trade ministry itself directly conducted procurements of fresh and dried cocoons as well as raw silks and other industrial goods. After price instability struck in the mid-1970s, responsibility was briefly shifted from 1977-82 to Chinatex. Finally, for most of the 1980s, the entire chain was removed from Chinatex and re-unified under the newly established China Silk Corporation, another specialized, monopoly import-export corporation. In outward appearances, it looked like any other state trading company. However, China Silk differed in that it organized the whole agro-industry from the procurement of fresh cocoons from farmers to the production of final goods, and domestic and foreign trade.[331]

In addition to China Silk, as an agricultural commodity, cocoons themselves have been heavily regulated. It is the only 'luxury' commodity that Beijing applied its strongest controls, remaining one of the few Category One controlled commodities until the mid-1990s. This is because unlike in cotton, wool and other commodities, in which only a small percentage of the raw commodity is exported, in silk, between 40-50% of China's cocoons and raw silk are exported.

Like under the foreign trade before it, China Silk had the responsibility of supplying raw silk to the global silk industry.[332] For a long time, this division of labor held as China ensured a steady supply of raw silk to the global industry at a steady price. After the price swings of 1974-76, China began to set a single global price for raw silk. Thus, until the start of the silk wars in 1987-88, changes in global silk prices have been a reflection of fluctuations in the U.S. dollar exchange rate with other currencies, not changes in prices quoted by China's foreign trade ministry.[333] As we will see next, conflicts over the harvest in 1987-88 lead to wild price increases for the first time since the mid-1970s, leading to the undermining of the European industry and the breaking of the traditional global division of labor.

In the latter half of the 1980s, with the advanced countries climbing out of the 1980s recession, luxury goods like silk were in high demand, and foreign processors could only turn to China to feed this demand. In itself, the boom did not cause the cocoons wars. For instance, as we saw in the prior chapter, China's foreign trade apparatus was able to control the late 1970s spike in global silk demand, at least after it centralized control under MOFERT. The boom only created the conditions for China's cocoon wars.

But, the silk agro-industry was organizationally aligned so that regional silk economies in China were linking directly into international markets. Whereas before rural areas produced only the cocoons (which is not frequently traded internationally), they now were processing more of their own cocoons into raw silk, which is traded. The

[331] See discussion in Textile Asia 11/1982: 17-23.

[332] A limited amount of cocoons are traded globally, but the primary traded raw commodity is reeled silk. Raw silk is the product after the fresh cocoons have been processed and the continuous silk filament has been unwound from the cocoon using reeling machinery.

[333] This is especially the case after January1984, when China began quoting export prices in U.S. dollars

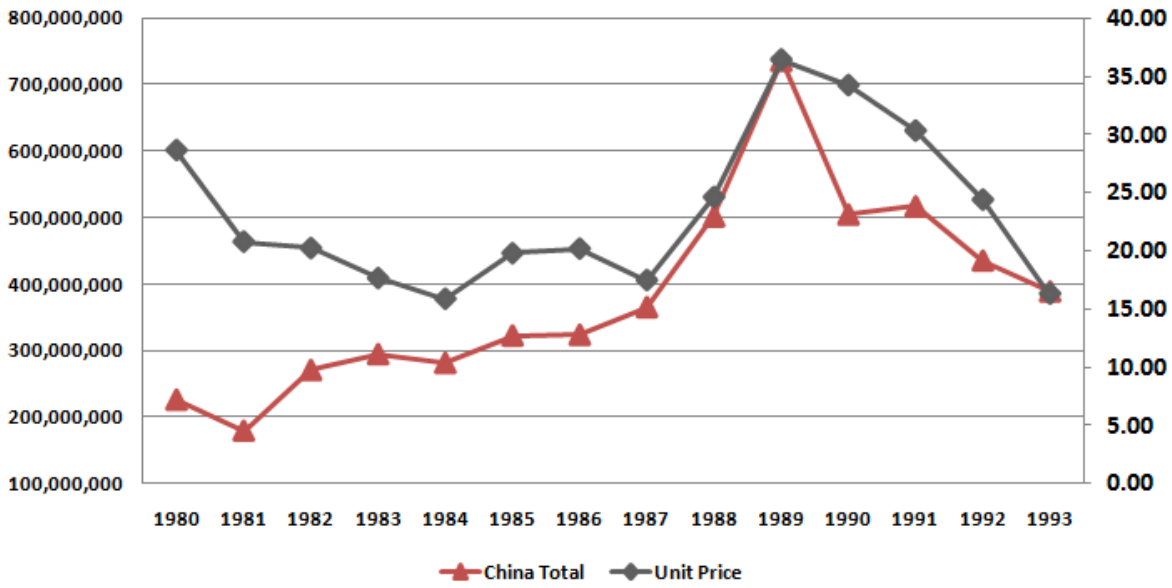
clusters of agro-industrial capacity in rural areas were linked with the global economy through the China Silk Corporation during an upswing of a major global silk boom. In addition, since silk was not regulated under the Multi-Fiber Agreement (MFA), there were no quota limits on silk. All that was needed was a spark to ignite the wars. This occurred in 1987 with the disbanding of the China Silk Corporation and the decentralization of silk trade. This was part of the general foreign trade reforms discussed with reference to cotton. In order to move downstream into more time-sensitive products and create better links between factories and their foreign buyers, foreign trade and bureaucratic decision-making was decentralized. Just like the local branches of Chinatex which were empowered to conduct trade independently, China Silk and its local branch companies were part and parcel of these broader reforms.[334] With the Japanese economy in overdrive and high growth in the other advanced countries, the conflict over cocoons became a fight over which local foreign trade bureau could most readily serve these global markets.

Silkworm cultivators were directly linked into the global boom and as I show in the next chapter, cocoon cultivators profited greatly during the war periods which contrasts with cotton growers who did not. The clustered regions of silk production readily kept up with the rising demand. From 1985 to 1994, they expanded their plantations and improved yields of mulberry trees, greatly increasing cocoon output each year. A comparison with wool and cotton is telling. In these commodities, industrial expansion *preceded and rapidly exceeded* agricultural production, setting off the wars and forcing Beijing to react to the balkanization of the national economy. As we saw in wool, Beijing tried to extinguish the wars by allowing coastal mills to increase their imports of raw wool, which grew to nearly equal domestic production. In cotton, by contrast, it was simply not politically feasible to expose tens of millions of Chinese cotton growers to the unfettered competition of global cotton prices, particularly the high quality (and highly subsidized) export cotton of the United States, the largest global exporter.[335] Beijing was forced to offer higher domestic prices and more non-price incentives to Chinese farmers in 1990 and 1991. By contrast, cocoon farmers were right on board riding the global boom, expanding production in sync with the increases in local reeling and loom capacity (see Figure 3.2 above).

The cocoon wars both created and were intensified by the spiraling rise of cocoon prices and all things silk (Figure 3.9). Despite the expansion by Chinese farmers, reelers and weavers, the prices of the commodities went through the roof. In contrast to cotton in which the government had to 'push' farmers into production by raising the cotton-grain ratio, in silkworm cocoons, foreign trade bureaus had to 'chase after' global market prices by increasing their purchase prices to farmers and reelers if they wanted to maintain any semblance of control over the commodity and garner foreign exchange.

[334] In1988, as the war chaos ensued, Beijing tried to recentralize trade in silk with mixed results, as discussed below.
[335] U.S. cotton would have been irresistible to Chinese spinning factories: lower prices and higher quality.

Figure 3.9: China Raw Silk Exports (US$) and Unit Price (US$/kg)



Source: United Nations Commercial Trade Statistics Database. Note: China exports and unit prices are calculated by adding together the import statistics of all other countries in the world. This method is more accurate because in general, custom houses keep better statistics on imports and may even deflate export figures to under-represent the quantity of exports.

The changes were a two way street. Since China was the dominant supplier of raw silk, China's internal wars rapidly bid up domestic prices which were then transmitted onto the global industry. On the other hand, European and Japanese industrial processors who purchased the raw silk had to be willing to sustain this buying frenzy. This was more easily justified in the silk industry than in basic goods like cotton and polyesters. As a luxury item, high raw silk prices could be a virtue that gave silk its patina of exclusion and desirability. Thus, during a period when Japan's economy was red-hot and Western economies booming, China's cocoon wars did not risk pricing silk out of its final markets.

China's silk boom from 1988 to 1994 is a testament to the silk industry's global orientation. Although the years 1989-91 were a period of China's most severe recession, silk's outward-orientation meant that it was breaking all historical records that year (Figure 3.10 below). From 1987 to 1989, foreign buyers doubled their gross purchase of raw silk. Unit prices rose from about US$17 per kilogram in 1987 to US$36 in 1989 (Figure 3.9). Up through 1989, there seemed to be no end in sight.

However, because of China's dominance in raw material production, it was well positioned to encroach on the downstream industries. In theory, it could do this by controlling prices, favoring domestic firms, or limiting the types and qualities of exported raw silk. However, so long as European and Japanese bought raw silk, there was no strong incentive to do this. But with the bursting of the Japanese bubble and the onset of a new global recession, foreign processors backed away from silk.

Given that the silk wars had stimulated the rapid expansion of mulberry tree plantations and installation of industrial capacity, as global demand faltered, Chinese

processors sought to utilize this capacity. They did so with the help of Hong Kong and U.S. retailers, and their cooperation led to the undermining of the global division of labor as China moved into downstream production and created its own market niche outside of European and Japanese spheres. Again, these downstream silk goods niches were doubly attractive as export items for China because unlike all other major textiles and garments, silk was not regulated by the Multi-fiber Agreement (MFA), which set fixed quotas on the exports of most other textile and garments from developing countries to Europe and the United States. This meant that there were no external barriers to the quantity or types of silk goods that China could export. While European, Japanese and Korean processors were quite content buying Chinese raw materials and then dominating the downstream, given China's supremacy in producing raw silk and the lack of MFA constraints, silk offered China the possibility of reshaping the global division of labor in silk.

This occurred through the confluence of several factors. In addition to the general cooling of demand, European processors had already begun to notice Chinese raw silk quality declining, even while the prices skyrocketed. In the heat of the war frenzy, farmers were doing everything they could to increase the weight of their commodity. While the same phenomenon occurred in wool and cotton, silk farmers could more subtly game the system. They did so by not fully drying the cocoons, thus increasing their weight through higher water content. [336] Previously, China had been a steady and reliable supplier of global raw silk largely because trade was traditionally concentrated within a single, centralized company like China Silk, which could reliably vouch for the quality of exported raw silk. However, with the decentralization of foreign trading, there were new sellers and new relationships that had to be established and built. With sky-high prices and few alternative raw material suppliers, however, commercial standards became warped.

The distrust over Chinese quality and the cooling global economy led to a sag in the sales and the price of raw silk (Figure 3.9 above). The declining prices in raw silk also changed the calculus among Chinese processors with regards to the usage of raw silk. Chinese firms found it increasingly profitable to venture into downstream production, including fabrics and garments and accessories.

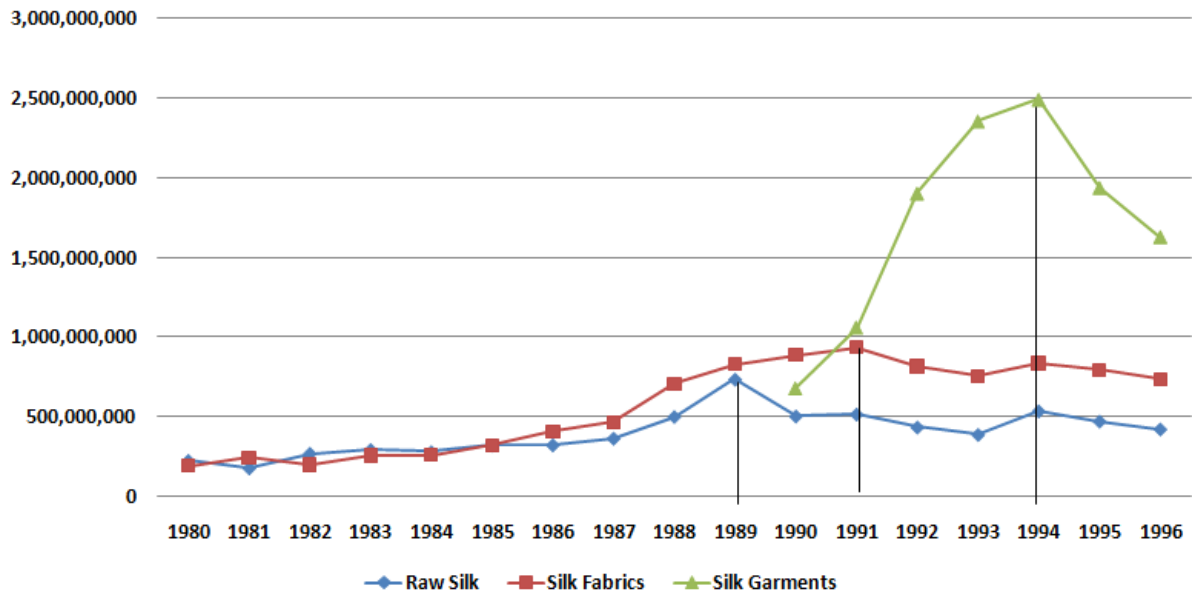
The challenge for China was that the Italians, French, Japanese and Koreans controlled the foreign markets. China was dependent on their fashion houses and industrial processors to keep silk 'popular' and desirable among consumers. They were also closest to the final markets and knew what would be popular and sellable each season. China was 'merely' the raw materials supplier.

China did possess sufficiently competent mid- and downstream processing capacity however, so with the excess agro-industrial capacity and cheapening raw silk, Chinese processors linked up with Hong Kong and American retailers to create their own global market niche. For instance, in the early1990s, a new silk fashion took off, called sand-washed silk goods. Designers like American Robert Stock and others now discovered that silk could be sourced cheaply and in large quantities from China, a result of the aftermath of the silk wars. With the addition of Hong Kong silk joint-ventures, Chinese silk could be marketed to middle class consumers in the U.S. and elsewhere.

[336] Textile Asia 9/1991:63. For instance, in cotton and wool, all forms of foreign matter were found in bales of cotton, including white chalk, plaster, stones, concrete bricks, even a wine bottle according to one report.

Although China was not responsible for popularizing this new silk niche, China's domestic market dynamic was its true origin. As the first wave of exports in raw silk ended in 1989, these new niche markets created two more 'waves' of exports as Chinese producers moved downstream into fabrics and especially final garments production (Figure 3.10).

Figure 3.10: Exports of Raw Silk, Silk Fabrics and Garments with Peak Years Indicated (US$)



Sources: Raw Silk and Fabrics: United Nations Commercial Trade Statistics Database. Garments: *Zhongguo sichou nianjian 2000*: 531
Note: Although raw silk appears to be rather insignificant, these data represent only gross revenue. In terms of net foreign exchange or gross profits, the relative contribution of each subsector would differ substantially.

Of course, in comparison with European silkwear, Chinese products were extremely cheap.[337] Despite their price difference and market segments, China's movement into downstream markets created much angst among European manufacturers. During international conferences organized by the International Silk Association (ISA), Italian manufacturers and industry representatives pleaded with the Chinese representatives not to undermine the entire industry.[338] They argued that as a luxury item, silk must maintain its image in the consumers' eye. The Chinese, along with their Hong Kong compatriots and American designers and retailers, were 'democratizing' the fiber and thus cheapening it. They argued that in terms of kilograms of consumption, silk fibers were extremely rare, composing less than one percent of total global fiber and thus ought to maintain its niche as the 'queen of the fibers.' If the prices of silk goods continued to decline, then the industry would destroy its reputation and have to compete in the same market segments as other fibers. Of course, this is what the Europeans feared

[337] International Silk Association XVIIIth Congress, Taorima, Italy, 4th-8th November 1991.
[338] International Silk Association XIXth Congress, Nanjing/Suzhou, 31st October-6th November 1993.

most because they would be unable to compete with the Chinese if the silk industry democratized.

The Chinese were 'democratizing' the product by several means. First, during the silk wars, the virtuous cycle of expanding cocoon cultivation, investments in more machinery and the entry into downstream markets meant that there was simply a lot more silk finding its way onto retail shelves. Secondly, China was undermining the exclusivity of silk by introducing much more synthetic fibers into their weaves. The use of synthetics in the silk industry was hardly pioneered by the Chinese. In fact, the broad-based use of nylon began with Western industrialists' attempts to replace Asian silk just before and during the war for use in women's stockings and military equipment like parachutes. At the end of the 20th century however, with the silk industry concentrated in advanced countries, there was no good market logic behind devaluing expensive raw silk by mixing it with 'low-brow' synthetics.[339] However, given China's expansion of cheap raw materials and the creation of a new low-end silk niche, interweaving synthetic fibers made more economic sense. It was precisely these sorts of new niches which the Europeans and others were so worried about. While the Italian processors' rhetoric was cloaked in the collective logic of 'our declining industry,' their survival relied on maintaining silk as a luxury, while Chinese success did not.

Between 1987 and 1994 in the silk industry, it is hard to see the dysfunctions of the wars. Farmers and industrialists were largely in tune; China was earning significant foreign exchange; factories were gaining global market share and even creating a new niche. As we will see in the following chapters, farmers were earning very high profits, so the flow of value from the global economy was reaching down the entire chain into the pockets of silkworm cultivators.

The weakness of this system was that China had no control over the direction and conduct of the new fashion niche. China was the driving force but Hong Kong and Americans were the leaders. The designers, fashion houses and retailers in the U.S. and Hong Kong which discovered and popularized China's new low-end silk goods were able to capitalize on the price gap between the large quantities of cheapened Chinese raw silk and the perception of silk as an elite fiber. However, they had no abiding interest in the survival of the Chinese silk agro-industry itself. Silks were just the current fad and when the marketers, advertisers and designers shifted to something new, their firms had few sunk costs in silk.

On the other hand, industrial processors of silk, like the Italian silk manufacturers, keep their eyes on new fashion trends and remained in close contact with the final markets. Unlike the designers and marketers, they had an abiding interest in China itself and its raw silk. Their interests were inextricably linked and so there was a common understanding in coordinating the global production chain. They do not simply produce to follow the new market trends. They seek to keep their industry popular and in the public eye, and shape consumers' understanding of how to perceive silk. The point is that to a far greater degree, 'producer-driven' chains[340] spend considerable energy in

[339] This did not maximize value added and was only appropriate for lower quality silk yarns, like Bourette silk, which unlike most silk is spun using the broken threads of damaged or waste silk remnants.

[340] The terms 'buyer driven' and 'producer driven' chains derive from the work of Gary Gereffi on global commodity chains, an important inspiration for this dissertation. See Appelbaum and Gereffi 1994 and Gereffi 1999. The former

maintaining their specific market niche and have long-term time horizons. 'Buyer-driven chains,' lacking the sunk costs, do not. Their interest in China and silk is ephemeral and yet in the early 1990s, they became the erstwhile 'leaders' of the new Chinese niche market. China Silk and its successor export corporation, the China National Silk Import-Export Corporation, let alone other independent Chinese traders were incapable of breaking into the designer-retail links of the chain. It is extremely difficult and expensive, not to mention requiring significant cultural understanding to be competitive in these nodes. Even though China enabled the creation of this new niche, it remained dependent on these firms and was unable to direct or control the chain in the interests of its long term development. This was a problem because as silk goods increasingly cheapened, they started to damage the garment industry in non-silk categories as well as the global silk players as mentioned. This attracted the attention of manufacturers in the US and Europe, who successfully lobbied to have silk blend garments included under the regulation of the MFA in 1994 and have quota limits imposed on them. The Chinese agro-industry collapsed, a topic for the next chapter.

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This chapter has examined the different pathways by which the commodity wars were ignited in three textile fibers. Unlike the previous chapter in which there was variation across the fibers after the introduction of household farming and marketization, in this chapter local governments intervened in the interregional exchange of all three fibers at one point in time or another. The variation here is in terms of the different timing of events, across the three industries, despite nearly identical barriers to entry. Through close examination of the sequencing of events in each subsector, the chapter highlighted the commodity-specific factors which set off the wars. In this sense, the basic lesson of the two chapters is the same: the economy-wide institutional reforms which realigned incentive structures were constants, while the incentives themselves which motivated government and economic actors were generated through the broader sectoral context, and in particular the sector-specific organization of each agro-industry. The reason that it was so common to find local government intervening in the agriculture harvests was not because of the common institutional reform of fiscal decentralization, but rather because they shared in common a state capacity from the pre-reform era to control the harvests, a capacity which could be applied for any number of purposes. The next chapter addresses how the commodity wars came to an end in the three fibers and narrates the aftermath of the wars. Most importantly, it examines the re-orientation of the textile industry towards technological upgrading and its integration into East Asian production networks.

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is best represented by the global garment industry in which retailers in advanced countries are the 'drivers' of the chain; the later is best represented by the automobile industry in which the major car assemblers have the most control over the conduct of the global chain. While useful as a classification device, it lacks an analytic bite. The case of Chinese silk illustrates that for firms in developing countries, linking into 'producer-driven' chains is much more stable and beneficial than the 'buyer-driven' chains. Furthermore, it shows that the distinction between the two categories does not necessarily have to obey a light and heavy industry boundaries, such as garments versus automobiles.

Chapter 4

The Aftermath of the Wars: Technological Renovation and Global Integration

The commodity wars were symptomatic of two elements of China's political economy of the 1980s. First, they reflected the type of 'extensive and localized' growth which had been sparked by the labor flows off of collective farms and the expansion of local capital accumulation intermediated by rural banks. Although labor, capital and land remained largely local in character, products and commodities were circulating widely, something which local governments sought to control. Second, local governments retained the institutional capacity to intervene in agricultural commerce, a capacity that was at the core of China's planned economy. As discussed earlier, China's economy was distinctive from the Soviet Union's in the degree to which it controlled agricultural harvests, labor flows and personal consumption, all of which local governments were empowered to regulate closely. Thus, as commodities increasingly flowed across borders, local governments identified new opportunities or external threats and used their latent powers to intervene. The previous chapter showed how local governments intervened for different reason and at different points in time in the exchange of each commodity. This helped to distinguish between the influence of fiscal decentralization which altered incentive structures and local state capacities to intervene in agricultural commerce, which like any tool may be applied for any number of purposes. In the case of the three wars, the actual incentives which drove local governments to action varied according to attributes unique to each commodity.

This chapter identifies a period from the early to late 1990s when China's brand of 'extensive growth' came to an end and was replaced by a series of policies which shifted Chinese industry to 'intensive growth' based on the importation of foreign technology, the absorption of foreign capital and integration into global production networks. It examines different facets of the aftermath of the wars and their influence on China's re-orientation in market development. First, it takes up the issue of how and why the wars ended, a topic largely neglected by students of the commodity wars. Secondly, it examines the institutional changes in the regulation of cotton, wool and silk which were induced by the wars and market collapse. As before, the ending of the wars and the institutional changes they generated were particular to each commodity.

More importantly, the wars also substantially contributed to the re-orientation of downstream industry towards intensive growth. My argument is that as the wars drove up the real prices of China's domestic raw materials, they created an industrial crisis. Industrial processors were increasingly 'squeezed' by raw material prices which rose much faster than general inflation and faster than downstream retail prices in textiles and garments. Secondly, the upstream price inflation rose to levels equivalent to international prices which robbed Chinese industry of its advantage in sourcing cheap domestic agricultural commodities, something that has sustained the textile exports of countries like India and Pakistan. This created an export crisis in China's most important export commodity.

Faced with these two crises, from the early 1990s policy-makers sought to re-orient the industry in two new directions. Beijing bureaucrats perceived the core problem facing China's textile industry to be the low industrial "value-added" to raw fibers. Previously, given the very low prices of agricultural commodities, textile firms had little trouble adding value. However, the price inflation created by the wars suddenly ate away this gap which motivated policy-makers to seek a solution in adopting the industrial standards of advanced countries' textile firms.[341]

On the one hand, the re-orientation of industry was implemented through *technological upgrading*. This included policy changes to encourage the purchase and absorption of foreign machinery, which made China the world's largest customer to European, Japanese and American machinery manufacturers. While the discourse of 'technological modernization' had been prevalent at least since the late 1970s, in terms of foreign imports and new investments, the 1990s clearly stand out as a period of major shifts towards foreign technology absorption. At the same time, China's 'native' machinery industry, an outgrowth of its two decades of autarky in the 1960s and 1970s, was substantially eliminated. The purpose of this suppression was to cut off the supply of China's cheap but low-tech equipment, which as we saw contributed greatly to the machinery 'investment rushes' in the 1980s that triggered the wars. This re-orientation of the machinery industry is evident in that during the period of China's new industrial boom in the 1990s, its textile machinery industry was cut to half its size compared to the 1980s.

Secondly, as China's domestic commodity prices rose to and surpassed international prices, its export competitiveness, which had been dependent on cheap agriculture fibers, was threatened. However, the crisis also offered its own solution. The same price inflation also opened the way for China to restructure its foreign trade and investment regime since it undermined China's rationale for maintaining its two systems of import and export protectionism. Through a range of policy changes over the 1990s, China transformed from a typical, large protectionist developing country to resemble a resource-poor export-oriented NIC in terms of trade dependency and level of international integration. China's level of international integration not only deepened, but it linked into the East Asia region's networked production, which reflected the restructuring of global manufacturing in the 1980s and 1990s. In terms of tariff duties, foreign direct investment (FDI) and trade, the pattern of China's integration became molded to the regional East Asian economy.

Overall, these two interrelated re-orientations of policy dovetail with a growing body of literature which has rejected the traditional view that the 1990s marked a period of 'continuity' with the market liberalizing reform of the 1980s. My findings support this claim, but offer a different rationale for the underlying reasons of the re-orientation. The shift brought to an end the indigenous and extensive growth of the 1980s in favor of technology-centered intensive growth through assimilation of foreign technology and capital. China's integration into East Asian production networks created a division between the up and downstream of China's textile and garment chains. This disarticulation along the

[341] For a succinct statement that raw materials ,particularly cotton, was the overriding problem of the industry, and that technological renovation was the key solution hit upon by top leaders in the State Council, see <<*Guowuyuan pizhuan guojia jingmaowei, guojia jiwei, zhongguo fangzhi zonghui guanyu jiejue mian fangzhi hangye cunzai wenti yijian de tongzhi*>> and <<Guowuyuan quanyu gaohao fangzhi gongye shengchan he tiaozheng gongzuo de tongzhi>> in *Zhongguo fangzhi gongye nianjian 1995*: 69-72. Also see speeches by Vice-Premier Li Lanqing and former textile Minister Wu Wenying in the same volume.

chain reconstituted the geography and demographics of China's industrial labor force and shaped the emergence of labor markets in the 1990s. This chapter addresses the re-orientation of industry and the next chapter deals with the fate of labor and how the benefits of both China's period of extensive growth and intensive growth were distributed among farmers, industrial workers, factories and local governments in different regions of the countries. It begins with narrating the ending of the commodity wars in cotton, wool and silk and moves onto how domestic institutions regulating these goods were transformed. Finally, it addresses the dual crises induced by raw material inflation and China's industrial and international re-orientation.

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Three Paths to Ending the Commodity Wars

Many scholars were inspired to write on the commodity wars when they broke out, however few have returned to the subject in the intervening years to understand how and why they ended. Writing nearly a decade after the wars, Andrew Wedeman's book is one of the only theoretically informed piece that offers a solution to the disappearance of the wars. His core argument is that the struggles between local governments over control of the harvest led to price hikes which undermined the state system of price controls and state-directed commercial distribution.[342] By intervening in agriculture commerce, the rent-seeking behavior of local governments drove up prices to 'market-clearing' levels. While this at first appeared to undermine market reforms, according to Wedeman it actually destroyed the state distribution system and led to the creation of a national market and market pricing. His interpretation is rooted in the Tiebout-inspired theories of "market-preserving federalism," a literature which extols the virtues of federal political systems as capable of imitating 'market-like' competition.[343] Many scholars have viewed China as an excellent illustration of these ideas. Much like the 'gradualism' literature reviewed in chapter 1, this substantial body of literature also seeks to neutralize the apparent paradox of China's phenomenal growth rates despite its highly 'unorthodox' reform path.[344] It does so through the metaphor of equating federalism with market forces.

This line of thinking has problems, and Wedeman's explanation is indicative of some of these weaknesses.[345] Most importantly, in Wedeman's work there is perhaps no possible way to furnish independent empirical evidence of what 'market-clearing' prices are and when they have been achieved (or at least, Wedeman does not attempt to define and measure these). Rather, he ends up having to assume that the cessation of the wars signals that a market was created and that market clearing prices had been reached. The ending of the wars operates as both his dependent variable as well as his main empirical indicator that markets were created and prices rose to market-clearing levels. Empirically, there are two problems with his explanation. First, we saw in chapter 3 that the timing in the decline of inflated consumer textile prices (which he argues attracted local government to over-invest)

[342] See Wedeman 2003.
[343] Tiebout 1956
[344] Montinola, Qian, Weingast 1995; Qian, Weingast 1997; Cao, Qian, Weingast 1999; Jin, Qian, Weingast 2005.
[345] See Donohue 1997 for a conceptual critique of this literature.

does not match with the war period. As we saw, real consumer textile prices bottomed out between 1983 and 1986, well before the wars began. Furthermore, there is at least one other way to attempt to empirically verify his claims of the creation of a market economy. If the wars led to market clearing prices, then one might reasonably assume that the wars would have ended at the point in time when prices reached their peak. However, an examination of unit prices shows that in some commodities they peaked well *before* the wars ended. For instance, in the previous chapter, I offered unit price data for exported raw silk. They peaked in 1989, even though the wars over cocoons continued until 1994. In short, the claim that local governments unwittingly created a market economy is hard to sustain empirically.

To properly address this issue, it is important to distinguish the *immediate* causes that ended the wars from the *long-term* ones, a distinction well understood by Beijing bureaucrats who feared the 'hidden dangers' of the return of the wars.[346] Of course, it is the later which created the conditions for local government to stop intervening in the harvest. In two of the cases, silk and wool, the immediate causes for the end to the wars are rather unexciting: in the case of wool, domestic markets collapsed during the 'hard-landing' policy measures of 1989, and in silk, global markets collapsed in 1994 due to U.S. and E.U. government interventions. In cotton, by contrast, the wars were only temporarily halted when Beijing offered farmers a one-time boost in government procurement prices and non-price incentives in 1990-91. These were temporary changes, however, and so there was every reason to believe that the wars could resume once conditions changed and their effects wore off, as in fact happened between 1993 and 1995 in cotton.

Given the different structural factors and government interests in each commodity, there was no feasible way to resolve the conflicts in a similar way. For instance, we have already seen that unlike silk, the wool and cotton wars were the result of supply-demand imbalances. In theory then, the easiest way Beijing could have ended the wars was to open up the domestic raw fiber economy to imported fibers by reducing tariffs and eliminating the import quota system. However, these two commodities held very different positions in the Chinese economy. Cotton was a far more important and regulated industry than wool, employing tens of millions of farmers and industrial workers and sat at the crux of food and clothing security and price inflation. Secondly, wool had already been exposed to international prices on account of the large quantity of imports required to keep the eastern mills running, a problem which stemmed from China's east-west geographic division. Thus, only in wool did China pursue the simple solution of liberalizing fiber imports.

By contrast, in cotton, planners were forced to devise 'domestic' solutions to the cotton wars. As described below, Beijing attacked the problems plaguing cotton from a variety of angles. Some policies were aimed at undercutting the demand conditions for fibers, while others were aimed at expanding the available supplies. The failure of the former strategy and the success of the later offer insights into the relative strengths and weaknesses of China's state institutional capacities. In essence, China has been quite capable in stimulating capacity expansion, but very weak in disciplining or directing industry, something the East Asian countries with their deep government-business ties and powerful business associations were once quite adept at doing during their developmental

[346] *Zhongguo fangzhi gongye nianjian 1988-89*: 35-37.

periods, even in textiles. Finally, given China's dominant position in the global silk trade, recourse to raw material imports was simply impossible. In the following pages, I narrate the different ways in which the cotton, wool and silk wars were ended.

Wool

In wool, the economic measures initiated by conservatives to end hyperinflation in 1989 caused the collapse of luxury consumer goods industries, of which the 'wool craze' was a part. Average national raw wool prices fell 47% in two years from 481RMB per 100 kg in 1988 to 254RMB in 1990, though some provinces like Inner Mongolia and Gansu suffered greater declines while others like Xinjiang experienced less severe drops.[347] As the consumption of wool textiles evaporated, imports of raw wool also collapsed to almost zero by 1990, from a peak of 80% of total domestic production just two years earlier.[348]

Despite this reduction in competition from imported wools, however, domestic herders were devastated by the collapse. Although initially drawn to mutton sales (as discussed in chapter 2), they had eventually responded to the skyrocketing prices of wool during the peak of the wars by expanding their wool sheep flocks.[349] When the market quickly collapsed, herders were stuck with an enormous amount of unsellable wool and an oversupply of mutton sheep. Furthermore, the herders' main wool purchasers, the western Supply and Marketing Cooperative (SMCs) were in an even worse financial position since they had bought raw wool at high prices during the wars, but in many cases, they had yet to pass the wool onto processing mills before the government imposed economic austerity in 1989 and textile firms began refusing shipments. In this quandary, Beijing supported the herders. Unwilling to see the herders' livelihood jeopardized during a period of political crisis, the State Council allocated special emergency funds in early 1990 to the Special Products Administration under the Ministry of Commerce to enable it to buy an extra 50,000 tons of wool above the planned quota from herder's stockyards.[350] However, with the return of economic vitality in 1992, there was every reason to think that the wars could return, much as they did in cotton (more below). The key change in wool was that import quotas were liberalized in 1992 and tariffs reduced in 1994.

After losing control of imports in 1987-88 on account of the foreign trade reforms, wool (and wool top) imports flooded into China, even as international wool prices continued to skyrocket. In fact, one important reason why prices skyrocketed was that Chinese traders in the major international wool auctions in Australia and New Zealand feverishly bid prices up as they competed for contracts.[351] This was one consequence of the decentralization of foreign trade since new, competing and relatively inexperienced Chinese traders entered international auction floors and upended market order – a boon to foreign herders. In 1989, the ministry for foreign trade's (MOFERT) monopoly corporation for textile trade, Chinatex, stepped in to recentralize wool imports. Although Chinatex at first tried to create a cartel of seven corporations to conduct wool trade, MOFERT ultimately granted trading

[347] *Wujia tongji nianjian* 1990: 290-331 for 1988 prices and *Wujia tongji nianjian* 1992: 302-365 for 1990 prices.
[348] United Nations Commercial Trade Database.
[349] China Daily 10/24/1990
[350] Textile Asia 12/1990: 92.
[351] Longworth and Brown 1995.

monopolies over the two categories of wool. The non-apparel 'coarse' wool trade monopoly was granted to the National Animal By-products Import-Export Corporation and apparel quality 'fine' worsted wool trade to Chinatex (although some cross-over was unavoidable).[352]

These controls on trading continued until 1992 when Beijing implemented a general policy of agricultural import liberalization on many commodities, among which wool was included. The previous strict 'monopoly' import quota system was largely done away with and replaced with the more lightly regulated 'designated' import system.[353] In contrast to cotton whose imports and exports were still monopolized by a single trade corporation with total quantities approved by State Council quotas, as a 'designated' trade commodity, total quantities were no longer strictly planned by the State Council, but their trade was still designated to a limited handful of authorized corporations. Furthermore, although provincial quotas were formally allotted as before, they were often indicative and legally transferable, and wool types and qualities were no longer specifically doled out to the provinces. Secondly, although raw wool for re-export as wool textiles had been duty-free since 1987-88, in 1994 tariffs were also reduced by 25% for semi-processed goods and raw wool tariffs reduced by 33%.[354]

In no time, wool imports rose from next to nothing in 1990 to 120% of domestic production (measured in tonnage), making China flush with wool fibers.[355] So, while Beijing saved the herders in 1989 to preserve social stability during a period of severe political crisis, by 1992 they exposed herders once again to direct competition with international wool markets. This liberalization was particularly helpful to inland mills which had been banned from importing wool in order to institutionally tie them to local wool as part of the "Three Selfs" policy in 1984 (as discussed in Chapter 3). TVEs also won from the new flexibility given their previous reliance on domestic wool. Thus, the wool wars were ended through a relatively simple 'administrative' solution of import liberalization, something impossible in cotton or silk. Unlike in cotton and silk, in which Beijing had a strong interest in controlling domestic prices and maintaining price differentials with international prices, wool had already been exposed to international prices and the interests of the eastern mills outweighed the continued protection of western herders.

Silk

In silk, the domestic austerity measures of 1989-91 that undermined the wool industry, hardly made a dent in the enthusiasm of cocoon cultivators and industrial processors in silk. As a result, the silk wars continued uninterrupted each year until 1994. As mentioned in the prior chapter, China had been moving down the global silk value chain, upending the traditional global division of labor by entering the processing domains of European and Japanese weavers, finishers and garment makers. In addition, the wars pushed processors to increasingly utilize higher proportions of man-made fiber in silk blends, inciting the wrath of European processors for 'cheapening' the fiber's image.

[352] Ibid. 1995 7.3
[353] For an explanation of this distinction, see Lardy 2002.
[354] Longworth and Brown 1995.
[355] United Nations Commercial Trade Database.

China's upending of the global division of labor had wholly unintended effects, however. In a move that took the China Silk Import-Export Corporation (China's new silk export corporation) and many others in the industry by surprise, in late 1993 and early 1994 the E.U. and the U.S. imposed quota limitations on Chinese silk blend exports of cloth and final garments, which reversed the previously free trade in silk under the Multi-fiber Agreement.[356] This reversal by the E.U. and U.S. was a reaction to China's upending of the global division of labor. For the E.U., the intention of the quotas was obviously to protect their embattled silk industry centers, especially in France and Italy, which had lost 25% of its workforce in the few short years since the late 1980s.[357] For the U.S., which had no silk industry to speak of, the quotas were justified under the pretense that Chinese silks were using upwards of 70% chemical fibers and their low prices meant that they were damaging U.S. textile firms whose goods were protected under the MFA.[358] For this reason, the U.S. imposed quotas on silk blends only, not on pure silk goods.[359] Although these new quota restrictions were formally classified by the U.S. and E.U. as a distinct tariff entity separate from the MFA, this action clearly violated several articles of the MFA.[360] Furthermore, although the U.S. and E.U. trade negotiators both argued that the quota limits would not *reduce* Chinese exports, in reality they did. This is because they used 1992 as the base year in determining China's subsequent quota growth rate. Since China's exports were skyrocketing at this point, especially in silk garments (see Figure 3.13 in Chapter 3), using 1992 as the base year created an enormous backlog of silk goods, the effects of which travelled down the chain, affecting China's cocoon cultivators.

The U.S. and E.U. quotas popped the market bubble and severely undermined the Chinese silk agro-industry. Despite the many years of dedicated investments which are required for mulberry plantations to reach maturity, over the next few years cocoon cultivators destroyed mulberry trees at an alarming rate. By 1999, 9.7 million *mu* of trees, or 52% of China's total plantation acreage had been uprooted and destroyed, something never before seen.[361] Reelers completely scrapped their machinery, something also rarely seen in China, and within five years of 1994, over a million silk industrial workers – almost two-thirds of the total – were laid-off from the peak of employment in 1994.[362] It hardly requires deductive abstractions like 'market-clearing prices' to understand why in this new global context, local governments no longer bothered to struggle over silkworm cocoons.

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[356] See *Zhongguo zhuanxing shiqi nong chanpin jiage guanzhi yanjiu: yi canjian wei lie*, 2006. Also see the editorials on this by Kayser Sung in Textile Asia 2/1994:6 and Textile Asia 4/1994: 15.

[357] See the problems of the European industry in the discussions from the 20the Congress of the International Silk Association in Textile Asia 9/1995: 105-13.

[358] See interview with Chief Textile Negotiator for the US Trade Representative's Office in Textile Asia 9/1994: 12-16.

[359] Thomas Moore neglects to mention this, something which undermines his contention that the rise in unit silk prices in the US market after 1994 was due to the salubrious effects of MFA-like restrictions to trade. Since pure silk goods were excluded and these goods are by far more expensive than silk blends, unit prices would automatically be expected to rise. But there are larger problems with Moore's claims. His graphs on unit silk prices (p. 103) undermine his own argument. One might wonder how unit silk prices rose so high by 1991 under the conditions of an open and free market, *before* the 1994 quotas were imposed. In other words, unit prices were much higher before MFA-like constraints, exactly the opposite of his claim. The years he has chooses for his graph (1991-1997) conveniently support his contention, but a look at prices in the 1980s, would have told a different story. See Moore 2002.

[360] See Kayser Sung editorial and data in Textile Asia 4/1995: 10-11. Adding insult to injury, they also imposed quota limits on other textile fibers, as well as toys, footwear and kitchenware.

[361] *Zhongguo sichou nianjian 2000*: 468.

[362] Wang Zhuangmiao *Xin zhongguo sichou shiji* (1999): 474

The end of the silk wars did not signify the birth of markets as Wedeman would have it; they signified the collapse of a global boom.

Cotton

If the wool wars were resolved by liberalizing foreign imports and the silk wars by the sudden intervention of the U.S. and E.U., the resolution of the cotton wars had to be handled solely through mechanisms within the domestic economy. As with most issues related to cotton, the wars drew substantial attention from central agencies and ministries. In fact, as the State Council became conscious of the problems stemming from the addition of 16 million cotton spindles, it jumped into action. They began by trying to leverage their remaining influence over the textile industry via the Ministry of Textile Industry (MOTI) and the state-run domestic commercial system to resolve several interrelated problems: the cotton wars, the rapid price increases in cotton and the failing textile SOEs. In fact, the State Council became so active in the industry, it can be difficult to differentiate the effective policies from the ineffective.

They began at the most obvious point of concern by ordering an end to investments in new spindle capacity and the elimination of millions of 'obsolete' spindles. This was an oft-repeated 'command' that had largely been ignored by the industry. Beijing began to ban the expansion of cotton spindles in November 1988, after a year of unprecedented expansion in the subsector.[363] In the latter half of 1991, there was a second, stronger push for machinery reduction, a major objective of the 8th Five-year plan for the textile industry.[364] Zhu Rongji became particularly outspoken about the need to reduce obsolete spindles, very likely because he had worked in the Shanghai government, which as China's oldest textile base possessed around a third of China's obsolete spindles, and had seen first-hand the problems of excessive capacity.[365]

Although spindle elimination became a common refrain in State Council directives for the rest of the 1990s, in reality, this policy had little obvious impact on *reducing* the number of spindles in the early 1990s. Given the expansion of small-scale firms under local textile bureaus (BOTI), the national ministry (MOTI) had limited control over these smaller firms by the early 1990s. Second, the State Council devoted few financial resources to incentivize the elimination of spindles by paying for their destruction. It was not until the second half of the 1990s that upwards of 35 billion RMB in grants and loans were earmarked to purchase and destroy old spindles.[366]

Some local BOTIs, especially in cotton growing regions, attempted their own version of spindle suppression which sometimes met with a degree of local success, but hardly put the kind of dent into the aggregate capacity which was required to squelch the wars. Certain local bureaus became quite aggressive in their quest to reduce local spindle capacity. For instance, BOTIs in Henan and Shanxi got tough on overproduction by not only reducing

[363] <<*Guojia jihua wei guanyu kongzhi mianfang nengli mangmu fazhan de tongzhi*>> in *Zhongguo fangzhi fagui huibian*.
[364] <<*Guanyu xiada dier pi fangzhi jixie taotai chanpin de tongzhi*>> in *Zhongguo fangzhi gongye nianjian 1992:* 109-112.
[365] See Textile Asia 11/1991: 67, 1/1992: 92-3.
[366] Textile Asia: 3/2000: 61.

production assignments to local firms, but also cutting off bank loans and even coal and electricity allocations to factories.[367]

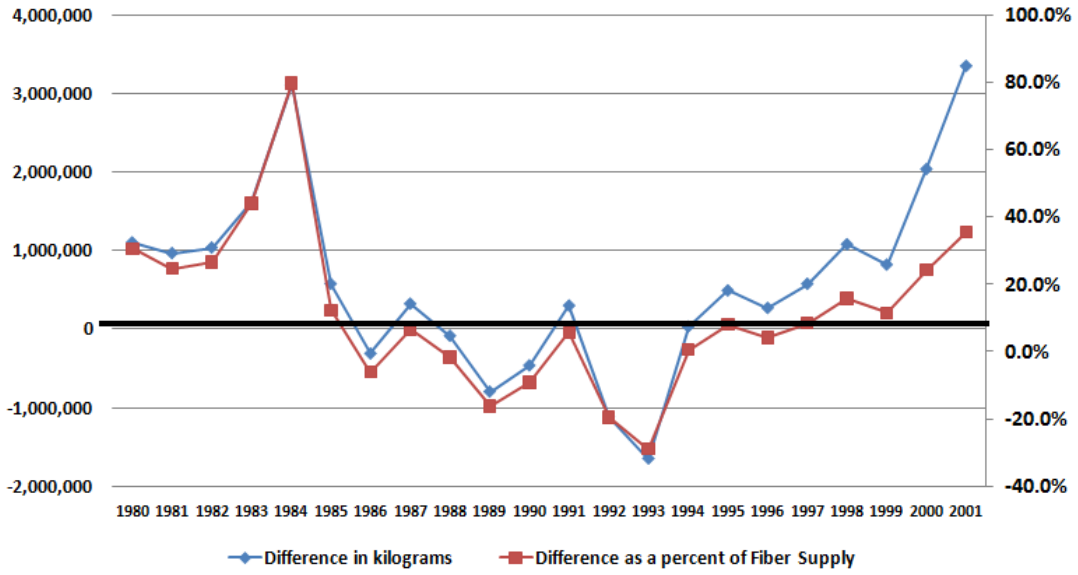
The State Council also tried to punish regions for exceeding their yearly targets of cotton yarn. In the early 1990s, the State Council set the aggregate state purchasing quota for cotton yarn at 23 million bales. At this level, 25% of China's nearly 39 million spindles would have had to sit idle.[368] In most years, cotton growing provinces, like Shandong and Henan, were the main culprits of the overproduction of yarn, and they were threatened by Beijing with having their state targets reduced. Since cotton yarn still remained a centrally controlled item, this meant that the Ministry of Commerce could reduce the amount of guaranteed state purchases of SOE output. They also ordered SOEs and the domestic commercial units to reduce sale prices as a means to force the sale of stockpiles and clear their godowns.[369] Unfortunately, these policies only had a short term effect on stockpiles (if and when it worked at all), and caused SOEs and state commerce more red ink as they were forced to sell under costs.[370] Although these policies were continued each year, their effectiveness is questionable. Neither stockpiles nor spindles declined in absolute numbers, though it could be said that the runaway growth in expansion was contained.

In terms of *reducing industrial capacity*, Beijing policy largely met with failure. It no longer possessed the institutional capacity and deep connections with industry to influence the macro direction of the industry. One might assume that reducing capacity in an industry like textiles is impossible. However, the postwar histories of Japanese and Korean cotton textiles or the European chemical fiber industry in the late 1970s show that cooperation between government agencies and powerful business associations with effective sanctioning mechanisms over its members can achieve substantial control over industrial capacity.[371]

In contrast to capacity reductions, however, Beijing met with substantial success in *stimulating the supply* of raw fibers. If an answer to the cotton wars can be isolated, it is in the return to a situation of overall glut in raw fibers. We can see this transformation in a figure from the previous chapter which I reproduce here (Figure 4.1). The cotton wars occurred during a period when raw fibers were perilously under-supplied (1988-90, 1992-94). Thereafter, fiber production skyrocketed, much of it chemical fibers, which effectively ended the wars.

[367] Textile Asia 2/1992: 106.
[368] Ibid. 2/1992: 105-6.
[369] Textile Asia 1/1991:176.
[370] This may have been unavoidable as the prospects for selling their huge stockpiles may have been dim to begin with. Thus, the policy may have simply hastened the inevitable.
[371] See McNamara 1995, 2003; Shaw and Shaw 1983.

Figure 4.1: Difference between Raw Fiber Supply and Cotton Spindle Demand



Sources: Cotton: ICAC World Cotton Statistics. Chemical Fibers and Cotton Spindles: *Zhongguo fangzhi gongye nianjian* (various years). Spindle conversion to cotton equivalent: Textile Asia 1990: 29.

The return of fiber abundance was the result of many interwoven elements, some contributing more than others, but all of them adding to the overall supply of raw fibers. As mentioned, in 1990 and 1991, the political arena regulating cotton stimulated cotton growing by raising the cotton-grain price ratio from 6.6 to 9.6, and by offering cotton farmers more generous non-price incentives (Chapter 3, Figure 3.8) Farmers readily reacted to these incentives, generating a record cotton harvest that reached a new peak in 1991. However, 1991 was also the final year of the four year 'investment rush' in cotton spindles, so despite being the second most abundant year of cotton harvests in China's history, it made only a small dent in the raw fiber deficit (Figure 4.1) and the wars quickly returned by 1992. The problem with this approach was that it was a one-year stimulus which squelched the wars in the short run, but could not create the conditions for long-term stability.

A more substantial policy goal was the establishment of cotton farming in Xinjiang province, in China's far northwest region. In 1991, Beijing established a six year plan to target state farms located within China's military units under the Production and Construction Corporation in Xinjiang in order to build them into China's new base for cotton farming.[372] Xinjiang was climatically similar to Uzbekistan which had long served as the Soviet Union's primary cotton-basket.[373] Because of the long growing season and dry weather, the cotton from these regions produced extra-long staple, the best quality cotton which drew a generous price premium. Over the course of the 1990s, these military units became the leading center of cotton cultivation in China. By 1994, Xinjiang produced 20%

[372] Textile Asia 2/1992: 112.

[373] In fact, even after the fall of the USSR, Uzbekistan continued to achieve very high cotton yields despite the de-mechanization that accompanied decollectivization of state farms (see any issue of Cotton, Review of the World Situation). The work of machinery was replaced by increasingly harsh forms of labor exploitation, including state-sponsored child labor.

of China's cotton, becoming the largest cotton-growing province, and by 1998 it was harvesting a third of China's cotton.[374]

However, building up Xinjiang as China's new center of cotton farming was slow (such as extending irrigation systems) and had to overcome many hurdles. For one, Xinjiang lacked sufficient cotton hands. Temporary migrants from the densely-populated Sichuan region had to be shipped in during each fall harvest season to pick cotton on the military farms, making labor unreliable. More importantly, since only a single railway line ran from its provincial capital Urumqi, the Xinjiang cotton economy was limited by the shortage of train transport heading eastward towards the mills. Since Xinjiang was also an important energy producer, oil and coal took priority over cotton on limited cargo capacity, forcing cotton to play second fiddle.

Thus, in the short run, the rise of Xinjiang cotton could not by itself solve the shortages behind the wars; it simply shifted the wars from east to west, especially given the higher quality of its extra-long staple fibers. Each fall, Urumqi overflowed with cotton dealers eager to get a piece of the pie and arrange for transportation through connections in the railway ministry.[375] No less than out east, local governments and military corporations fought to control their new-found white gold.

While government procurement and Xinjiang cotton made a small contribution to resolving the shortages in the short-run, for the key to understanding the end of the cotton wars, one must look beyond agriculture to two things: the chemical fiber industry and changes in policy regulating China's engagement with the international economy. Beijing began by loosening entry barriers to the chemical industry. In 1992, the State Council permitted the entry of new licensed firms into the chemical fiber industry and in the second half of 1992, it eliminated four textile products from central planning, three of which were chemical fiber goods.[376] However, it was not simply deregulation which attracted a rush of new investments into man-made fibers. Given that the wars signaled an extreme dearth of fiber supply, the chemical fiber industry was the only major textile subsector to be earning high profits, so its opening up led to a rush of non-state investment, especially in its largest sub-sector, polyester fibers. As we saw earlier, the chemical fiber industry was originally established with state capital invested in the building of large firms in the 1970s and 1980s. The opening of this sector to new entrants transformed the industry as new, small-scale factories became the dominant producers of man-made fibers.

Unsurprisingly, it was precisely in the provinces which lacked a cotton base but had built up substantial textile processing capacity where these new entrants appeared most quickly and aggressively. The most important of these new bases was located in northern Zhejiang province in the areas surrounding Shaoxing and Hangzhou cities (near Shanghai). Over the 1990s, this region became the new national capital of man-made fabrics. Many townships within Zhejiang grew into specialized clusters in the production of particular fibers and built up their own national distribution systems, centered around highly specialized commodity markets, such as in townships (*zhen*) like Yaqian, Zhouchuan and

[374] *Zhongguo tongji nianjian* (various years.)
[375] Textile Asia 8/1994: 66-67.
[376] They kept eight goods centrally planned, four of which were cotton textiles. The three chemical fiber goods included polyester filament, polyamide filament and tyre cord. The four cotton textile goods included knitwear, yarn, plain fabrics and dyed/printed fabrics.

Dangshan in northern Zhejiang province (Hangzhou and Tongxiang) and Jingang town in southern Jiangsu (Zhangjiagang) which specialized in polyurethane.[377]

These clustered production regions, linked with urban raw chemical suppliers were relatively inefficient producers given their small production capacities. For instance, in 1994, China's State Statistical Bureau recorded 470 firms engaged in synthetic fiber production. Of these, only two firms (Yizheng and Shanghai Petrochemicals) had a production capacity above 100,000 tons. In polyester production, the largest synthetic fiber subsector, Chinese firms averaged only 3000 tons in production capacity, a major concern for MOTI officials.[378] This contrasts sharply with other countries. For instance, among the world's 30 largest chemical fiber firms in the mid-1990s, both South Korea and Taiwan had seven *each*. And, in Japan and South Korea, the average production capacity of polyester units was 50,000 tons, more than 15 times larger than China's average.[379] China had only these two large firms, both of which were built with capital from China's state budget in the late 1970s.[380] Furthermore, Chinese firms' production ranges were limited as they specialized in only simple chemical fiber manufacturing. Whereas major international firms commonly maintained a manufacturing portfolio containing several thousand products each, China's chemical fiber industry soon became populated with producers with little flexibility. In other words, Chinese firms were individually narrow in product range but as a group abundant in quantity.[381]

Beijing did attempt to control the direction of the industry. For instance, by the mid-1990s, the State Council and Planning Commission issued a series of notices which reworked the system of approvals to control upstream spinning and chemical fiber capacity, especially among small-scale factories.[382] The SPC stopped the licensing of many new polyester factories, approving expansion for only 3 million metric tons of new capacity out of the 5 million tons seeking approval.[383] They even delayed the expansion of the Yizheng complex, China's largest and most important complex.[384]

On the other hand, Beijing was also actively encouraging the entry of other factories, particularly foreign firms. Because China's small scale firms were trapped into competing in relatively simple and narrow product ranges, Beijing sought to attract foreign capital to diversify its domestic production range and upgrade its technological level. In 1992 alone, foreign joint-venture deals with a total capacity of 200,000 tons were approved, and a series of smaller, specialized joint ventures were established with world-class producers like Du Pont.[385] Japanese multinationals were also extremely aggressive in investing in China starting in the early 1990s. In chemical fibers, China absorbed by far the most Japanese FDI

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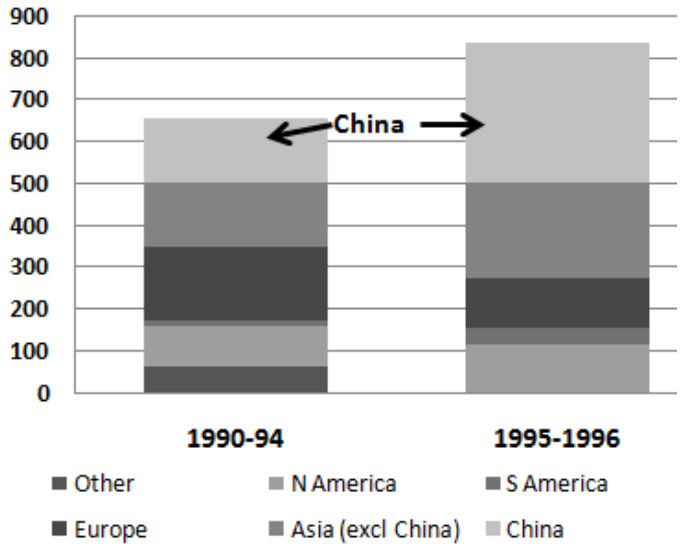
[377] Li and Fung Research Center, May 2006. "Textile and Apparel Clusters in China" Industrial Clusters Series Issue 5.
[378] *Zhongguo fangzhi gongye nianjian 1993:* 109.
[379] Ibid.
[380] Yizheng ranked 5th while Shanghai Petrochemical ranked 19th.
[381] Informant #34 (Foshan, Guangdong), #54 (Shenzhen, Guangdong).
[382] For instance, see <<*Guowuyuan bangongting zhuanfa fangzhibu, guojia jiwei, guowuyuang shengchanban guanyu yange kongzhi mianfang, maofang shengchan nengli he jiaqiang huaqian shengchan nengli guanli yijian de tongzhi*>> and <<*Guanyu kongzhi ruogan changxian chanpin he redian chanpin jianshe xiangmu shenpi qinghsi de tongzhi*>> in *Zhongguo fangzhi gongye nianjian 1993:* 90 and 109.
[383] Textile Asia 6/1996: 96.
[384] Textile Asia 10/1996: 91-2.
[385] Textile Asia 11/1995: 106.

during this period, especially from the mid-1990s (Figure 4.2). In essence, the severe shortages cotton was replaced with hydro-carbon industrial raw fibers.

Figure 4.2: Global Distribution of Japanese Chemical Fiber FDI (Millions USD per year)



Source: *Nihon kagaku sen-i kyokai, 50 Nen no arumi*: 31

There was one more channel by which fiber abundance returned and ended the wars. As China re-oriented its production towards integrating into East Asian production networks, it came to rely heavily on the import of intermediary textile goods, like yarns and fabrics. This represented a fundamental shift in China's economy, a thread I pick up later in this chapter. But it further reinforces the point that China's solution to industrial overcapacity was decidedly one-sided in that it was overwhelmingly aimed at stimulating the supply of fibers.

Aftermath of the Wars: Institutional Changes in Commodity Regulation

Although the wars formally ended by 1995-96 in all three commodities, they had induced institutional changes in how each commodity was regulated. In wool and silk, the wars created permanent institutional changes which ultimately led to greater liberalization. However, their pathways to market liberalization were polar opposites given the domestic-orientation of wool and the global-orientation of silk. In cotton, by contrast, Beijing attempted to liberalize markets between 1992 and 1994, but similar to the 1985-87 period, it was once again forced to retreat back to a system of state planning and prices. Given that there was so much more at stake in the cotton economy, Beijing stuck to a conservative strategy of state controls through quotas and state pricing.

Wool

Beijing's re-exertion of control over wool after the wool textile collapse ended up undermining the state procurement system, which in a few years led to the creation of an open market in wool trading. When economic austerity and domestic recession in 1989 extinguished the wool wars, Beijing sought to re-exert control over the commodity. This recentralization actually began in 1988, at the peak of the wars when SMCs in wool regions at the city and provincial levels were tasked with re-exerting control of wool purchasing through their grassroots procurement depots. The degree to which this was successful is debatable, but ultimately of little importance because once wool markets collapsed in mid-1989, private traders disappeared and the SMC procurement depots remained the only entities willing or able to purchase wool from herders. Thus, the collapse of the overheated market allowed for a relatively easy reassertion of SMC power and they increased their control of wool procurement from about 60% of total wool during the war period to nearly 80%.[386] During this period, Inner Mongolia and Xinjiang also formally closed their wool markets, although at that point there was precious little market activity to suppress.

In order to avoid undermining the herders' livelihood, Beijing instructed the SMCs to increase their purchases of wool, by increasing funding through bank loans. Over the course of the early 1990s, however, this crippled the wool SMC network. Because wool markets were moribund, SMCs were incapable of selling much of the procured wool to textile mills. Furthermore, the National Price Bureau had set wool prices high, relative to true market activity at the time, while its grade-price differentials favored lower quality wool.[387] This not only failed to offer incentives to herders to improve their wool grade (which undermined China's fine wool stock), but SMCs were hemmed in to buying lower quality wool at inflated state prices. Given that foreign firms and many coastal mills were permitted to source higher quality wool and wool tops on global markets from 1992, SMCs ended up quite literally stuck holding the bag of unsellable wool.

This is significant because when the market for wools did begin to return in 1992, the SMC system was effectively bankrupted with huge stockpiles and no working capital to get back into the wool game. As the markets came back, Beijing formally liberalized wool procurement to allow private entrants. Although local governments still favored their local SMCs, the licensing procedures for new entrants were reduced to a mere formality, and most importantly SOEs were allowed to directly source from sheep herders. This liberalization led many SOEs to join together to create regional cartels, and thus they grew into competitors with the (formerly) monopsonist local SMCs.[388] The Price Bureau was also instructed to stop setting prices. As a result of these changes, within a year SMC procurement quickly fell to under 50% of China's wool supplies.[389] Not only were SMCs hampered by their debts and stockpiles from prior years, but banks were unwilling to lend to them (given their poor financial situation) and government subsidies to them were reduced or cut.[390] Here we see an instance of institutional change in which the state system at first

[386] *Zhongguo shangye waijing tongji ziliao.*
[387] Longworth and Brown 1995.
[388] Ibid.
[389] *Zhongguo shangye waijing tongji ziliao.*
[390] Longworth and Brown 1995.

provides a social safety net after the collapse of an overheated market, and by so doing its ability to adapt to the new period of market liberalization is undermined. Unlike Wedeman, who argues that a market was created during the period of market exuberance, the sequence of events highlighted here is just the opposite: market creation was engendered after the undermining of the state commercial apparatus. It should be noted that this certainly does not reflect some kind of intentional sequence of events as dictated by a blueprint for market creation, but rather a sequence of unintended consequences derived from policy changes and policy reactions over a period of time. If there is any intentionality, it is after the fact, when Beijing held back from devoting resources to rejuvenate state procurement.

Silk

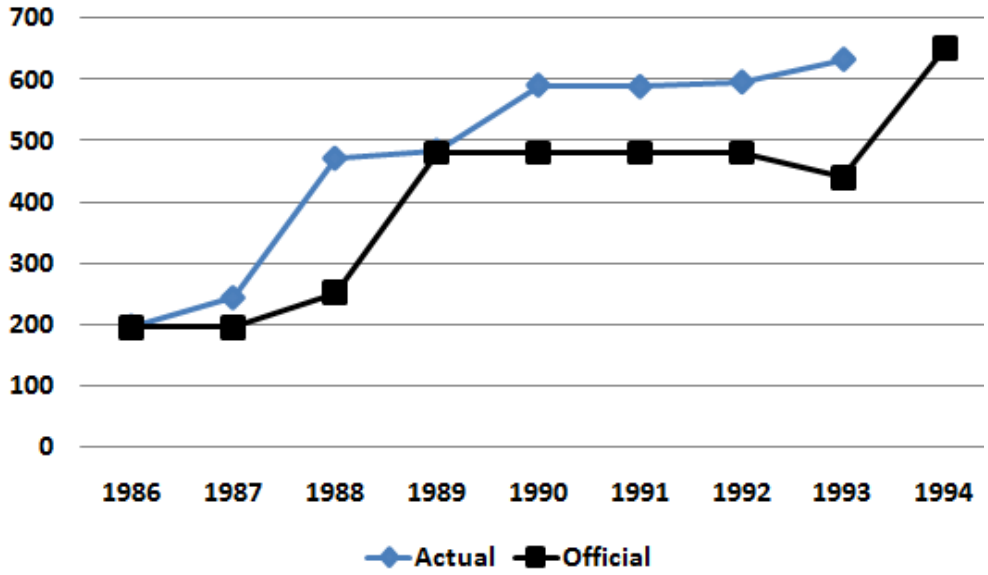
Given silk's export-orientation, Beijing's reaction and institutional changes both during the wars and in the aftermath of market collapse were quite different. Unlike in wool in which Beijing did not recentralize control of commerce until four years after the first appearance of the wars in 1985, when the silk wars began, Beijing almost immediately re-imposed its strictest controls. The Silk Corporation, which had previously organized the entire chain from cocoon procurement to domestic and foreign trade, was disbanded in 1987 as part of a broader program of foreign trade decentralization. A year after this organizational decentralization, the State Council attempted to reconstitute its controls over cocoon procurement and exports. In September 1988, it established the China Silk Import and Export Corporation using the basic skeleton of the previous China Silk.[391] This corporation's branch companies or its purchasing representatives (*daigou*) once again became the only authorized purchasers of cocoons from farmers and were the only authorized exporters. Cocoons were to be purchased according to planned quotas, which were to be organized through the unified purchasing of the provincial branches. Of course, given that control over prices had almost completely evaporated (Figure 4.3 and 4.4), the state was forced to substantially raise procurement prices if it harbored any hope of reasserting control. It did so in February 1988 and again in April 1989, raising official prices by 25% and another 50% respectively.[392] In addition to raising prices, the Price Bureau attempted to reverse the trend of declining cocoon quality by increasing the price differentials between the different quality levels of fresh cocoons.

Despite this attempted recentralization, it does not appear that Beijing was capable of regaining the upper hand during the wars. Despite the oft-repeated warnings and threats in State Council directives aimed at local governments, it is clear that Beijing was forced to continually *chase after* prices which were being determined at the grassroots by local governments. Figure 4.3 shows the average actual prices paid by government depots and the official state procurement prices (*paijia*). It is clear that in 1986 prices were under government control as there was no differential between the official and actual prices. In subsequent years, however, the actual prices paid by government depots rose substantially

[391] <<*Guanyu cansi shougou he chukou quanbu shixing tongyi jingying guanli de jingji tongzhi*>> (Sept 22, 1988) in *Zhongguo fangzhi gongye nianjian 1988-89: 35*.
[392] See <<Guanyu zhengdun canjian shougou jiage de tongzhi>> and <<*Guowuyuan guanyu jiaqiang cansichou jingying guanli gongzuo de buchong tongzhi*>> in *Zhongguo zhuanxing shiqi nong chanpin jiage guanzhi yanjiu: yi canjian wei lei*.

above the official prices fixed by the Price Bureau. This then impelled the National Price Bureau to raise the official price to the level of the actual prices from the prior years. This game of cat and mouse continued up through 1994 when global silk markets collapsed.

Figure 4.3: Average cocoon prices paid by government depots and official state prices (RMB per 50kg)



Sources: Official Price: *Zhongguo wujia wushi nian*: 1075. Actual Price: *Zhongguo wujia tongji nianjian* (various years).

A reading of the many State Council directives during this period makes clear that the main culprits were provincial governments and their collusion with county governments. In most of their directives, trade across administrative boundaries was singled out as explicitly prohibited.[393] If the government procurement agents were to have any chance of controlling the situation on the ground, they needed hard geographic boundaries to control the harvests. Even as late as 2001, by which time the State Council had completely decentralized cocoon procurements to the provinces, it maintained a prohibition against provincial governments allowing price regulation to be decentralized to the county level.[394] Provincial governments were also to blame. For instance, one State Council directive offers a rare explicit scolding of specific government departments in Zhejiang province, including the provincial price bureau, the Industrial and Commercial Administration (*gongshang xingzheng bu*), the SMC and even the local silk corporation. Their crime was to figure out a clever way to funnel extra funds above and beyond state prices (*jia wai fan li*) to silkworm farmers as a way to attract them to sell to particular depots. They did this through the returning of short-term working capital loans to farmers as part of their selling price, which

[393] For instance, see <<*Guanyu zhengdun Cansi jiage de tongzhi*>> in *Zhongguo zhuanxing shiqi nong chanpin jiage guanzhi yanjiu: yi canjian wei lei*. And the following: <<*guanyu xiafa <cansi jiage he liutong guanli banfa> de tongzhi*>>, <<*guanyu 1999 nian cansi jiage zhengce ji jiaqiang shougou guanli de tongzhi*>> in *Zhongguo sichou nianjian 2000*: 46 and <<*guanyu 2000 nian qiu canjiage ji jiaqiang qiu can shougou ganli de tongzhi*>>.

[394] The prohibition against county level control of pricing was repeated in all of the notices between 1997 and 2000 listed in footnote 43.

in effect offered farmers a 15-20% illegal bonus above state prices (which had already risen substantially that year).[395]

In the aftermath of the 1994 silk market collapse, the government's institutional change in regulating silk was just the opposite after the wool market crisis. When wool markets collapsed in 1989, Beijing quickly took the opportunity to re-impose control over domestic purchases. While they had attempted to accomplish this a year earlier, it was only during market collapse that their efforts proved successful since the government became the only purchaser willing and able to continue to buy domestic wools. In silk, by contrast, once global markets collapsed in 1994, the government did just the opposite. For the first time since 1958, it decentralized the pricing and procurement of cocoons to provinces and reverted to a system of guidance prices (*zhidao jiage*), officially allowing provinces to set prices.[396] Because the wool industry was domestically-oriented, gaining control over raw wool procurement and prices offered a chance of improving order in the industry and protecting sheep herders. Silk, on the other hand, was largely dependent on foreign buyers whom Beijing did not control. In addition, silk cocoons were useless to Beijing unless they were converted to foreign exchange. During a period of crisis, exports of any kind and at any price would be worthwhile in order to save industry and minimize the damage from farmers destroying their investments in mulberry plantations. Apart from stepping in as a buyer themselves by simply purchasing and storing cocoons – a revenue burden which far exceeded its political or economic benefits – Beijing opted to relinquish its controls over setting world prices in order to permit flexibility for any kind of sales to take place. Given the domestic orientation of wool and international orientation of silk, Beijing's reaction to market collapse and institutional change proved quite different.

Cotton

In both wool and silk, the collapse of their respective markets after the wars created the conditions in which Beijing made institutional changes which permanently altered their regulation. By contrast, the cotton wars produced no *permanent* institutional change. Cotton simply experienced a repeat of history from the mid-1980s, something already well narrated in Chapter 3: an initial push towards market liberalization, followed by a policy reversal. Similar to the early 1980s, Beijing increased the cotton-grain price ratio in 1990-91 and farmers responded by producing the second largest cotton harvest in China's history in 1991. This attracted Beijing reformers to liberalize cotton markets in 1992, their second and equally short-lived experiment in cotton marketization. With the return to shortages by 1993, however, the cotton wars were reignited, leading to drastic price increases in 1993-95. For a second time, Beijing closed the newly established cotton markets in Shandong, Jiangsu and Henan provinces, as well as the cotton exchanges in Chengdu and Shanghai.[397] State

[395] See <<*guanyu qieshi zuohao jinnian sang canjin shougoug gongzuo de tongzhi*>>; the Zhejiang notice on provincial prices <<*1994 Zhe jia nong 44hao*>> was accused of violating <<*Guanyu jixu jiaqiang sang canjian shougou jingying guanli de tongzhi*>> in *Zhongguo zhuanxing shiqi nong chanpin jiage guanzhi yanjiu: yi canjian wei lei*.

[396] <<*Guanyu zhengdun cansi jiage de tongzhi*>>; this system was repeated in <<*Guanyu jiaqiang canjian tongyi shougou he jiage guanli de tongzhi*>> and <<*Guanyu 1997nian canjian jiage zhengce he shougou guanli de tongzhi*>> in *Zhongguo zhuanxing shiqi nong chanpin jiage guanzhi yanjiu: yi canjian wei lei*.

[397] At the end of the fiscal year in 1992, Chengdu and Shanghai were both allowed to create open cotton exchanges (Textile Asia 7/1993:90) and Shandong, Jiangsu and Henan, three major cotton producers, were permitted to

controls through quotas and price-setting were also re-imposed. Thus, apart from some experience in experimenting with cotton exchanges and direct sales between farms and factories, China was no closer to introducing markets in cotton by 1994 as they were a decade earlier, when cotton markets were first introduced. Given the importance of cotton production, Beijing stuck to a conservative strategy of state controls.

Commodity Hyper-Inflation and a Deflating Industry

Thus far, we have covered how the wars ended in each commodity and the institutional changes accompanying them. Although the wars formally came to an end, however, their effects lived on. The high domestic commodity prices induced by the wars created a dual crisis: industrial profits and local government revenues were squeezed and China's export competitiveness was undermined. How were these crises dealt with?

In economic policy, there is some disagreement among scholars on how to characterize the post-Tiananmen era. Some influential studies originally argued that with the ending of the Tiananmen crisis and the waning support for conservative economic austerity and back-tracking from market reforms, a new wave of liberalizing economic policies resumed the reform momentum of the 1980s and re-galvanized China's growth engine.[398]

However, others see a distinct pattern of 're-orientation' in policy. There are many versions of this argument, but they agree that a substantial degree of policy-making and administrative power was recentralized, which in economic affairs, empowered the State Council over the provinces. Interpretations diverge on the time line of the reversal and on how best to understand its significance. The transition has been framed in any number of ways, including seeing it as a *partial recentralization* of central authority, as the creation of *new regulatory apparatus* which expanded the scope and depth of central state institutions, and as a technocratic *industrial policy* with an anti-rural, and anti-private ownership bias.[399] Beijing's well-known 1994 tax overhaul which reshaped fiscal relationships with provinces and gave the center a larger and more consistent share of total revenue was only one piece of this general trend.[400]

The underlying reasons for this reversal are equally diverse. The most common explanation is the new leadership which was installed in key Communist party and government posts after the Tiananmen crackdown. It was then that Jiang Zemin and others like Zhu Rongji were elevated to central positions in the party, military and government. Many of them had worked together in Shanghai where they honed their top-down technocratic style of government controls and industrial policy. As the 1990s progressed, they increasingly were able to consolidate their control over policy direction, especially as Deng and other 'elders' began to ebb from the political scene. Others have argued that the re-orientation was due to the effects of general 'market competition' which overwhelmed

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experiment with creating wholesale cotton intermediaries and allow factories to source directly from farming communities (Textile Asia 4/1993: 52).

[398] This is the main argument of Naughton 1995, which he repeats in his 2007 book. See also Baum 1994, Chapter 14. This is not an uncommon argument, as indicated by the frequent references among scholars to Deng Xiaoping's southern tour of China's SEZs which purportedly signaled China's resumption of liberalizing reforms.

[399] See Mertha 2005, Yang 2004, Pearson 2005, Huang 2008.

[400] Yang 2004

state-owned enterprises, TVEs and by extension local government revenues.[401] In other cases, reforms resulted from periodic crises which are believed to have egged leaders on to reform, such as the Asian Financial Crisis, the impending death of Deng Xiaoping, and the disintegration of the Soviet Union.

The account offered here generally accepts that the growing influence of the Shanghai technocrats marks a kind of turning point. However, my account differs as to the underlying reasons why the new technocrats pursued risky policy re-orientation. To be sure, the drop in profitability among state-owned firms (and TVEs) was a major concern not only for the firms themselves but for local government revenues. However, I find less evidence that industrial profitability was undermined by the slow intensification of *generalized* market competition (something hard to empirically verify). The nature of the problem was not simply a gradual slip in profitability which the 'market competition' argument implies. Rather, it was an acute industrial crisis which hit industries quite suddenly. This was nowhere more apparent than in textiles where losses in the state sector totaled 9.6 Billion yuan in the mid-1990s, far more than any other sector.[402] The industrial crisis plaguing textiles was doubly worrisome because China relied on this industry more than any other for foreign exchange earnings; thus, the domestic industrial crisis doubled as a crisis of exports as well. My claim is that the key problem was the rapid inflation of raw material prices caused by the commodity wars as prices in textile raw fibers rose far more than the already high general price inflation of this period. I first examine the domestic and export crises, then turn to the different solutions implemented by the Shanghai clique of technocrats and the impact of their policy re-orientation.

The Domestic Crisis: Commodity Inflation, Industrial Profits and Local Government Revenues

Locating the problem in the spike in raw fiber prices is based on a close examination of the *timing* of the industrial crises which differed in each textile subsector. In an industry like textiles, if the problem was simply a gradual increase in 'market competition,' one would expect little variation across different subsectors as market entry barriers and competition are quite similar. However, substantial variation exists between subsectors in terms of the timing and severity of the industrial crises, all of which closely mirror the timing of the commodity wars.

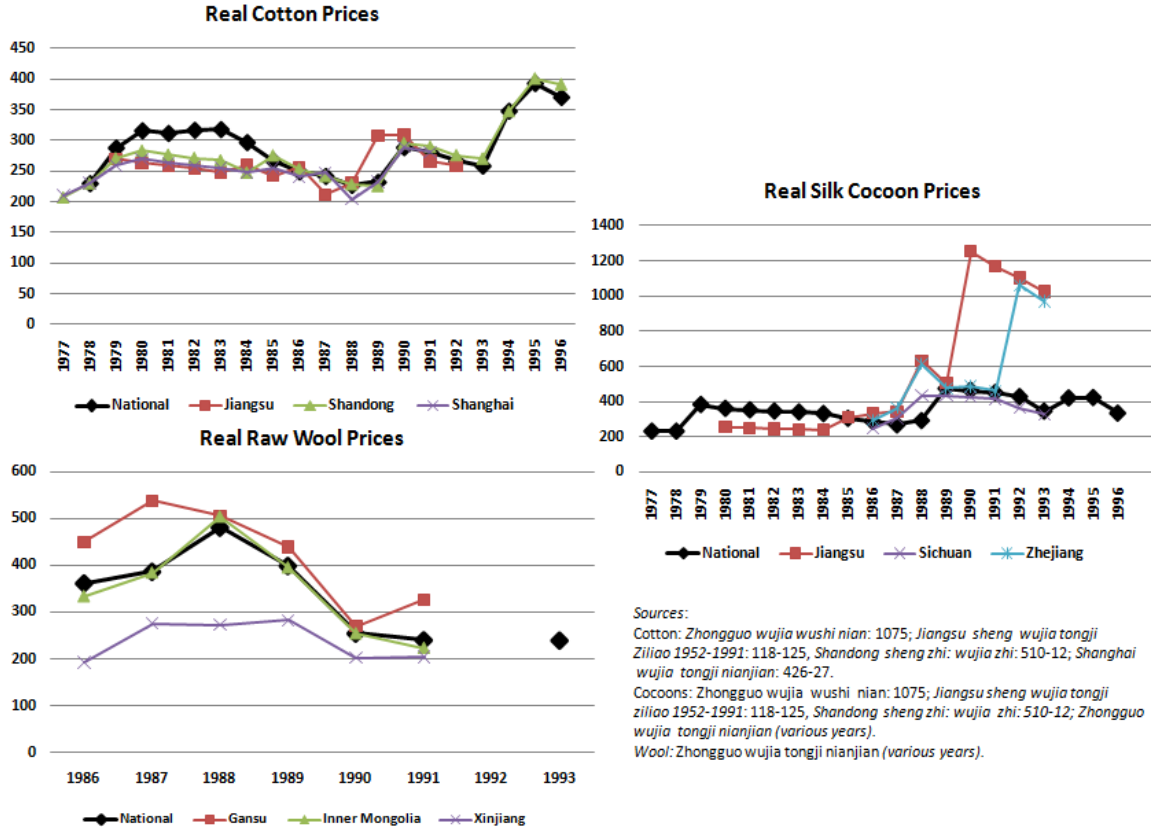
The crisis in wool textiles began early and then dramatically worsened around the peak of the wool wars in 1988. Cotton's industrial crisis did not begin until several years later in the midst of the 'investment rush' in cotton textile machinery. And in silk, the industrial crisis did not begin until more than half a decade later when the US and EU imposed import quotas on silk goods in 1994. Given that these are quite similar industries, this pattern does not indicate that the source of the problem was inherent flaws with SOEs and TVEs or generalized 'market competition.' Furthermore, the onset of the industrial crises in each sub-sector occurred quite suddenly and the timing of each was not only staggered, but also corresponded with either the onset of commodity wars and significant

[401] Yang 2004. Lardy 2002 offers the same explanation for the reasons why the new technocrats sought to enter the GATT/WTO and hence for China's reforms of foreign trade.
[402] *Zhongguo tongji nianjian 1997*: 412.

fiber price increases in the cases of cotton and wool, or in the case of silk, with the sudden imposition of export quotas by the US and EU.

In all cases, the real prices of the raw commodities rose substantially during the periods of their respective commodity wars, peaking in 1987-8 for wool, in 1990 and again in 1995 for cotton, and in 1990-94 for silk (Figure 4.4). Figure 4.4 also includes the local prices in several of the major provinces for each commodity. Although local prices at times differed from national prices, in general they followed a similar basic pattern. In addition, as the most highly regulated and controlled commodity, cotton predictably shows the least amount of variation between the national and local prices. The one oddity is the extraordinary prices of cocoons in the east coast provinces of Jiangsu and Zhejiang, both of which border Shanghai. There are several possible explanations for this, the most likely being that these were the same provinces most engaged with China's new silk garment export industry which as we saw in the previous chapter, grew very quickly starting from 1990 and created such turmoil in the global industry.

Figure 4.4: Real Prices per 100 kg of Cotton, Cocoon and Wool Procurement (RMB)



Sources:
Cotton: *Zhongguo wujia wushi nian*: 1075; *Jiangsu sheng wujia tongji Ziliao 1952-1991*: 118-125, *Shandong sheng zhi: wujia zhi*: 510-12; *Shanghai wujia tongji nianjian*: 426-27.
Cocoons: Zhongguo wujia wushi nian: 1075; *Jiangsu sheng wujia tongji ziliao 1952-1991*: 118-125, *Shandong sheng zhi: wujia zhi: 510-12; Zhongguo wujia tongji nianjian (various years).*
Wool: Zhongguo wujia tongji nianjian *(various years).*

The textile industries were devastated by the rapid price inflation in raw fibers. Because raw fibers are by far the most significant cost of production in textiles, it is hard to exaggerate its importance to firm profitability. This can be seen in the biennial surveys conducted by the International Textile Manufacturers Federation (ITMF), an industry association for the global textile machinery industry. These very detailed shop floor surveys of costs of production offer an inside look at different country's spinning, weaving and

knitting operations. Surveys in China indicate that the share of raw cotton in spinning and weaving costs of production ranged from 45-75% making the price of raw fibers by far the most important element to firm profitability.[403] Its importance is further indicated by the fact that among many of the large scale cotton textile manufacturers in China, negotiations over raw material sourcing and pricing are personally conducted by the head of the company and the negotiations are kept secret.[404]

In the China field, it is commonly argued that the declining profitability of industries was an intended by-product of the general economic reforms, as entry barriers were lowered for firms outside of the state-owned sector.[405] It is true that increasing competition was a guiding principle of the reform movement and so a steady decline in the profit of light industries and the equalization of profits across industries should be expected.

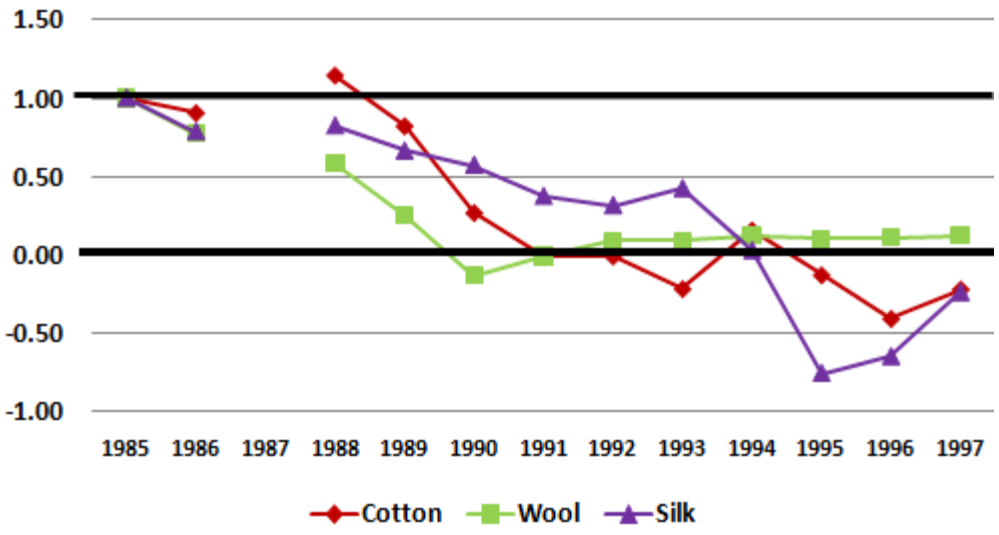
The problem was that profits in industries like textiles did not just decline, they collapsed. While a period of gradual decline can be observed in all subsectors, each of them also experienced a period of very sudden decline, which pushed them into overall negative profitability. The wars were the key to this collapse, something that can be seen in the timing of changes in real profitability per worker in each subsector, in which the periods of sudden decline closely mirror the vicissitudes of each commodity war (Figure 4.5).[406] This figure uses 1985 as the base year (1.00), meaning that anything between 1.00 and 0.00 indicates that profits were declining below the level in 1985, and anything below 0.00 signifies negative profits (losses). I use 1985 as a starting point because as we saw in the previous chapter, the early 1980s was a period of significant price adjustment in all textile goods, which 'bottomed out' in different products between 1983 and 1986.

Figure 4.5 illustrates how profitability in each sub-sector was staggered and matches perfectly with the narration of the commodity wars in the previous chapter. Wool industry profits declined very rapidly due to the entry and fierce competition from TVEs during the wool craze of 1984-88. Then, they quickly turned negative with the collapse of wool markets between 1989 and 1990. Thereafter, the industry as a whole just barely eked out a profit each year for the remainder of the decade, with over 50% of firms in the red each year.[407] While wool textile profits declined throughout the mid 1980s, the cotton industry experienced moderate *rising* profits per worker between1985 and 1988. But, with initiation of the 'investment rush' in new machinery starting in 1988, profits collapsed and then turned negative by 1991, remaining so for almost every year through 1997. Finally, the silk industry experienced only a gradual decline in profits both before and after China's economic crisis in 1989 and the subsequent economic austerity and 'hard-landing' over the following years. It wasn't until the imposition of quotas by the U.S. and E.U. in 1994 and the collapse in global silk markets that profits declined with a severity and speed much greater than that experienced by either cotton or wool. Again, we see an instance where all

[403] Anson and Brocklehurst. *Textile Outlook International*, No. 139: 66-92.
[404] Informant #90 (Shanghai); #78 (Dezhou, Shandong).
[405] Naughton has most forcefully placed market competition at the heart of his analysis of the success of China's economic reforms. See Naughton 1995, 2007. In the literature on the 1990s reversal, this is one of the arguments made by Yang 2004.
[406] I use profitability per worker as a measure rather than per firm because new firms in each subsector were almost always smaller in size than the original 'incumbent' state-owned firms, so using profits per firm would confound several factors in the same measure.
[407] For the percentage of loss-making firms, see the textile industry sections (in the 1700s of the industry code) in the 1997 and 1999 volumes of *Zhongguo shichang nianjian* (China Market Yearbook).

three sub-sectors *ultimately* followed a similar path and ended up in a similar predicament, but the timing of change best supports the unique features of each commodity and sub-sector.

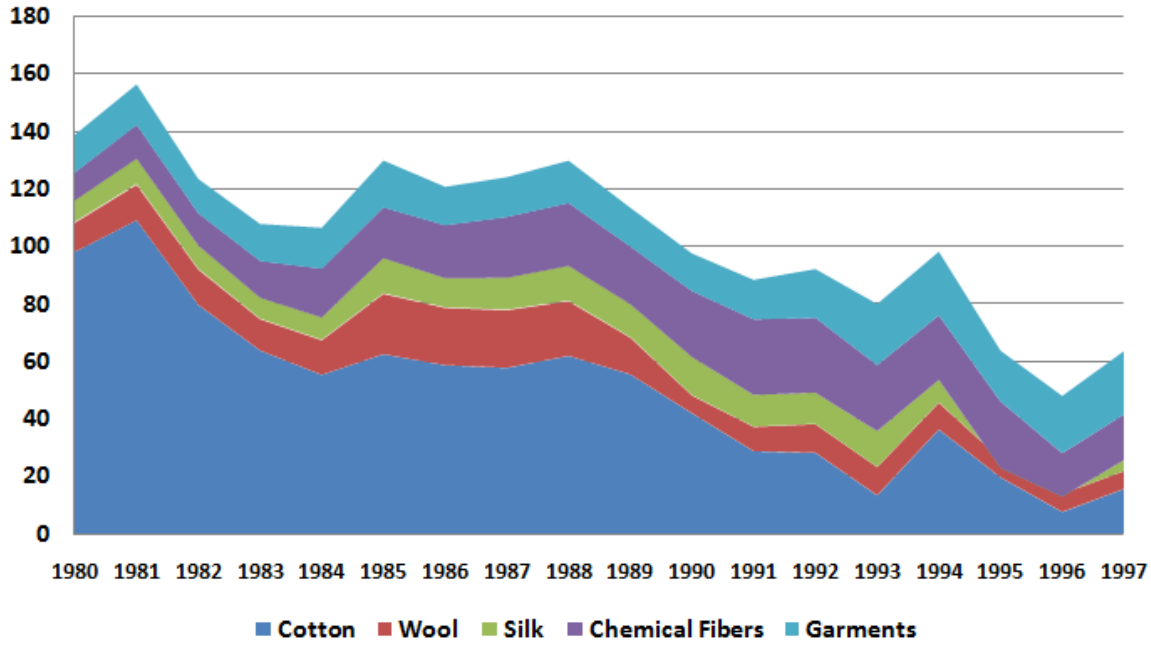
Figure 4.5: Real Profits/Worker (1985=1.00)



Sources: Huihuang de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99: 230 , 237.

It should be noted that the declining profits per worker was not the result of employment absorption, although each subsector did expand its workforce until peaking in 1991 in wool and cotton and in 1994 in silk. The pivotal role of the *agriculture node* is revealed by comparing the 'natural fiber' subsectors to other textile sub-sectors. For instance, aggregate profit-taxes declined sharply across the three natural fiber subsectors (see the bottom three rings of Figure 4.6), whereas they hardly declined at all in chemical fibers and even grew in the garments sectors. For most of the 1980s, the natural fibers textile subsectors constituted the vast majority of profits and taxes, but thereafter, these collapsed and garments and chemical fibers became the main money-makers. This again indicates the role of upstream agriculture in shaping the profitability of these sub-sectors. These declines were a serious problem not simply for the firms themselves, but also for provincial and city-level government tax revenues, since local governments controlled the tax revenue in most light industries, on which some local governments heavily relied in the 1980s.

Figure 4.6: Total Real Profit-Taxes in Textile Sub-sectors (100 Mn RMB)



Sources: Huihuang *de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99: 231*

The Export Crisis: Domestic and International Prices and China's Lost Advantage.

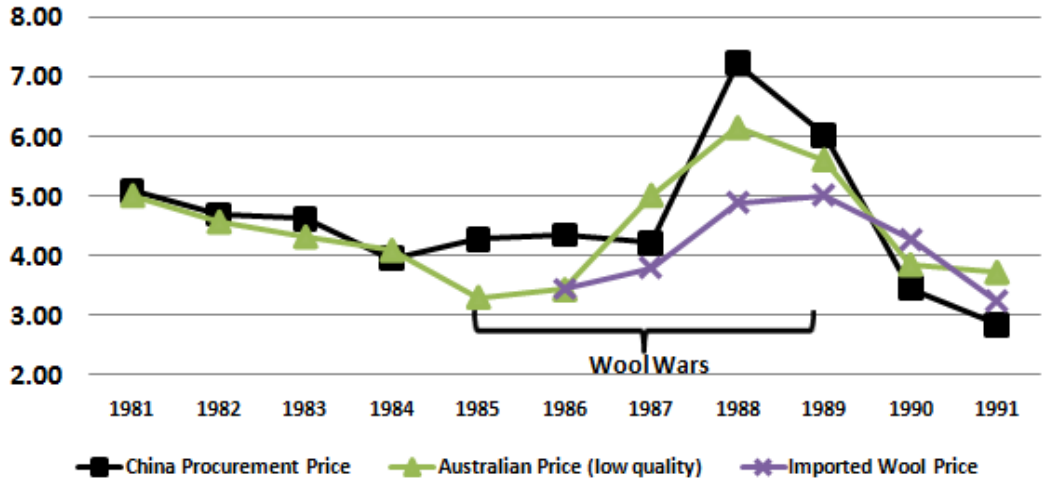
Because textiles earned the most foreign exchange for China, in addition to a crisis in industrial and tax revenues, the agricultural price inflation posed a serious threat to China's export competitiveness and foreign exchange earnings. Large countries with a raw material base like cotton in India and Pakistan commonly suppress domestic commodity prices in order to make their downstream industries more competitive.[408] Before the wars, China also retained an enormous advantage in export markets since its agriculture commodities were substantially below international prices. By the early to mid-1990s, this advantage had been erased. The wars drove the price of China's domestic commodities close to and even above international prices. Although China's occasional bouts of general inflation (in 1988-89 and 1993-4) influenced the narrowing of the gap between domestic and international prices in agricultural (and other) commodities, the inflation-adjusted fiber prices in Figure 4.4 demonstrate that the wars were the major drivers of price inflation in these goods.

The problem of domestic fiber price inflation was much more severe and threatening in the case of cotton, than in the other two fibers. This is partly because of the huge population of cotton cultivators and industrial workers engaged along this value chain. However, there are other reasons for differences between the fibers. For instance, compared to wool, raw cotton received the greatest degree of protection from international supplies

[408] World Bank 1994, 1995.

and prices.[409] Figure 4.7 illustrates that domestic wool prices moved in a broadly similar pattern as international prices and the gap between them was not as great as in cotton (Figure 4.8). Since China imported relatively lower quality wool, as witnessed by the low unit prices of Chinese wool imports in Figure 4.7, I use a lower quality fiber price of Australian clean wool as an international 'baseline' price. The wool wars beginning in 1985 pushed Chinese domestic prices above the Australian baseline and after the domestic wool market collapsed in 1989, domestic prices fell below them. But the annual gaps between them were not as significant as in cotton.[410]

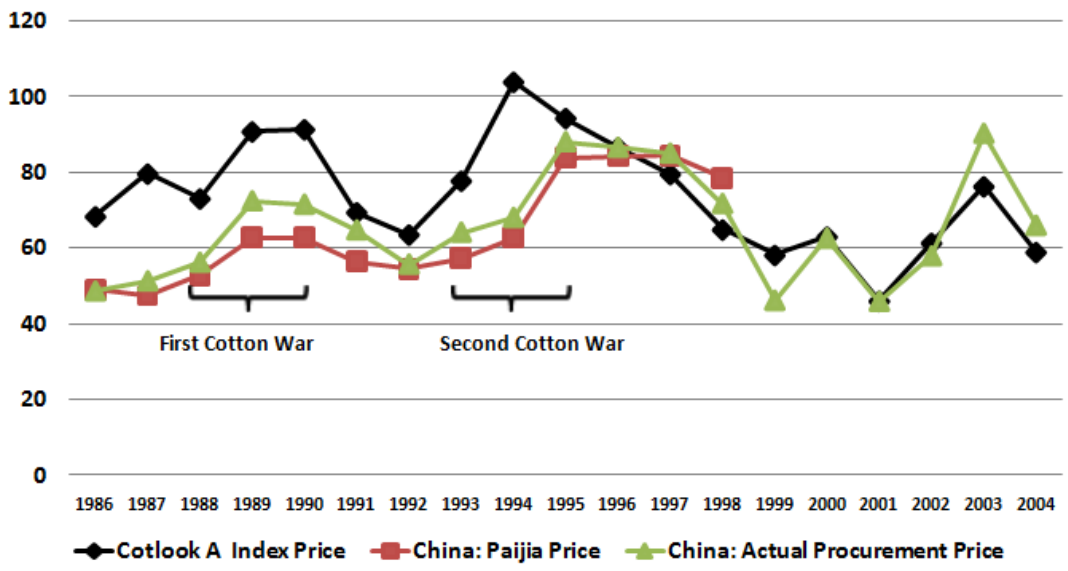
Figure 4.7: Australian, Chinese and Chinese Imported Clean Wool Prices (US$/kg)



Note: All wools are calculated on clean wool basis. Chinese greasy wool is converted to clean wool on a 40% yield basis which was estimated in Longworth and Brown 1995: 88 for the 1980s. I use the low quality Australian wool variety as the global baseline price given that Australia is China's largest supplier and also because of the low prices of China's imported wool The market Indicator price which is an index of different qualities of wools, follows a similar pattern.
Sources: China Procurement Prices: *Zhongguo shangye waijing tongji ziliao;* Australian wool: International Wool Statistics, Wool Statistics, 1991-92: 49 (Quality/Micron 58s/25); Imported Wool: United Nations Commercial Trade Database. Exchange Rates: RMB to USD: CEIC Global Database; AUD to USD: Reserve Bank of Australia Monthly Exchange Rate http://www.rba.gov.au/statistics/hist-exchange-rates/.

[409] As we saw in previous chapters, by the late 1980s and especially after 1992, wool imports already accounted for 80% to 120% of total domestic production (measured in tonnage), so domestic wool had long been exposed to international prices.
[410] For instance, in wool the gap reach a maximum of only 30% for only two years in 1985 and 1986.

Figure 4.8: International and Domestic China Cotton Prices (US$/50kg)



Note: "Paijia" price is the quota price set by Beijing, whereas the actual procurement prices are calculated from annual rural surveys. The difference between the two is an indication of the degree to which Beijing was able to implement its pricing scheme. The Cotlook index is an index of a dozen or more standard cotton varieties traded worldwide and is used here as an 'average' global price. The quality and staple lengths of the Chinese and Cotlook index are very similar.
Sources: China Actual Prices: *Quanguo nongchanpin chengben shouyi ziliao huibian* (various years); China Paijia: *Zhongguo wujia wushi nian*:1075; Cotlook Index: Cotton World Statistics (various issues). Exchange rate: CEIC Global Database.

On the other hand, price inflation in silk was not as great a threat for exports, owing to China's dominant position as the global price-setter in raw silk. In terms of trade competitiveness, most countries had to 'take' whatever price the Chinese foreign trade ministry 'made.' For this reason, there is no need to include global silk prices because given China's dominance, there is no real 'global' price apart from Chinese domestic prices.[411] Of course, reality is not always quite this straightforward. As we saw in the previous chapter, during the wars, the ministry lost control of its price-setting capacity, something it had been able to do for decade. In reaction to China's lose of price control, the US and EU imposed restrictions on Chinese silk exports. Even so, the higher silk prices emanating from the Chinese silk wars put the entire global industry at a disadvantage (vis-à-vis other fibers and in terms of profitability), but competition between firms within the global industry remained on an even playing field.

Cotton differed from wool in that it had been under a more thorough protective umbrella resulting in cotton imports equaling only 10-30% of domestic production over the 1980s and 1990s. In general, cotton imports and exports were used to 'fill gaps' in supply and demand or to add to or off-load cotton from China's strategic reserves.[412] Given the extensive protections and subsidies offered to Chinese cotton agriculture, there were consistently large gaps between international and domestic prices, something Beijing eagerly sought to maintain. The price comparisons in Figure 4.8 are quite fair since the fiber quality used in the Cotlook A index and the standard grade 329 Chinese cotton (grade 3, 29

[411] See International Silk Association publications on this point.
[412] Informant #90 (Shanghai).

mm staple) are very similar.[413] These price differentials were quickly narrowed and eliminated during the cotton wars and government price hikes, first in 1991-92 and then permanently from 1994-96 and every year thereafter. Furthermore, in contrast to silk, Chinese cotton textile and garment exporters were competing internationally with exporters that either imported cotton at global prices, or had access to lower priced domestic cotton (like in India or Pakistan), an advantage which Chinese exporters enjoyed before the cotton wars, when domestic prices were often only 60% of global prices on a regular basis (Figure 4.7).

Raw material price inflation was not confined to just cotton. Although beyond the scope of this dissertation, there is evidence that the price inflation in a range of upstream raw materials increased more than general price inflation.[414] While speculative, this may imply that a wide range of industries in China experienced a similar 'squeeze' between raw material prices and final goods prices. In the second half of 1992, Beijing decentralized the control of prices in coal, steel, transport and other basic commodities, which influenced the prices of crude oil, the primary material for synthetic fibers. During this period, the domestic price of oil nearly doubled which narrowed the gap with international price levels.[415] Given the import permits and high import duties on chemical fibers, this led to widespread smuggling of chemical fibers into China and by some accounts, upwards of 30% of the man-made fibers trade in Guangdong was being smuggled.[416]

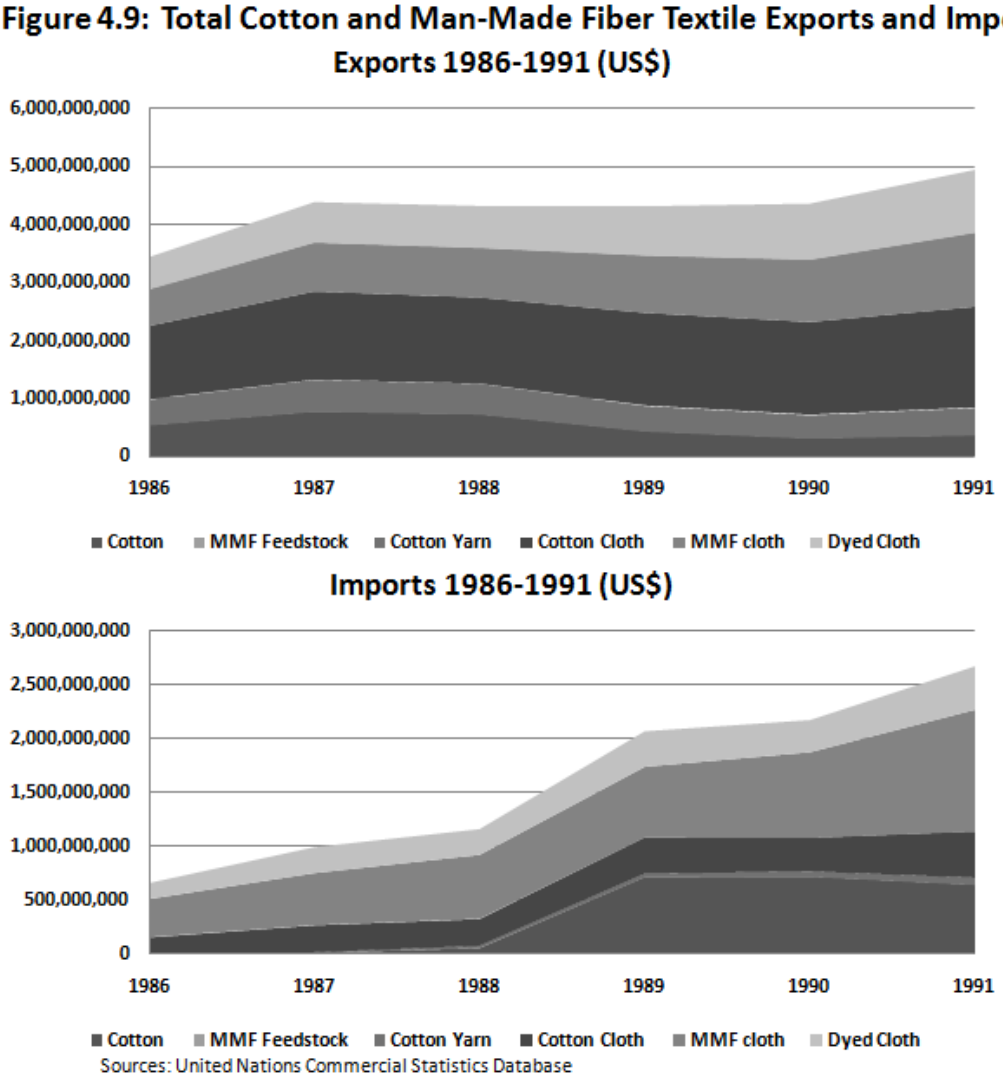
By forcing up raw material prices, the wars essentially evened the international playing field for agricultural cultivators and especially industrial processors. Since Chinese cotton had lost its main cost advantage, domestic industrial processors, regardless of ownership form, increasingly sought to source fibers from international markets; and the extensive fiber smuggling during the 1990s was indicative of this trend. On the other hand, Chinese textile firms, particularly those linked into export markets, could no longer rely on cheap domestic cotton as a source of competitive advantage. This contrasts with textile firms in cotton countries like Pakistan, which increasingly took market share from China, even in its core market, Hong Kong.

The export crisis in cotton is well reflected in the declining trade balance in the cotton and man-made fiber sectors. For the five years from 1987 to 1991, China hardly earned an extra penny in the export of cotton and man-made textiles.[417] Over the same period, imports of these same textile goods more than doubled (Figure 4.9). Although China continued to run a surplus, it was substantially reduced by over one third by 1991. Perhaps more disturbing, China's Renminbi-U.S. dollar devaluation in 1989 did not give a boost to its textile export drive. The currency devaluation ought to have made domestic cotton more

[413] In fact, the Cotlook index incorporates Chinese 329 cotton as one of its 'indexed' cotton varieties since it is closest to the varieties it incorporates in its index from other countries.
[414] *Zhongguo wujia wushi nian*.
[415] Textile Asia 8/1993: 61-2.
[416] Textile Asia 12/1992. Of course, silk was different. Unlike wool and cotton, there was no real 'global price for raw silk since the Chinese price was the global price. However, despite China's global dominance in raw silk production, it lacked the institutional capacity to manage silk prices through the boom period. In the end, then, silk also experienced serious price inflation.
[417] Unfortunately, data after 1991 becomes less meaningful because of the flood of FDI into China starting in 1992 (see Figure 5.16). Foreign firms were universally allowed to import duty-free and most of their production was exported. However, Chinese data do not disaggregate at an industrial level the export processing share of trade and the normal trade shares.

attractive and yarn and cloth exports more competitive. However, the rising prices of domestic cotton, its declining quality and the dysfunctions of the commercial system in properly supplying coastal cities led to increases in the importation of raw cotton and other 'fiber equivalents,' like man-made fibers and cloths, but without any equivalent increases in exports (Figure 4.9).

Figure 4.9: Total Cotton and Man-Made Fiber Textile Exports and Imports



Sources: United Nations Commercial Statistics Database

Although raw materials were foremost in creating these crises,[418] it would be remiss to lay *all* of the blame on the issue of the price inflation of raw fibers. One additional problem mentioned in the prior chapter was that China's textile and nascent garment sectors were not easily integrated together. As garment production rapidly expanded, particularly from 1986, it was dominated by very small scale TVEs and private firms. Besides basic and standardized types of cloth, it was very difficult for the large textile firms, especially state-owned, to cater to the small production volumes required by the newly arising garment

[418] See Zhu Rongji's talk with Wu Wenying on textile industry's problems in Textile Asia 8/1991: 134.

sector. In terms of technology, worker skills, production volumes and varieties, China's Mao-era textile firms could not link up with the production requirements of the nascent Deng-era garment industries. As mentioned, the State Council and MOTI sought solutions in price flexibility and administrative reshuffling of ministries, but these solutions were too superficial. China's problems required substantial infusions of capital and the reorganization of production. Thus, while the textile industry needed *internal transformation* through technological retooling, the garment sector required *external access* to a broader range of fabric and accessory suppliers as well as entry into global marketing channels.

A Solution: From 'Native' to Foreign Technology and Integration into East Asian Production Networks

By the early 1990s and worsening thereafter, the industry was faced with a Gordian knot of problems. Factories sought capital infusions to upgrade their technology in order to add value to now inflated raw fiber prices as well as to retool for an altered industrial landscape populated by firms of different sizes and more diversified final markets (domestic and foreign). On the other hand, in one way or another, capital was scarce or tied up, making this transformation impossible for the firms to accomplish on their own. Because of the economic overheating, by 1988-89, Beijing was severely restricting the availability of bank loans and became much more conservative in approving new capital investments in textiles.[419] In addition, a substantial portion of the textile industry's capital was tied up in triangular debt and the transfer of financing inventories that had shifted from state commercial units to industry. In addition to the price inflation of raw fibers, some firms were also simply unable to obtain much raw materials at all given the shortages caused by the wars. Unable to acquire fibers at any prices, they had no choice but to idle a sizeable share of their machinery and workers. Profits were reduced to a bare minimum and over 50% of firms fell into the red over much of the decade.[420] Thus, unless the government stepped in, internally-generated sources of capital were simply unavailable for technological renovation and industrial upgrading.

By 1992-3, with the industry suffering losses across the board, the textile industry's problems were acute enough to attract high-level attention, so much so that in 1993, the annual textile industry ministerial meeting was taken over by two Vice Premiers, Zhu Rongji and Li Lanqing.[421] Since the industry was itself financially handicapped, there were two options: a government infusion of capital into existing firms or attracting more foreign capital to create joint ventures or more wholly-owned foreign factories. Over the course of the 1990s, both options were combined with the result that the industry was rapidly re-oriented away from the domestic, 'extensive' growth of the 1980s towards a technology intensive growth in the 1990s. This re-orientation through upgrading domestic firms' technology and attracting foreign direct investments was accomplished through a collage of

[419] See <<*Guojia jihua wei guanyu kongzhi mianfang nengli mangmu fazhan de tongzhi*>> in *Zhongguo fangzhi fagui huibian*. Also see *Zhongguo fangzhi gongye nianjian 1990: 28-30.*

[420] See various years in *Zhongguo shichang nianjian* (China Market Yearbook).

[421] See speeches by Vice-Premier Li Lanqing and the former textile miniter Wu Wenying, as well as the State Council's analyses, most importantly <<*Guowuyuan pizhuan guojia jingmaowei, guojia jiwei, zhongguo fangzhi zonghui guanyu jiejue mian fangzhi hangye cunzai wenti yijian de tongzhi*>> in *Zhongguo fangzhi gongye nianjian 1995*: 69, 70, 72, 73, 88.

policy changes, all of them in one way or another contributing to technology upgrade and international integration. These include relatively simple things like targeting bank loans to state-owned firms with export potential, to more complex efforts like suppressing the domestic textile machinery industry and restructuring the foreign trade and investment regime. I piece together the various elements in the following pages.

Although technological modernization was certainly part of China's reform discourse since the Four Modernizations movement after the death of Mao, the 8th and 9th Five-year plans (1990-95 and 1995-1999) marks a clear turning point. In textiles, technological upgrading became the overriding solution to the core problem of adding more value to commodities whose prices had inflated. Beijing's rhetoric of 'technological renovation' (*jishu gaizao*) became ubiquitous in industry documents and substantial resource were devoted to the task. Zhu Rongji, who rose from the position of the head of the municipal CPC committee and mayor of Shanghai to become vice-premier and eventually premier, was its primary architect. Zhu had long been involved in the textile industry in Shanghai, and after being transferred to Beijing, he utilized the industry 'experimentally' to try out new ideas before implementing them more broadly.

The turn to technology for a solution grew strong between 1989 and 1993. In terms of domestic industry, this was accomplished in two ways. First, it was achieved through the infusion of bank loans and major tax incentives to selected domestic firms with good export potential, along with the loosening of their export rights to allow them to earn foreign exchange for the importation of foreign machinery. Secondly, given the acknowledged disaster of the textile 'investment rushes,' when domestic firms installed an enormous amount of 'native' machinery and passed down their old equipment as hand-me downs to TVEs, China's textile machinery industry became an early target of State Council suppression. Rather than handle the problem of the oversupply of cheap native technology by targeting the machinery 'buyers' which consisted of tens of thousands of textile firms, the State Council handled the problem through suppressing machinery 'sellers,' which consisted of under a thousand firms. I examine these two complementary halves in turn below.

A Turn to Foreign Technology

The 8th Five-year plan for textiles stressed three interlinked goals: technological renovation, destroying obsolete machinery and increasing automation. Billions of RMB in investment were earmarked to technological renovation in textiles and the funds were to be concentrated on large firms and major exporters, especially in the print/dye/finishing, chemical fiber, cotton spinning, and industrial textiles sectors. It was anticipated that 50% of the aggregate growth in textiles would be accomplished through technological upgrading.[422]

Under the prodding of Zhu Rongji, the top echelon of central textile ministers along with the bureau chiefs of 14 provincial and city-level BOTIs, who represented the key point regions of cotton farming and textiles, met for the annual National Textile Work Conference in November 1991 to plan the push towards technological renovation.[423] The conference offered definitive high-level support for plans to increase the level of automation of the

[422] Textile Asia 3/1996: 89.
[423] Textile Asia 1/1992: 93-4.

entire production system, as reflected in the investment drive of domestic firms.[424] Planners aimed to mimic 'international standards' as their benchmark for technological upgrading. They sought to renovate 5 million spindles, add 150,000 high-speed open-ended rotors, replace 135,000 looms (many with high-technology shuttleless), and renovate 170 production lines in the printing and dyeing sector. Furthermore, they aimed to increase the number of textile technicians to 3.5% of the overall workforce.[425]

Previously, I argued that the State Council and MOTI were ineffective in achieving a *reduction* in China's aggregate machinery capacity. Although the aggregate capacity never did *decline*, starting in 1991, China did provide exceptional incentives to encourage firms to undergo technological *renovation*. So, while aggregate capacity remained constant, the composition of this capacity clearly shifted. In October 1991, State Council required firms to eliminate 67 different categories of domestic textile machines in every major sub-sector of the industry.[426] To replace the old machines, the government directed firms to seek replacements from China's top-notch machinery manufacturers, including *Jingwei*, *Erfangji*, *Zhengzhou Fangji* and *Tianjin Fangji*. However, in contrast to prior State Council 'commands' to eliminate machinery, firms were offered generous tax breaks if they completed these replacements by the end of 1991. Most importantly, they could add the value of the new machines to their cost basis over several years and thus significantly reduce their tax burden.[427]

The structure of machinery replacement scheme was also telling. In the cotton, wool and silk subsectors, nearly all the machines for scrapping and replacement were either for raw material processing (such as cotton ginning or wool scouring) or else in the yarn spinning and silk reeling sectors. None of the qualifying machines were looms in the weaving sector. This is partly because the State Council sought to concentrate its control over textiles in the upstream fiber and yarn sectors. Yarns and chemical fibers were the only industrial textile products which were excluded from being decentralized to the provincial level BOTIs as products under 'guidance planning' (*zhidao jihua*); they were the longest to remain under State Council and MOTI control as 'command planning' goods (*zhilingxing jihua*) and thus centrally priced.[428] Since yarn imports and exports were also under monopoly control, if the State Council could control aggregate yarn availability in the upstream, it could control textile supplies. This strategy is evident in many State Council and MOTI rulings and directives cited in this chapter. Secondly, China was not capable of producing the high-end shuttleless looms, which they sought to install. As we will see shortly, from 1991 China switched decisively to shuttleless technology, but only 12% of its shuttleless looms were domestically made. By contrast, 90% of its high speed open-ended rotors for yarn spinning were domestically made.[429] Thus since the State Council sought to control the industry in the upstream, it concentrated its tax incentives in spinning machinery which also helped the handful of China's most advanced domestic textile machinery firms to

[424] See articles in *Zhongguo Fangzhi* and Textile Asia 2/1992.
[425] Textile Asia 8/1990: 110.
[426] <<*Guanyu xiada dier pi fangzhi jixie taotai chanpin de tongzhi*>> in *Zhongguo fangzhi gongye nianjian 1992:* 109-112.
[427] Ibid.
[428] For instance see <<*Fangzhibu guanyu di yi bu xiafang qi xiang quanxian de tongzhi*>> in *Zhongguo fangzhi gongye nianjian 1986-7: 121.*
[429] See Minister Wu Wenying's speech in *Zhongguo fangzhi gongye nianjian 1990: 7.*

upgrade their machinery portfolio. In weaving, by contrast, in order for manufacturing to afford these imported shuttleless technology, they needed greater access to foreign exchange.

For firms without adequate access to foreign exchange, certain types of foreign machinery were capable of being copied and reproduced by Chinese machinery factories, including open-ended rotors, automatic cone winders and electronic yarn cleaning machines. These knock-offs cost a fraction of the price of machines purchased from foreign manufacturers.[430] For instance, Shaanxi province is home to one of China's most sophisticated textile machinery companies, Jingwei, so it possessed a solid agglomeration of technicians and skills. Thus, the Shaanxi provincial BOTI teamed up with the Chinese Corporation of Aeronautic Technology and firms in the local Xian electronics industry to import and imitate foreign machinery.[431] However, only a small handful of Chinese machinery firms were capable of this level of copying, located in the major textile machinery centers, like Shanghai and Xian.

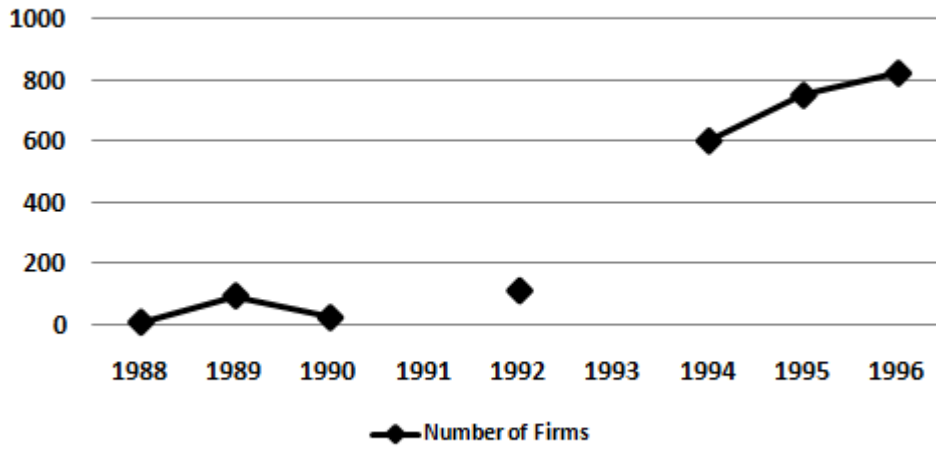
Apart from the spinning sector, however, technical upgrading occurred largely through the importation of textile machinery. Most of these imports were done by select factories, which were empowered to make these purchases through several policy changes. First, duties on imported machinery were reduced, making the purchase of imported machinery more affordable. While lower duties helped, firms still needed to earn adequate foreign exchange for these major purchases of machinery. The problem was that the rate of retention of foreign exchange was extremely curtailed for most factories. Apart from the joint venture factories in SEZs which were allowed to retain 100% of the foreign exchange earnings, the vast majority of foreign exchange earnings were split according to contract between the national treasury and the local governments. This meant that local governments could earn foreign exchange through their local light industry factories like textiles and garments, but then divert these funds to other industries and projects as they saw fit. Given China's competitiveness in labor intensive manufacturing, light industry often acted as the workhorses for local foreign exchange accumulation. The factories themselves were only allowed to retain a paltry 12.5% of the foreign exchange earnings, which was barely incentive enough to aggressively pursue export earnings.[432] This was especially the case since foreign trade departments had control over the pricing of export goods, so factories were not even assured of any profits through these controlled export channels. Furthermore, if domestic sources of raw materials were unavailable or not of sufficient quality for exports, then firms had to use their already meager savings of foreign exchange to import raw materials. After each round of raw material importation, production and exports, little was left over to invest in foreign machinery.

In order for textile factories to be capable of technological upgrading, firms needed access to and control over their own channels of foreign exchange. At the same time, however, Beijing was weary of opening new channels given the chaos that ensued during the decentralization of foreign trade of the late 1980s (see chapter 3). Furthermore, fearing the entry of competing export firms, the foreign trade ministry resisted allowing factories any

[430] Informant #97 (Tianjin)
[431] Textile Asia 8/1991: 136. Also, see 2/1992: 54-5.
[432] Informant #16 (Beijing).

newfound freedoms on international markets and fought to restrict their access.[433] Nonetheless, in the early 1990s, Beijing expanded the granting of export autonomy rights to certain firms as a means to open up SOEs' direct access to foreign exchange and imported technology. Export autonomy was a compromise solution because it allowed Beijing to *select firms*, rather than grant broad powers to local governments. In the textile industry, export autonomy rights were originally granted on an experimental basis to only eight Shanghai textile factories in the early 1980s. By 1989, at the height of the first movement to liberalize foreign trade, a total of 94 textile firms had been granted these rights. However, in the following year, on account of the disturbances which followed the reforms of foreign trade, export autonomy was stripped from 23 of these 94 firms, and suspended in another 43 firms. This was part of Beijing's broader attempt to regain control over foreign trade. Very slowly, however, this number was increased again, so that by mid-1992, 111 firms had these rights, which as a group constituted 10% of China's total exports in textiles and garments. However, the new push for technological renovation led to a very rapid expansion of firms that were granted export autonomy rights (Figure 4.10). This meant that these firms were allowed to directly negotiate orders with foreign buyers and did not have to surrender their foreign exchange earnings to their local foreign trade department or local government. Of course, this change did not single-handedly liberate firms from bureaucratic controls, since they still faced the problem of acquiring export quotas, required under the Multi-Fiber Agreement. Export quotas were still controlled by MOFERT, although a thriving black market in quotas ran parallel to MOFERT's issuance of quotas, an arena particularly drenched in corruption.[434]

Figure 4.10: Number of Textile Firms Granted Export Autonomy Rights



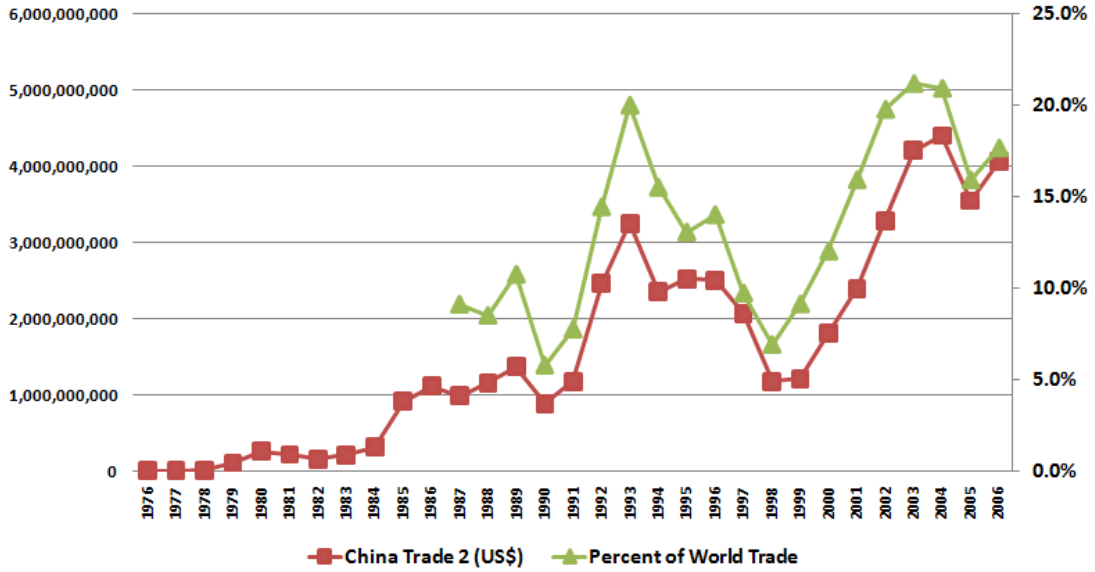
Sources: 1988-90: Textile Asia 6/1992: 108; 1992: 10/1992: 69-70; 1994: 4/1995; 1995: 8/1996: 115-6; 1996: 11/1996:94.

Nonetheless, for a significant number of firms, a major layer of regulation had been peeled away in accessing foreign exchange. Altogether, the new permissiveness for

[433] Moore 2002.
[434] Ibid.

investing in technological upgrading, the devoting of state resources to it and the new channels to earn foreign exchange, combined together so that between 1992-96, a flood of new machinery was imported and installed in Chinese factories (Figure 4.10). During this five year period, China imported between 50% and 100% *more* textile machinery than it had imported over the previous fifteen years.[435] It was a boon for foreign machinery manufacturers in Europe and Japan as China became and remained their largest client country.[436]

Figure 4.11: Textile Machinery Imports to China (US$ and Share of World Trade)



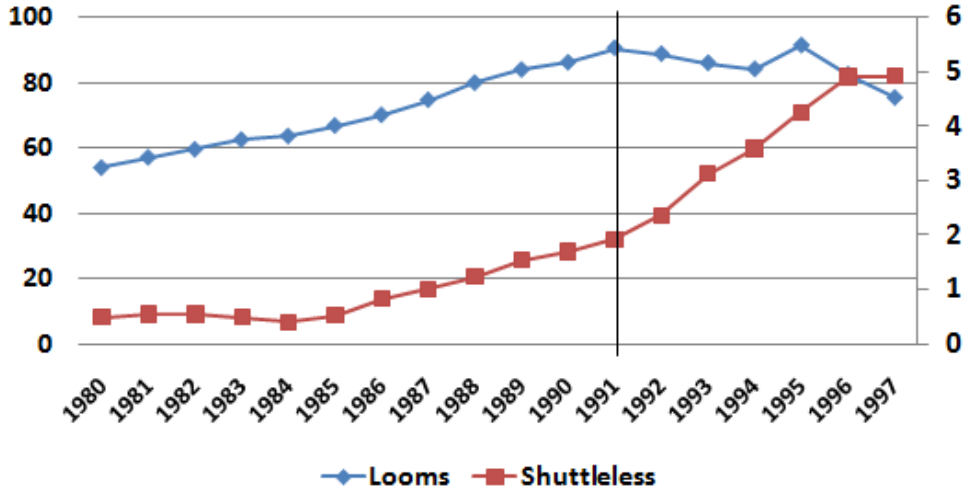
Source: United Nations Commercial Trade Database.

The re-orientation of domestic firms from the use of native to foreign technology is clearly reflected in the changing composition of different types of machinery. On the one hand, expensive world-class machinery like shuttleless looms, which combined the virtues of higher production speeds and (more importantly to China's goals at the time) better quality, was absorbed at a much higher rate than previously. The pace of installation in shuttleless looms was nearly tripled, from about 2300 per year between 1985 and 1991 to almost 6000 per year from 1992 to 1996 (Figure 4.12). A similar acceleration of technological sophistication can be seen in the silk industry. For instance, during the period of extensive growth from 1980 to 1990, automatic filature machines increased only 39% over the decade whereas non-automatic filatures rose 243%, and this increase was in spite of the fact that non-automatic looms began at a much higher base level in 1980. Then, during the decade of intensive growth through the 1990s, the trend was reversed as automatic machines rapidly replaced the lower technology ones, especially after the global market

[435] The figures differ according to the method of calculation. There are two ways to calculate imports into a country. One can use the official import figures recorded by the country's customs bureau, or one can add up the total export figures from other countries. The 100% figure derives from China's custom bureau figures, the 50% is using the export figures of all other countries. Generally, custom bureaus devote more resources to keeping track of imports.
[436] Informant #92 (Shanghai).

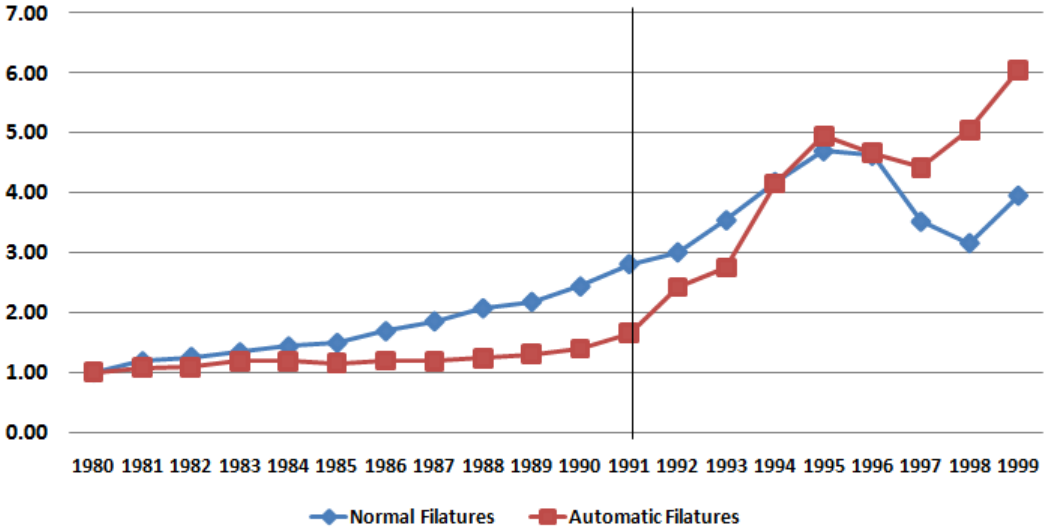
collapse in 1994 (Figure 4.13). Of course, the very fact of industrial upgrading is not surprising. What is surprising is the abrupt turnaround in early 1990s (demarcated by the vertical line in these figures), an indication that a re-orientation of government policy had an important role to play in this, not simply the gradualism of increasing 'market competition.'

Figure 4.12: Growth of Shuttle (left) and Shuttleless (rights) Cotton Looms, 1980-1997 (10,000)



Sources: Huihuang *de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99* : 201 and *Zhongguo fangzhi gongye nianjian* (various years)

Figure 4.13: Growth of Non-Automatic and Automatic Silk Filatures (1980=1.00)



Source: : *Huihuang de ershi shiji xin zhongguo da jilu: fangzhi juan 1949-99 : 206 and Zhongguo sichou nianjian 2000: 512*

It should also be observed that in sharp contrast to the blind expansion of shuttle and non-automatic cotton looms during the extensive growth period of the 1980s, their addition not only abruptly halted, but they were also eliminated in absolute capacity. The same

reductions occurred in silk machinery but only after the import restrictions were imposed in 1994. This was accomplished through the suppression of China's domestic textile machinery industry, which constituted a second leg of the State Council plan for technological renovation.

Suppression of China's 'Native' Machinery

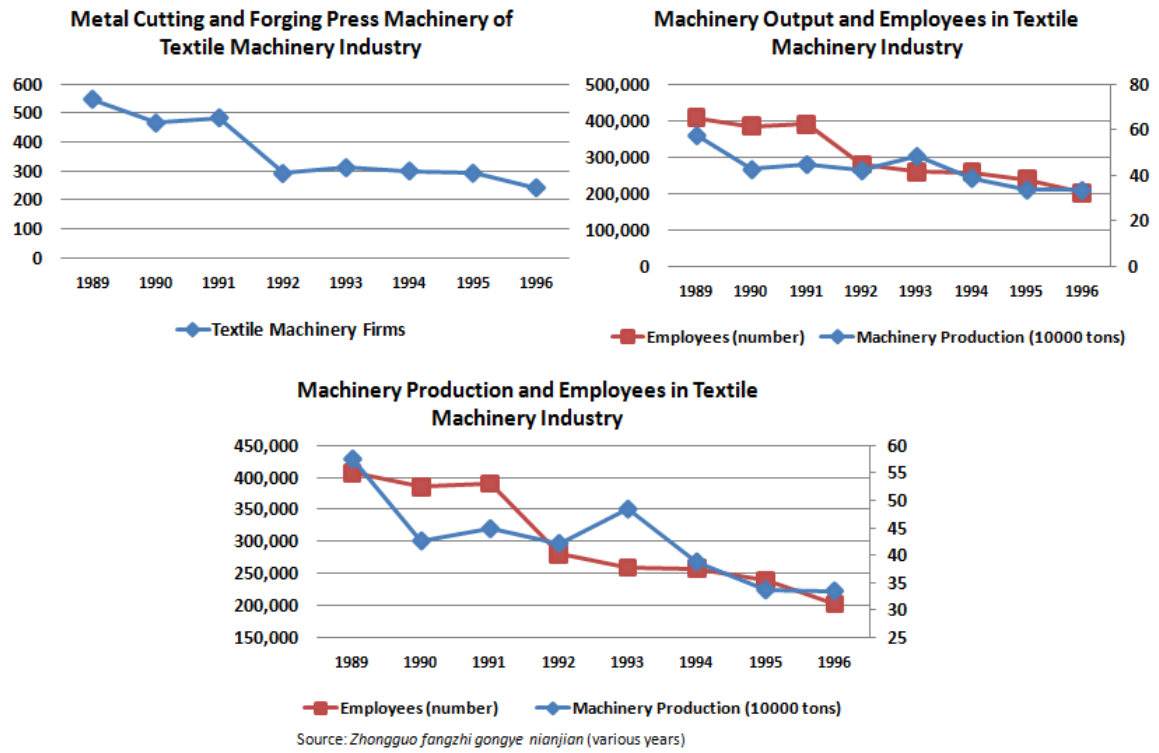
As mentioned in previous chapters, China's native technology had evolved within the context of extreme autarky in the 1960s and 1970s. By the reform era, it was capable of manufacturing significant quantities of cheap but durable machinery which was tailored to the lower quality fibers of China's domestic agriculture and to its abundant labor force in that many of the processing stages remained manual. With the rapid growth in off-farm employment and localized rural industrialization, there was a large, expanding market for this new machinery. Due to the greater capital constraints of these new firms (not to mention foreign exchange constraints), the purchase of native technology was their only real option.

Part of the task of re-orienting the domestic textile industry was restructuring China's native technology itself. In the early 1990s, this was initially accomplished through eliminating low-tech machinery models and factories and supporting the advanced machine works, like those in Shanghai, Tianjin, Zhengzhou and Xian. This was done through a variety of means, including reducing investment funds and stopping capacity expansion among intra-ministry firms.[437] Furthermore, all textile machinery factories new and old were forced to reapply for MOTI licenses for permission to continue to manufacture machinery. Since there were under a thousand firms, this could be administratively enforced with sufficient political will, something that would have been impossible in the textile industry itself which had a much more dispersed industrial structure with tens of thousands of firms. The tax incentives described earlier also made a contribution to eliminate the low-tech producers. As mentioned, in 1991, factories were offered substantial tax incentives to upgrade their machinery to Chinese-made advanced technology. This meant that the primary revenue stream for China's many low-tech textile machinery firms was undercut and replaced by the machinery of China's smaller handful of advanced machinery firms. By these different means, between 1989 and 1996, about half of the domestic industry was eliminated in terms of employment, production output and the metal cutting and forging presses which are the capital goods needed to manufacture textile machinery (Figure 4.14). This elimination is even more striking since most of the decline occurred *after* 1992, the year that China's growth strongly rebounded after years of economic austerity, and which marked a period of red-hot growth in China until the Asian Financial Crisis. Thus, at the same time that foreign machinery imports were flooding into China, the domestic textile machinery industry was reduced to half its size. It might be tempting to think that this was the market mechanism at work, in that textile firms were naturally switching from the lower quality domestic technology to higher quality imported technology. This is not likely the case. First, Beijing had to make a number of large adjustments before firms would be

[437] See the various policies adopted in *Zhongguo fangzhi gongye nianjian 1990:* 21-30.

capable of even making market-based decisions like this. Even more importantly, it is highly unlikely that during a period of very high growth in the 1990s, China's domestic textile industry would actually be cut in half due to market competition. In general, market competition weeds out weak competitors during periods of recession when competition for the remaining business opportunities is most intense. During periods of high growth such as after 1992, the strong and weak generally thrived together.

Figure 4.14: China's Textile Machinery Industry Capacity, 1989-1996



Source: *Zhongguo fangzhi gongye nianjian* (various years)

Although this shift to imported technology did transform an important swath of China's domestic industrial firms, capital investment and technology alone could not *single-handedly* solve China's problems in export performance. Although upgrading the hardware contributed to a solution, it was insufficient. The second half of the strategy was to attract foreign direct investments in textiles and garments.

Foreign Direct Investment and International Integration

In addition to assimilating foreign technology, by attracting FDI, Chinese firms could link into the managerial and shop floor expertise and marketing networks of foreign firms especially through establishing joint-ventures. This was particularly important for expanding garment exports, a higher value-added good than upstream textile exports as well as a more difficult industry to gain a foothold in. Attracting more foreign direct investment and integrating more deeply into the well-developed East Asian production networks offered solutions to multiple problems.

Since the early 1980s, Hong Kong has been the principle channel for China's linkages with global textile and garment markets (and other light industries). One of the constraints on China's export potential was its inability to react to the fast pace of fashion fabrics and garment markets, as well as the particular demands of foreign buyers, who needed products with specific production requirements, in small volumes and on a strict time schedule. As mentioned in Chapter 3, Hong Kong firms who handled China's trade complained to Minister Wu Wenying not only about the quality and variety of Chinese goods, but also about delivery, timing, styles and Chinese firms' lack of knowledge of international trends, things which Hong Kong firms were among the best in world and which technology could not correct. One survey conducted by MOTI in 1988 showed that South Korean and Taiwanese garment factories required on average only three to four months time to deliver an average order and were capable of sourcing most of their fabric and accessories supplies. By contrast, Chinese garment firms required six to eight months and required the importer or their agent to supply much of the materials, a sort of putting-out system of production.[438] This was partly because many of China's garment exporters were very large scale (by garment industry standards), but had little flexibility in terms of changing production or taking on small volume orders, something that had become standard in the global garment industry.[439] It is telling that Hong Kong firms with Chinese operations were often required to offer foreign buyers two price quotations: a less expensive quote based on mainland Chinese ex-factory prices and time schedules, and a more expensive quote based on Hong Kong prices, time schedules and reliability.[440] Hong Kong firms had to be flexible enough so that if Chinese orders for foreign buyers fell through, they could rapidly turn to their own Hong Kong networks to complete orders according to contract.[441] This was all the more important in garments, which require the fastest and most flexible production system. While China still offered very low wages compared to most countries, this advantage could not be actualized unless China could reach international standards across a range of competencies, a factor under-appreciated in some studies of the garment industry.

In addition to these sorts of expertise, Hong Kong offered China another opportunity: more export quotas. Given the degree to which Hong Kong enterprises had integrated with firms across the border, China's *potential* quota size was substantially expanded, if only because as an old generation signatory of the MFA, Hong Kong had built up a huge quota allotment over the years. China's channel through Hong Kong depended on two things. First, it depended on the arcane American and European 'rules of origin' which determined how textile and garment exports would be categorized and thus which country's MFA quotas would be credited as the final exporter. Seemingly innocuous modifications in the rules could create a sea change in the garment industry and trade flows as items which were previously "Made in Hong Kong" suddenly had to be credited towards China's quota allotment as "Made in China." The US in particular utilized these sorts of technical changes to restrict the influx of 'Chinese made' goods because it was less overt in terms of trade conflict compared to renegotiating quotas and they required less political coordination within the US government, while still satisfying the US textile lobby. In addition to the

[438] See the *Quanguo fuzhuang gongye keji qingbao zhan* report in *Zhongguo fangzhi gongye nianjian 1988-89: 285.*
[439] See *Zhongguo fangzhi gongye nianjian 1988-89: 197.*
[440] Informant #61 (Hong Kong).
[441] Informant #63, 64 (Hong Kong).

rules of origin, China's utilization of Hong Kong as a doorway for exports was of course contingent on the degree to which Hong Kong firms found it beneficial to perform manufacturing functions across the border. In the 1980s and early 1990s, Hong Kong firms constituted no less than 80% of the foreign direct investments in Chinese textiles and garments, although some of this included 'round-trip' FDI and the operations of foreign companies using Hong Kong as their headquarters for their China operations.[442] Nevertheless, at this point in time, Hong Kong was not just an important channel for China, it was effectively the only alternative channel outside of China's state trading corporations.

This is why when Hong Kong firms began to turn away from China as a supplier in the early 1990s, it served as a serious wake-up call for Beijing. For instance, throughout the 1980s, Hong Kong sourced upwards of 90% of its cotton yarn from Chinese firms. By the early1990s, and largely due to the damage of the cotton wars, Hong Kong firms were complaining about the declining quality of Chinese textiles, rising prices and the unreliable delivery times. By 1994, Pakistan had overtaken China by supplying 64% of Hong Kong's cotton yarn needs.[443] The role of raw material prices is telling. Over the course of the 1980s, Pakistan's share of the global trade in low count pure cotton yarn rose from 11% to 33%. It is no coincidence that this sudden rise occurred after Pakistan had created the institutions to maintain a price gap between domestic cotton prices and international prices. These included the nationalization of the export of cotton in 1973, the creation of Minimum Export Prices in 1976-77 and other exports controls, and the increasing subsidization of farmer inputs. Domestic mills were guaranteed cotton supplies at a price equivalent to the MEP minus the cotton export tax.[444] During the wars in the late 1980s and early 1990s, China lost control of its array of institutional controls over the domestic price of cotton – the same period in which they lost their market share to Pakistan. This was a serious threat to China's textile industry and by extension to the country's export earnings. China's domestic firms had lost their export competitiveness and their annual losses did not afford them the breathing room to renovate and compete. Attracting foreign joint venture partners and integrating into East Asian production offered the dual opportunity of both enhancing Chinese competitiveness as well as diversifying its linkages with global manufacturing beyond the single channel of Hong Kong.

Opening more to the international economy also made sense in terms of contributing to the resolution of fiber shortages in cotton and man-made fibers, something alluded to earlier. However, there was a delicate balance that had to be struck. On the one hand, Beijing was consistently concerned with protecting cotton farmers. Lowering import duties and liberalizing regulations on cotton (and man-made) fiber textiles would have had the same deleterious effects on farmers as simply liberalizing the import of raw cotton. Fibers are fibers, and the particular form in which they entered the domestic economy makes little difference for upstream fiber producers. On the other hand, China's textile industry was poorly equipped at the time to supply the sorts of dyed or printed fashion fabrics which garment manufacturers required for their foreign buyers.[445] China's printing, dyeing and

[442] *Zhongguo fangzhi gongye nianjian 1986-7:*
[443] See Textile Asia 10/1990: 117 and 12/1995: 81.
[444] World Bank 1995.
[445] Informant #94 (Shanghai)

finishing industries were the weakest links along the textile production chain.[446] Similar to other production nodes, they were plagued by overcapacity (as was the chemical dye industry), but it also produced low quality finishes, unsuitable for exported garments. Beijing sought to strike a balance between protecting farmers at one end of the chain, while also stimulating garment exports, something which would likely require imported textile goods.

It would be remiss to say that China simply "opened" to the international economy during this period, although by looking at common measures like trade dependency and FDI flows it might appear that China became 'open.' This is because more than most countries, we have to distinguish between trade and investment based on 'export processing' and trade and investment based on 'ordinary trade.'[447] I say 'more than most countries' because China-based export processing was not simply restricted to special export zones like in most countries (though the original SEZs were typical physical zones). Rather, much larger swaths of the country, including many major cities, were loosely considered 'zones,' but their borders were not closed or heavily monitored as is often the case in more typically segregated export zones. By some estimates, 160 million people lived in cities and regions which in some way were given special policy treatment for attracting foreign investment and conducting exports.[448]

This means that more than most countries, a significant share of total imports entered China duty-free, in many cases by foreign joint ventures, with the intent of being re-exported. Thus, two categories of imports, *jinliao jiagong* and *lailiao jiagong*, have to be subtracted out of total imports in order to gauge China's extent of true trade 'openness.' Unfortunately, it is hard to find this data broken down by industry, but in the late 1990s, about 50% of imports in the textile industry were of this type.[449] In fact, as a percentage of GDP, regular imports aimed at the domestic market (in other words, non-export processing imports) *declined* from the mid-1980s when it was 13% of GDP to 5% in 1998. This means that by a certain measure, China reached a relative peak in import 'openness' as early as the mid-1980s and then became increasingly more closed, at the same time that it was turning into an export powerhouse and foreign investments came flooding into the country.

Furthermore, we have to consider that compared to other countries, China had a much more comprehensive system of 'export protectionism' due to the degree of price controls it imposed, a legacy of state monopoly control over domestic commerce. In terms of export value, close to 100% of exports were either covered by export quotas or licenses (although in the case of textiles and garments, these were imposed on China by the Multi-Fiber Agreement). In these different ways, we have to consider how China transformed its foreign trade and investment regime.

The inflation of upstream fiber prices to international levels altered the calculus for China's trade regime. For one, this meant that there was less threat that liberalization would induce a rapid outflow of agricultural goods either directly as unprocessed commodities or through industrial goods, like yarns and cloth, which would result in

[446] Informants #111, 109 (Shaoxing, Zhejiang)
[447] I use Naughton's useful terminology here. See Naughton 1999.
[448] Naughton 2007:
[449] *Zhongguo hangye fazhan baogao, fangzhiye 2004*: 54.

severe domestic shortages. In other words, given the eradication of the price gap, China could loosen up its system of export protectionism and allow greater freedoms in terms of the use of domestic fibers for export. Whereas in the 1980s, nearly 100% of exports were under some form of export quota or license, in the 1990s China reduced significantly the amount of goods under export protectionism to just 33%, which after adding MFA textile constraints would raise the total to 55-60%.[450] In textiles, the increasing tolerance towards allowing domestic raw materials to be processed for export is evident in the rapid rise of domestic firms which were granted export autonomy rights after the commodity wars, which as we saw earlier rose from 111 in 1992 to around 800 by 1996. These firms were the most likely to utilize domestic supplies to conduct exports, though they too retained the option of importing duty-free. Similarly, with the equalization of domestic and international prices, allowing more foreign JVs would not pose as large a threat to China's export protectionism, since they too retained the option of utilizing domestic or import supplies.

Although it is well known that China absorbed substantial FDI after 1992, China's international integration occurred in a particular way – a pattern which 'linked' China into East Asian networked production. Whether looking at the pattern of tariff duties, foreign investments or intermediary imports, the same pattern of integration recurs: upstream sectors were characterized by low tariffs, low foreign investments and high levels of imports, followed by a gradual change down the value chain to high tariffs, high foreign investment and low imports in the downstream (Figures 4.15, 4.17, 4.18 below). Thus, the dynamic between tariffs, foreign capital and trade was not "sectoral" (automobiles versus textiles), but rather it was patterned *along the value chain*, which allowed China to fit into East Asian networked production

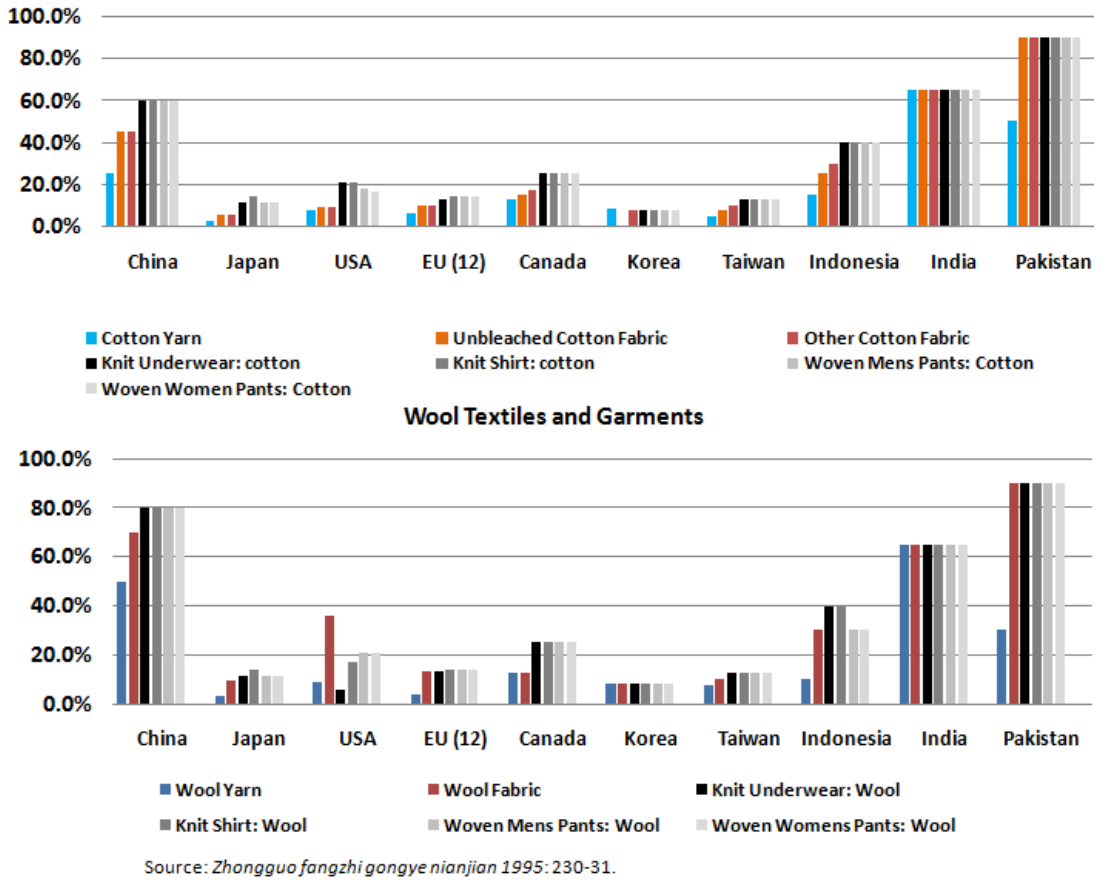
A crucial step in this direction was taken when Beijing began to lower import duties across a range of textile products. They began on the first day of January 1991 when Beijing reduced import duties on 19 types of man-made fibers, lowering tariffs by between 30-50%.[451] These included tariff reductions on the actual fibers, as well as the feedstocks, like polyester chips, which fuelled China's own domestic man-made fiber industry. Combined with the opening of chemical fiber industry to new entrants, this not only led to a quantitative increase in man-made fibers into China, but also allowed for greater variety, filling in many of the gaps in China's production portfolio.

In addition to chemical fibers, China reduced import tariffs along the textile value chain several times between 1991 and 1996. Upstream textile goods like yarns enjoyed much lower tariffs. Gradually, tariffs rose substantially higher further down the production chain (Figure 4.15). This particular tariff pattern best tapped into the East Asian production networks and allowed for domestic and foreign factories in China to import upstream goods, process and sell them in China, but with the eventual goal of exporting the final product. In fact, China's tariff structure is unique compared to most other developing countries because of how it was tailored to East Asia's networked production. While most developing countries maintained relatively minor differences between the upstream and downstream sub-sectors, China stood out in the degree to

[450] Lardy 2002: 47-8; see also *Zhongguo Tongji Nianjian* 1992: 630 and Almanac of China's foreign economic relations and trade 1992-93: 50.
[451] Textile Asia 12/1992.

which it set up its tariff structure in this way. Tellingly, Indonesia also constructed a similar tariff structure, as it too was well-integrated into East Asian production networks. By contrast, India and Pakistan show almost no variation across their production chains. In April 1996, China again lowered its textile duties on 1089 items of textile raw materials, machinery and finished textile goods, but it maintained this same basic structure along the production chain.[452]

Figure 4.15: Cotton and Wool Import Tariff Rates, 1994

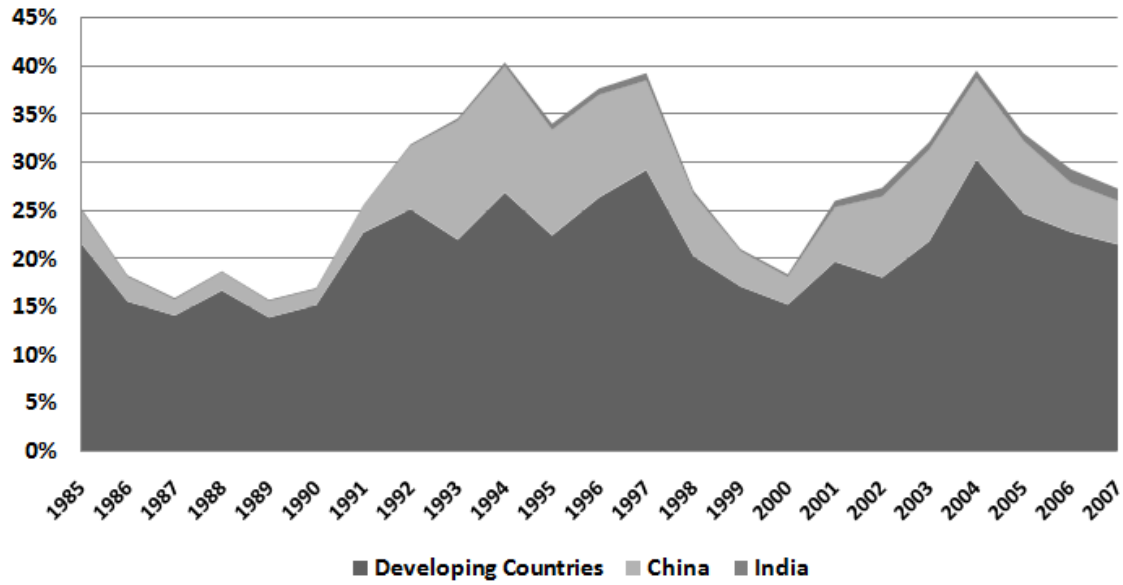


Source: *Zhongguo fangzhi gongye nianjian 1995*: 230-31.

This tariff structure mirrored the pattern of how FDI flowed into the industry. Between 1992 and the Asian Financial Crisis in 1997-8, China became a major player in the general global trend of foreign investment flows into developing countries. With the Latin American debt crisis far enough back in the review mirror, capital investments began flooding into developing countries from 1991. Out of the global total (including FDI between advanced countries), FDI inflows into developing countries rose from slightly over 15% in 1990 to 40% by 1994 (Figure 4.16). China was clearly the new darling of the developing world, rising from a relatively minor share to absorbing a huge share of these new developing country flows starting in 1992 (India is used for comparison purposes in Figure 4.16).

[452] Textile Asia 3/1996: 87.

Figure 4.16: Percent of FDI Flows to China, India and Developing Countries

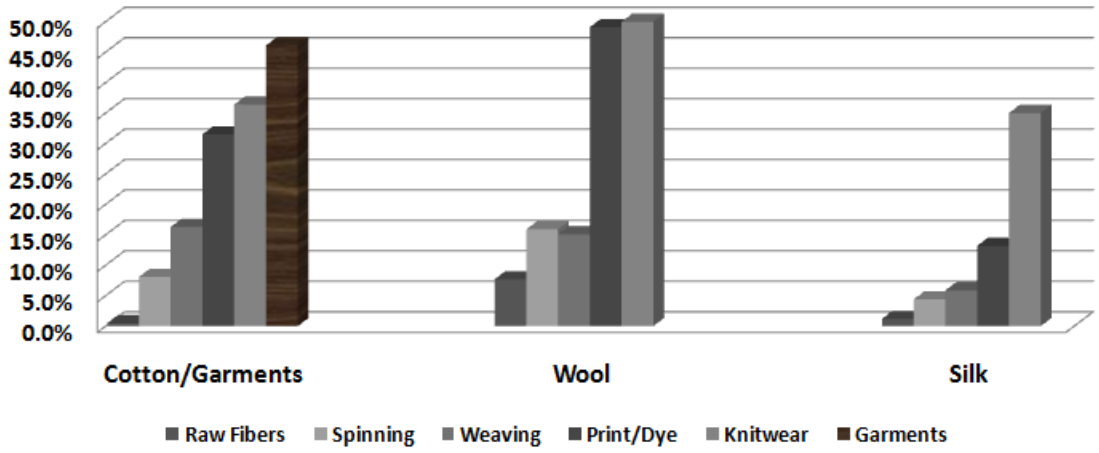


Sources: UNCTAD online data

While aggregate FDI flows into China suddenly jumped, the pattern of investments is distinctive in that it follows a value chain logic: very sparse in the upstream sectors and increasingly heavy in the midstream and dominant in the downstream (Figure 4.17). Foreign investments concentrated at China's weakest links in printing/dyeing/finishing and garment manufacturing, usually for export. As discussed earlier, Chinese domestic firms had a very difficult time competing in these links in the chain, not simply because of technological backwardness, but also due to the managerial and time-sensitive delivery requirements of importers. It is no coincidence that foreign capital concentrated in these links in the chain. In cotton and silk in particular, this was also reinforced by the strict controls over raw materials and yarn production in China. This is evident in the fact that the upstream wool tops subsector is also heavily populated by foreign firms compared to the other raw fiber processing stages in China, largely because of the 1992 import liberalization of raw wool discussed earlier.[453]

[453] Wool tops are semi-processed fine raw wool which is a necessary prepatory step in the manufacture of fine wool yarns destined for higher quality wool apparels. I have not included them as a separate category in Figure 4.17 because there is no equivalent in cotton and silks.

Figure 4.17: Assets of Foreign Firms as a Share of Total Assets by Sub-sector



Notes: The raw fibers category consist of primary processing of fibers, such as cotton ginning, wool washing and silk reeling. The garments category is not refined by raw fiber type and is displayed here only under cotton textiles.
Source: *Zhongguo shichang nianjian* (China Market Yearbook) 1997

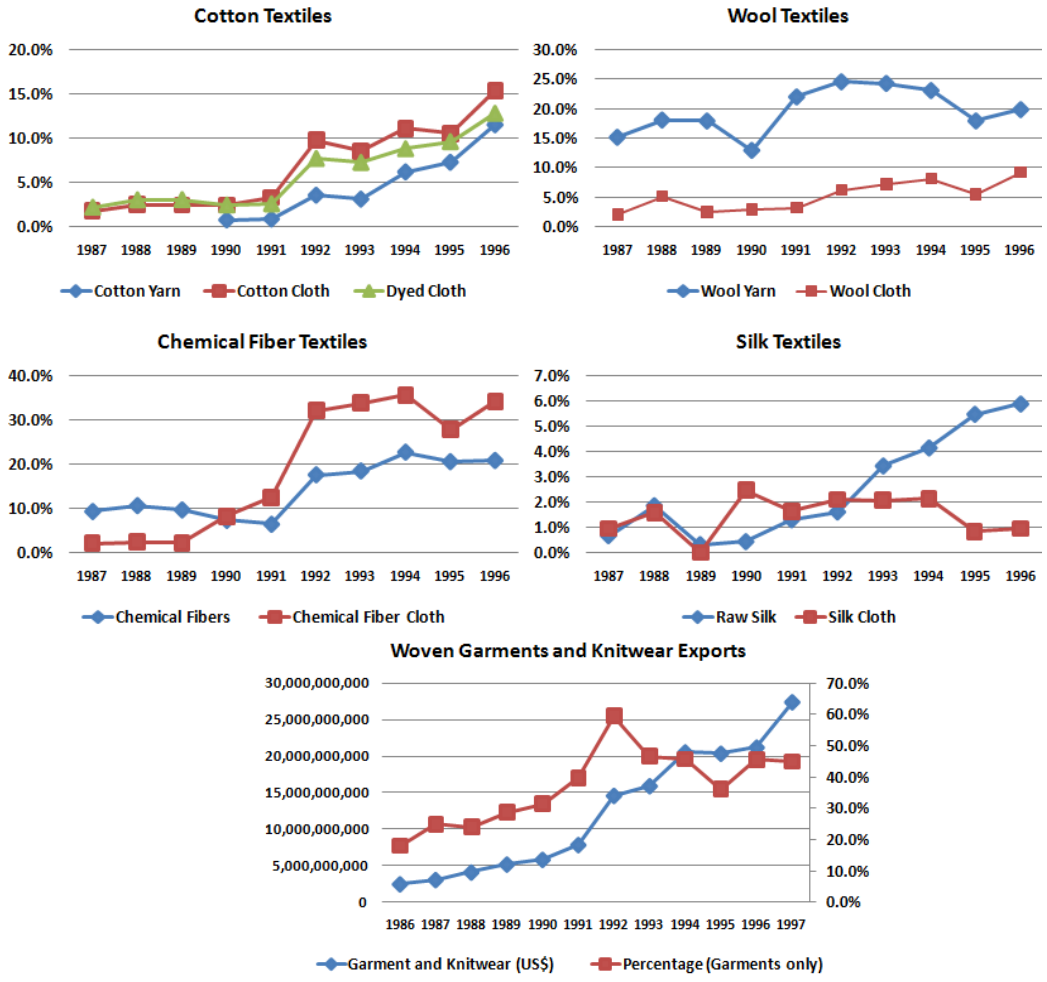
To be sure, this was hardly a brand new phenomenon born of the 1990s. For a decade and a half before 1992, Hong Kong firms had been organizing different types of export processing arrangements (some of it occurring below Beijing's regulatory radar). However, two things were new. First, this round of integration into East Asian networks was vastly expanded. As Figure 4.16 above makes clear, export processing by foreign firms before 1992 was quite limited in size. Secondly, China's network linkages diversified tremendously. In the 1980s, although FDI was relatively limited compared to the 1990s, it was highly concentrated with more than 80% of this investment of Hong Kong origin. However, starting in 1991, Japanese and South Korean industrialists invested heavily in China. For the South Koreans, some investments had been made in the 1980s, but establishing formal diplomatic relations in August 1992 opened the flood gates. Although Japan had a larger presence in China, it too expanded substantially in the 1990s. For instance, by 1993, 50% of Japan's 244 overseas garments ventures were established in China.[454] Japan's overseas textile investments were even more robust in upstream sectors, especially chemical fibers, an industry in which China drew by far the largest share of Japanese FDI compared to other regions and countries during this period. (See Figure 4.2 above).

China's particular pattern of tariffs and the way in which East Asian capital was implanted along the production chain transformed China's pattern of imports from the early 1990s. Significant segments of the textile chain turned from domestic sourcing to imports beginning in 1991-92 (Figure 4.18). This was particularly true for chemical fibers. In the late 1980s, chemical fiber imports constituted less than 10% of China's total domestic production (measured in kilograms). This shot up to 20-35% within a few

[454] Textile Asia 9/1993: 108.

years, a *conservative* estimate of this change.[455] The same basic pattern is repeated in cotton textiles and in wool. Even silk follows a broadly similar trend, although at much lower levels (never exceeding 6% of domestic production) given China's dominant position and global-orientation in upstream raw silk. This integration into East Asian networks marked the rapid rise of China as the world's largest exporter of garments and knitwear. By the mid-1990s, about one in every two garments produced in China was exported (Figure 4.18); much of this was manufactured by foreign firms. For instance, in cotton, wool and silk knitwear alike, over 50% of assets were owned by foreign firms by 1995. More to the point, between 50-72% of foreign firms' revenue derived from exports in the cotton and wool knitwear and woven garments sub-sectors.[456]

Figure 4.18: Textile Imports as a Percentage of Total Domestic Production (kg) and Total Garment Exports and as a Percentage of Total Domestic Production



Sources: Imports: 1987-1991: Zhongguo haiguan tongji nianjian (various years); 1992-1996: United Nations Commercial Trade Statistics Database. Domestic Production: Zhongguo fangzhi gongye nianjian (various years).

[455] Since unit prices of imported textiles were higher than domestic goods, these percentages would be even higher in value terms.

[456] Calculated from *zhonghua renmin gongheguo 1995 nian disan ci quanguo gongye pucha ziliao huibian (zonghe,hangye juan):* 46, 51, 78-92, 110, 113 and *zhonghua renmin gongheguo 1995 nian disan ci quanguo gongye pucha ziliao huibian (guo you, sanzi, xiangzhen juan)*: 327-333, 350.

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In summary, China's commodity price inflation, largely the result of the commodity wars, created dual crises in industrial profitability and export competiveness. These crises galvanized policy-makers to re-orient Chinese industry away from the 'extensive and local growth' of the 1980s. Advanced textile machinery was imported at a feverish pace and China's domestic machinery industry was eliminated to less than half its size in the 1980s despite China's industrial boom in the 1990s. In addition, the commodity inflation reduced the need for China to maintain its strict system of import and export protectionism. Reforms of its foreign trade and investment regime led to an influx of foreign joint ventures and allowed for wider latitude for China's domestic firms to conduct export trade. The new influx of foreign firms implanted in China's domestic economy according to a distinct pattern which mirrored East Asia's networked production. They concentrated very heavily in certain 'nodes' in the mid-stream dyeing and finishing industries and the downstream knitwear and woven garments industries; these were nodes in which China was technically weak and lacked export marketing channels. Together, they transformed China's trade pattern to one in which intermediary textiles, especially man-made and cotton cloth, overran domestic producers. While China's unusual pattern of foreign investments and trade are interesting in themselves, the next chapter addresses the question of the effects of China's integration into global production networks. I find that China's mode of integration led to a disarticulation of the textile and garment links of the value chains which in turn reconstituted the geography and demographics of China's workforce and contributed to the creation of labor markets. In addition to this, the next chapter, I examine how value has been distributed along the chain between farmers, workers, factories and local government revenue.

Chapter 5

Global Production, Labor and Regional Inequality

One of the aims of the past two chapters has been to narrate the underlying reasons for the dual crises in textiles, one of China's pillar industries. They also addressed the multi-pronged strategy which Chinese bureaucrats stitched together in resolving these crises. In essence, their decision to shift to intensive production methods grew out of the problems engendered by the 'localized and extensive' mode of production, in particular the role of local states in creating protectionist barriers and controlling prices. However, as we saw, these dynamics played out differently in each commodity, depending on the particular mixture of state goals, resources and regulations.

This chapter examines the many implications of China's crises and their resolution over the 1990s and early 2000s. First, it examines the impact of China's international integration during a period of time when global production was undergoing deep transformations. More specifically, it examines how China's integration into East Asian production networks transformed the composition of China's labor force. While much has been written on the rapid expansion of China's trade and inward foreign investments, most research has examined these phenomena on a highly aggregated level of analysis, looking at the timing, amounts or geographic distribution of FDI and its influence on domestic industry, technology transfers and so forth. However, much like we saw in prior chapters, new insights come to the surface by deconstructing the production process and examining the links in the chain from agriculture to industry. As we will see below, even more refined categories like 'light' and 'heavy' industry hide much of what is distinctive about contemporary global manufacturing and China's international integration. As illustrated in Chapter 4, foreign textile and garment firms have entered into China's domestic economy according to a particular pattern in which very little is invested in upstream nodes, while the downstream, such as knitwear and woven garments, have become dominated by foreign producers. As that chapter showed, this pattern of investments has had an obvious influence on trade patterns as well. These patterns of investment, trade and regulations (like tariff rates) are not observable except through a production chain lens; aggregated data obscure these findings.

But, why does this matter? Apart from taking note of this shift in patterns of FDI and trade, what value is there in spending time disaggregating production and more importantly what is being missed by research that fails to disaggregate? This chapter seeks to explore these questions. For one, we find that a disaggregated approach helps to specify the reasons for FDI entry. While many arguments have focused on the 'opening' of China as part of its Coastal Development Strategy from the late 1980s, these broad policy changes cannot explain the investment patterns found here which align along the production chain. In other words, preferential policies might incentivize transnational corporations (TNC) to invest in China in the aggregate and China's cheap and disciplined labor force might explain the entry of labor-intensive manufacturers, as others have found, but they fail to specify in more detail the pattern of investments found in China. The puzzle is that *all of the nodes* along these three textile and garment chains are labor intensive, and all of them enjoy identical preferential policies used to attract foreign

capital; if so, then why in Chapter 4 did we find such a highly uneven pattern of foreign investments and trade?

That said, there are more important reasons to examine China's international integration in relation to the recent transformations in global production: the unusual entry of foreign investments and trade has shifted the composition of China's labor force. These include changes in the geography and mobility of labor in China, the creation of highly concentrated 'national' labor markets, demographic and skill level changes, and changes in the possibility for collective action.

A second contribution of this chapter is to examine the changing distribution of resources along the three value chains between agricultural cultivators, factories, and industrial workers. Using what we have learned in prior chapters, I examine changes in income, profits, industrial production and employment over the 1980s, 1990s and into the early 2000s. However, instead of considering these as national aggregates, I overlay a geographic dimension onto the agro-industrial production chain to find out how laborers, who were linked into different nodes along the chains and located in different regions of China, fared through the re-regulation of the three commodities, using the narrations and periodizations discussed in previous chapters.

Mapping the value chains onto geographic regions brings to light potentially new and overlooked sources of inequality in China. While there are different approaches to China's rise in inequality (many of which are mutually compatible), I focus on the large body of studies which address 'regional' patterns of inequality, such as between coastal and inland regions and inequalities arising within provinces. My findings suggest that regional inequalities in many parts of China may be attributed more to the *economic linkages* between regions within China as well as linkages with the global economy, rather than the more common approach of examining differences in *location advantages*, such as uneven or preferential regional policy, differences in endowments, industrial legacies or local leaders. In essence, at the node level, very similar patterns of change in income and profits (such as silkworm cultivators or cotton spinning firms) exist in *both* coastal and inland China. By contrast, changes in income, profits, employment and production do not follow a regional logic, nor do they follow a producer group logic, such as by grouping all agriculture cultivators together or all industrial workers. This implies that broad regional arguments (coast vs. inland) and broad producer categories (the infamous 'price scissors' between agriculture and industry) are less insightful than a commodity-level value chain framework.

Transformations in Global Production and the Case of China

Over the course of the 1990s, foreign direct investment came flooding into China making the amount of FDI flows over the 1980s look like a mere trickle. Although much has been written on this transition, most research examines inward FDI in the aggregate, explaining the timing, amount, international sources and reasons for the rapid influx of FDI into China,[457] or its impact on domestic firms in terms of technology transfer,

[457] Many understand the influx as the result of the internalization of 'free trade' liberal norms and the growing influence of liberal-minded reformers, especially given the self-evident success of their experiments in opening the Chinese economy during the 1980s, such as the meteoric rise of the SEZ.

foreign market access or competition. Another common approach is to examine China's geographic distribution of FDI, especially given its high concentrations along the coastal regions and even higher concentrations in the three main growth poles of the Bohai, Yangtze Delta and Pearl River regions. With a few exceptions, it is rare for FDI to be analyzed within specific industries.[458]

Although the methodological justification for cross-sectional comparison are well-recognized, an industrial level perspective is also substantively important because of the dramatic transformations in global production that have characterized the past decades, as transnational corporations in many industries have substantially shifted their strategies. Given these new patterns in global production, an industrial perspective has become increasingly important: TNCs in different industries organize production in diverse ways.[459] As such, the sectoral literature of the past generation, which focused on the determinant role of technology, has given way to industrial studies more concerned with firm strategy, firm organization, and institutional context.[460] Since China's international integration coincided with these changes in production, an industrial level view becomes highly salient in that studies which fail to do so miss much of the action.

Yasheng Huang's research highlights an interesting empirical puzzle which rightly points to the utility of industrial analyses. On the one hand, given China's weak technological base and its large internal market, the influx of FDI into technologically sophisticated industries is relatively easy to explain. On the other hand, Huang asks why FDI has flooded into China in light industries as well, and why foreign investments in these industries have even outpaced domestic investments given that little technological advantage would accrue to foreign firms. Foreign companies making these investments are often small and medium sized and investments in China are substantially smaller in size than in other countries. Furthermore, foreign firms in light industries in China have favored direct investment over contractual relationships with Chinese domestic processors in which machinery is supplied to domestic firms and slowly paid off over time through the sale of goods to the investing foreign firm. These sorts of contractual investments declined over time and have been overshadowed by much more risky and administratively complex FDI, in which foreign firms must contend with local and national regulations across a range of issue areas, from labor to profit repatriation to taxation. Huang sees all of these as signs of the uncompetitiveness of domestic firms, a condition which has given foreign firms a clear competitive advantage. These counter-intuitive empirical findings derive from Huang's method of sectoral research.

Huang finds answers to these anomalies in China's system of capital intermediation. He argues that the continued dominance of inefficient state-owned firms in terms of absorbing investment capital has handicapped the independent rise of more efficient domestic private firms. Through joint ventures, foreign firms serve as the primary alternative source for investment capital for investment-starved non-state sector in China. In essence, domestic distortions and a handicapped non-state sector have

[458] For exceptions, see Yasheng Huang 2003. Hsueh 2008 also examines industrial sector variation, but in terms of state regulation. Finally, in more sophisticated tests of the impact of FDI on domestic firms and productivity, sectors are used as a control variable given the very different technologies employed. For example, Liang 2009.

[459] As an example, see Peter Dicken's comparison of the textile, automobile, semi-conductor and other service industries in his *Global Shifts* series of books (1986, 1992, 1998, 2003, 2007).

[460] This includes the large literature on global value chains that I reviewed in Chapter 1.

created a golden opportunity for foreign firms to enter China (which under other circumstances would normally be at a competitive *disadvantage* in a foreign environment), as well as created a demand for foreign capital among China's non-state firms seeking capital infusions.

One problem with Huang's analysis is that if on the one hand domestic distortions have so handicapped non-state firms, and on the other hand state firms are inherently inefficient, then foreign firms should have a clear competitive advantage over Chinese firms not simply in export markets (where the preponderance of foreign investments are concentrated), but in China's domestic markets as well. Foreign firms would presumably dominate *both* China's domestic markets, in addition to China's export sector. But, they don't. In fact, in different industries, foreign firms have widely divergent shares of China's domestic and/or export markets. In some sectors, like transportation, beverages and food manufacturing, foreign firms retain a strong presence in China and have oriented their sales towards the domestic market, taking 25% to 30% of market share in 1995.[461] In other industries, like light industries (garments, leather goods, toys, sporting goods, etc.) as well as (seemingly) high-tech industries like electronics, foreign firms clearly use China merely as an export platform for assembly and export.[462] For instance, in furniture making and plastic products, foreign firms take a third of total sales, but most of these are in exports as they dominate over 75% of China's exports. This high share of China's exports is similar in garments (61%), leather goods (73%), toys and sporting goods (69%) and more.[463] But overall, in these industries, foreign firms take only a modest share of China's domestic market, and generally have a presence only in the most high-end segments. It is likely that in these industries Chinese firms are extremely competitive in the domestic market. For instance, foreign firms quickly learned this lesson in the white goods and brown goods industries over the 1990s as they increasingly de-invested from China on account of the ferocious competition they faced from entrenched domestic players.[464] In other words, if China's domestic state and non-state firms were so uncompetitive, then presumably foreign firms would have an easy time entering and dominating China's lucrative home market. Furthermore, it is not fair to say that foreign firms from Japan, Europe or the United States were uninterested in China's domestic market on account of China's low incomes, because certainly light industrial firms from Southeast, South Asia or even the Asian tigers would find the Chinese market quite lucrative if domestic firms were uncompetitive. In fact, as Huang himself points out, most FDI in China did not derive from advanced industrialized countries.

The answer to China's particular pattern of FDI may very well be found in the strategy of TNCs and in changes in global production, rather than in problems and distortions in China's domestic economy.

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[461] *Zhongguo 1995 nian di san ci gongye pucha ziliao*.

[462] China's role in high-tech industries reinforces the importance of disaggregating sectors into increasingly refined sub-sectors. Declarations of China's manufacturing muscle in high technology notwithstanding, China's insertion into East Asian production networks in electronics is largely confined to the labor-intensive and low value-added final assembly.

[463] *Zhongguo 1995 nian di san ci gongye pucha ziliao*

[464] Economist Intelligence Unit 1997.

Transformation of Global Production and China's International Integration

From prior chapters we know that production has disintegrated within national borders and reintegrated across countries through complex networks of trade in goods and services. China's opening up to the international economy has coincided with these changes and it remains to illustrate the significance of this for China.

Chapter 4 illustrated how foreign firms invested in China according to distinct *intra-industry* pattern in which upstream investments in raw fiber processing, spinning and weaving accounted for at most only 15% of total domestic assets in these sub-sectors and in which 5% or less was not uncommon in the cotton, wool and silk industries. Starting in mid-stream dyeing and rising even further in downstream knitwear and garments, foreign assets constituted between 35% and 50% of China's total invested assets in these sub-sectors (see Figure 4.17 in chapter 4). It is no surprise, then, that over the period of this rapid entry of FDI starting in 1992, China's trade patterns in textiles and garments shifted dramatically. In a short period of time over the 1990s, imports of intermediary textile goods that catered to the input requirements of foreign firms skyrocketed. In the major product categories like cotton yarns and cloth and man-made fibers and cloth, imports rose from under 5% of total domestic production in 1991 to anywhere from 12% to 20% to 35% of domestic production within about 5 years (see Figure 4.18 in chapter 4). Just the opposite trend occurred in garments. During the same period when foreign garment factories came to dominate 40-50% of total industrial assets, it is no surprise that the share of China's total garment production devoted to exports rose from around 10% to upwards of 70% between 1990 and 1997.[465]

In theory, a flood of foreign firms into the labor-intensive garment sector should create substantial new employment opportunities in China and greatly assist in absorbing the many underemployed Chinese in the rural, peri-urban and increasingly with the growth of migrants, the urban areas as well. A comparison of the 1990 and 2000 population censuses (*renkou pucha*),[466] the most detailed employment data available, shows that indeed the garment sector grew from about 4 million workers to 7.5 million, nearly doubling in size.[467] It appears that the employment gains were quite positive. However, a look down the production chain reveals that these gains were somewhat illusory. Over this same decade, employment in textiles was cut nearly in half, dropping from 10.1 million to 5.6 million.[468] Thus, altogether as an industrial chain, there was a *net loss* of 1.15 million jobs, and this was a period of rapid export-orientation in China and in a very labor intensive industry in which China is highly competitive. Of course, part of the reason for the elimination of nearly 5 million textile jobs was the technological restructuring and closing and merging of state firms over the 1990s. However, the question remains: why did the entry of export-oriented foreign firms (which effectively doubled China's garment making capacity) not substantially *stimulate* the domestic

[465] This amount is slightly less measured in terms of physical output. See Figure 4.18 in chapter 4.
[466] Given the small scale nature of garment firms, it is important to use the most detailed data such as census data, rather than the yearly data on employment collected by the State Statistical Bureau among firms over a certain size.
[467] *Zhongguo wu ci xianji renkou pucha shuju* 2005
[468] Ibid.

textile industries in China as a flood of new downstream customers set up operations in China. The reason is that these firms came to China with long supply chain linkages, so much so that the healthy 'backward' and 'forward' linkages which inspired development economists like Albert Hirschman are simply not guaranteed with the advent of networked global manufacturing.[469] In light industries with supposedly simple and standardized technology and in which China has had decades of experience, the lack of linkages with the domestic economy is particularly disturbing, and it demonstrates how difficult it is in this new era of production for developing countries, even ones with all the advantages of China, to gain a foothold in global manufacturing.

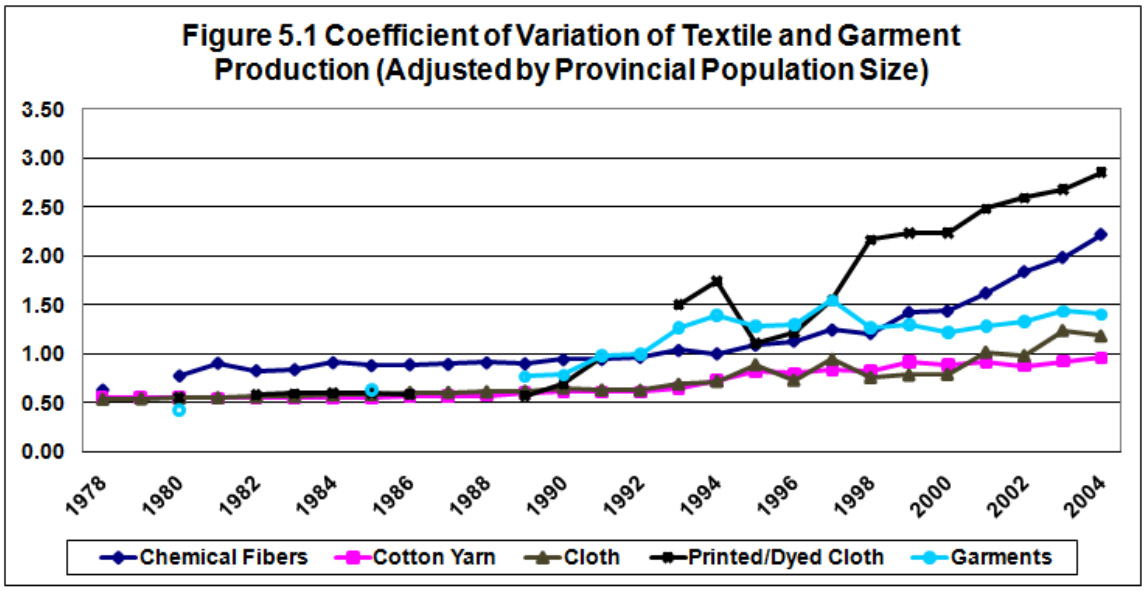
However, this shift in manufacturing down the chain from domestic textiles to export-oriented garments has more far-reaching implications than simply the lost employment opportunity of backward linkages into textiles. It has entailed a shift in the geography of production and has generated new flows of migrant labor. Furthermore, even though the aggregate employment gains in the garment sector came relatively close to offsetting loses in textiles, those who were laid off in textiles were very different workers than those newly hired in garments. This was not simply because of the new geography and entry of migrant labor, but also because China's old domestic-oriented textiles and new export-oriented garment production differ themselves as industries.[470] In the remainder of this section, I highlight several facets of China's insertion into global production networks, and how it transforms the industrial landscape.

The shifting geography of production occasioned by China's entry into global production is perhaps the most obvious and most frequently cited issue. Scholars have rightfully highlighted the many policy advantages which coastal provinces received over the 1980s, including permission to establish the earliest special export processing zones with all of their attendant tax breaks, exemptions to labor laws and autonomy in terms of provision of land and infrastructure and other benefits to foreign investors. These include not simply the original five Special Economic Zones established in 1979, but many other schemes like the 14 Coastal Open Cities in 1984 and the Economic Technology and Development Zones of 1988. The central government promoted a coastal development policy which was a geographic variant of trickle-down economics called the 'ladder theory' (*tidu lilun*). The coast was to 'get rich first,' and the benefits of that growth, it was theorized, would then spread to the inland-central and finally the western regions.[471]

However, when we examine the pattern across the production chain in textiles and garments, we see that the shift in the geography of China's production differs by each 'node' in the chain (Figure 5.1). This is unexpected because the coastal development policy and other coastal advantages are constants, and textiles and garments are broadly similar in that they are both light industries. In the 1980s, the provincial-level co-efficient of variation of production output on a per capita basis (adjusted to the size of the provincial population) was nearly identical across four of the five sub-sectors (cotton yarn, cotton cloth, dyed/printed cloth and garments). This meant that in these industries, the location of production was relatively dispersed and in line with population size. Only

[469] Hirschman 1958.
[470] This is not to say that all of textile manufacturing is identical. Spinning is a very different environment than weaving, for instance.
[471] See Yang 1990.

chemical fiber production was slightly more concentrated, which is expected given the larger size and lumpiness of investments in that industry, as well as Beijing's early desire in the 1970s to build very large plants next to its new petrochemical sites. Furthermore, over the 1980s, the low level of geographic concentration in production changed only modestly, despite the rapid entry of Township and Village Enterprises, especially in the garments and dyeing sectors. It was not until the 1990s that we witness a very rapid change in the geography of production in favor of the coast, something which the unevenness of preferential policies could explain. However, the changing geography of production differs in each node along the value chain: it is far sharper in the mid-stream dyeing/printing sectors and garment sector, links in the chain where we saw foreign investments and exports become highly concentrated. By contrast, cotton yarn and cloth textiles (which were also 'declining' industries overall during this period) exhibited a much milder shift in terms of the changing geography of production (Figure 5.1).



Sources: Output of production: *Zhongguo fangzhi gongye nianjian* (various years).
Provincial population: *Zhongguo tongji nianjian* (various years).

The shift in employment in China's 'old' Mao-era upstream textiles and the 'new' Deng-era downstream and export-oriented garments is also reflected in the changing geography of labor employment and new migrant flows. This can be seen by comparing county-level employment data in the textiles and garment sectors using the 1990 and 2000 population censuses. In textiles, there is not only a general sharp decline in employment, but in many of the central inland counties and cities, textile employment completely disappears from the map (Figure 5.2). This deindustrialization was particularly acute in the regions along the Sichuan/Chongqing border, areas in Hubei around Wuhan and in Anhui, Jiangxi and especially Liaoning provinces. Even many cotton growing regions in Henan and Hebei, and the cities in central Shandong (like Jinan) experienced a hollowing out of textile factories. Garment manufacturing, on the other hand, saw a geographic dispersion of employment. To a small extent, this even

occurred in some inland provinces, especially in the central-southern region which includes Anhui, Jiangxi, Hubei and Hunan provinces.

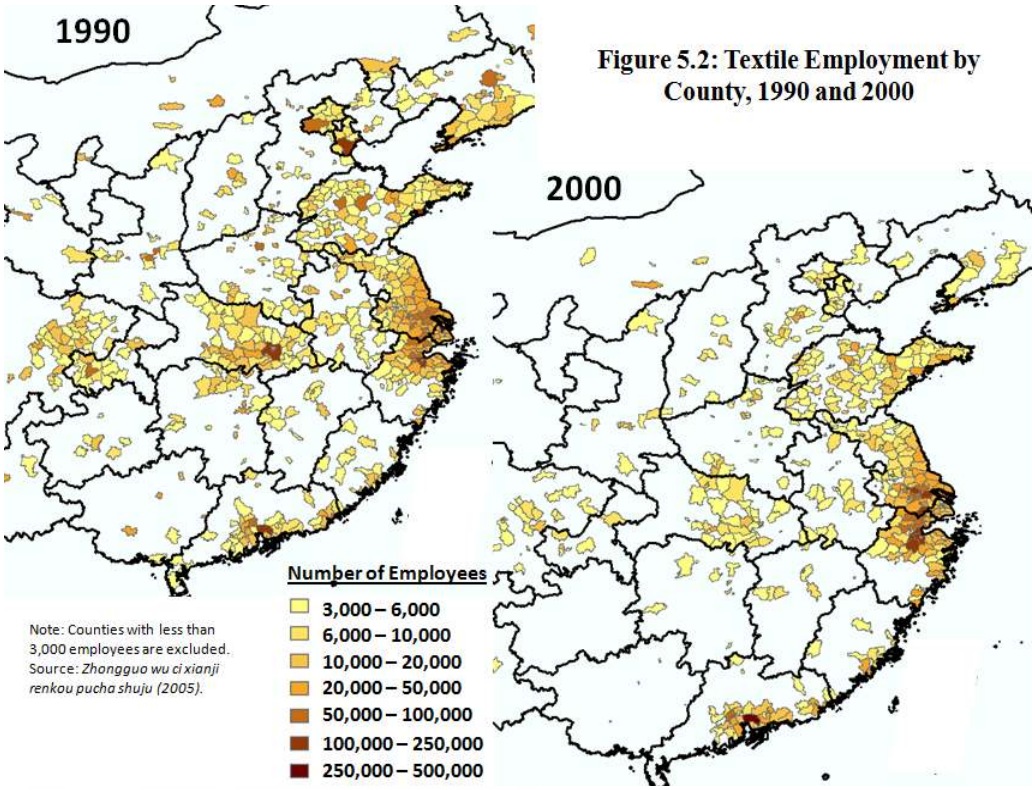


Figure 5.2: Textile Employment by County, 1990 and 2000

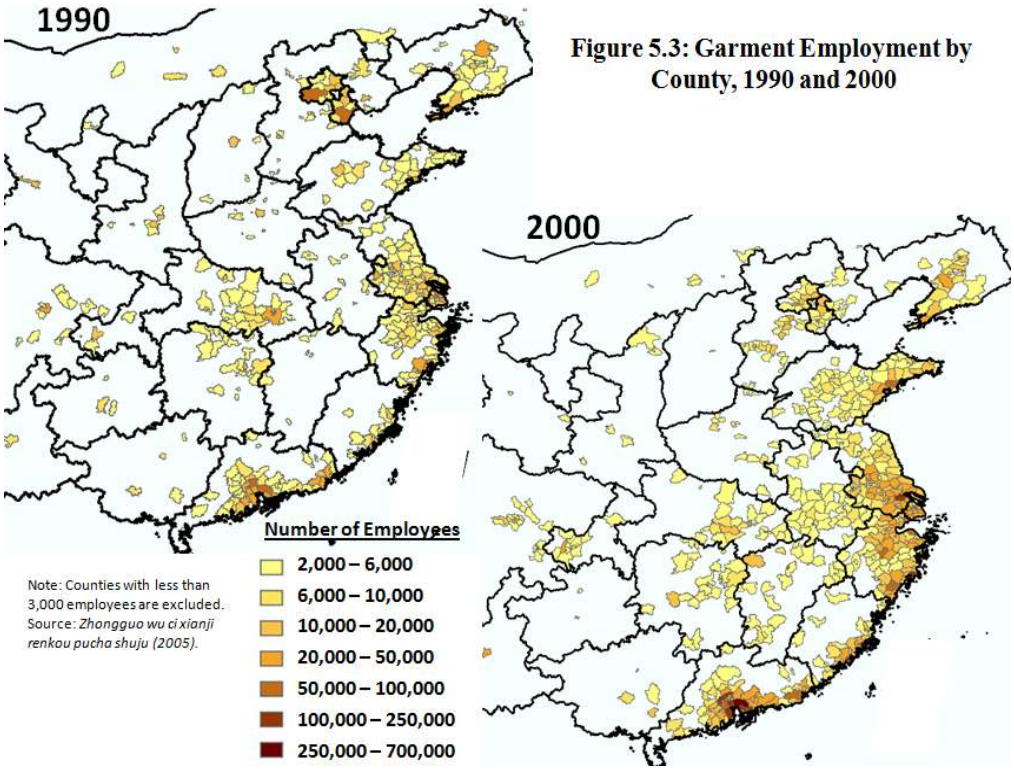
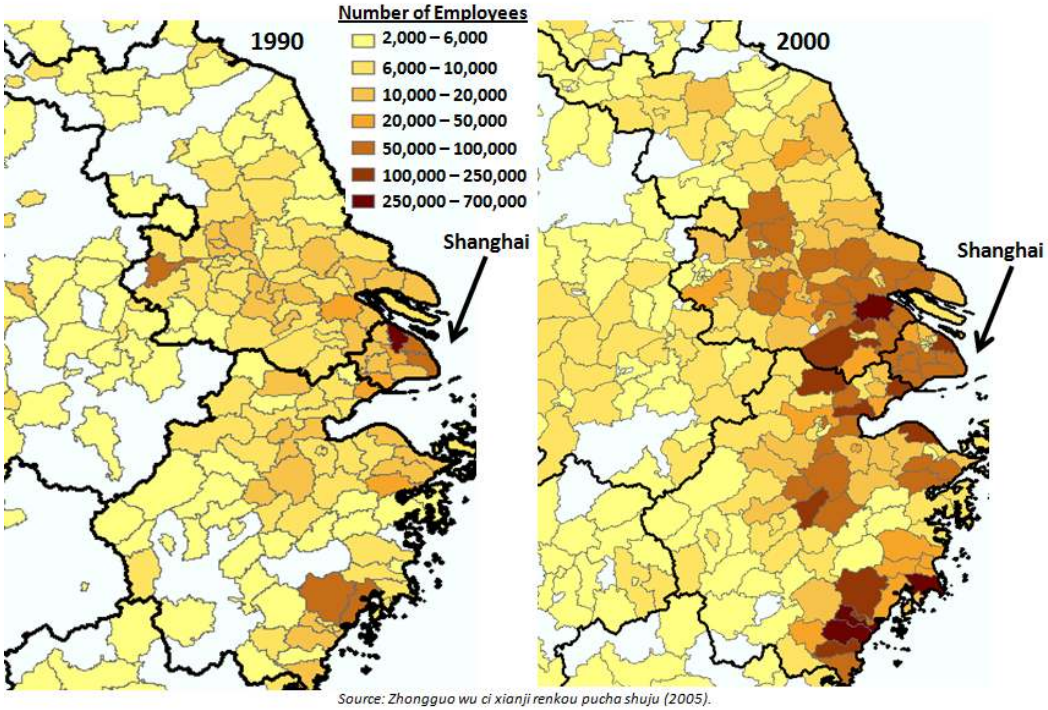


Figure 5.3: Garment Employment by County, 1990 and 2000

Although some employment gains were achieved in these inland regions, garments became overwhelmingly concentrated in the growth pole regions of the Yangtze River and Pearl River Delta surrounding Shanghai and Guangzhou, respectively. County and city district level data reveal the dimensions of the change. In Figures 5.4 and 5.5, which depict the shift over the 1990s in the Shanghai and Guangzhou regions, the darker colors on the map represent the more highly concentrated areas of garment workers. However, even these maps do not do full justice to the levels of concentration. If we examine a handful of counties and city districts, we can get a clearer picture of the employment concentration which occurred over the 1990s. This is obscured by the provincial production data used in Figure 5.1 above which cannot measure the agglomeration of production *within* provinces. Table 5.1 below lists the number of workers employed in the major garment producing counties, cities and urban districts within the Pearl River Delta in 1990 and 2000. It is not simply that the aggregate garment employment rose from 344,000 to 1.85 million, which accounts for nearly half of the national increase in garment employment over this decade, but this small handful of counties and districts (of about 2,800 counties) accounted for nearly 25% of China's total garment employment by 2000.

Figure 5.4: Garments Employment in the Yangtze River Delta Region, 1990 and 2000



Source: Zhongguo wu ci xianji renkou pucha shuju (2005).

Figure 5.5: Garment Employment in the Pearl River Delta Region, 1990 and 2000

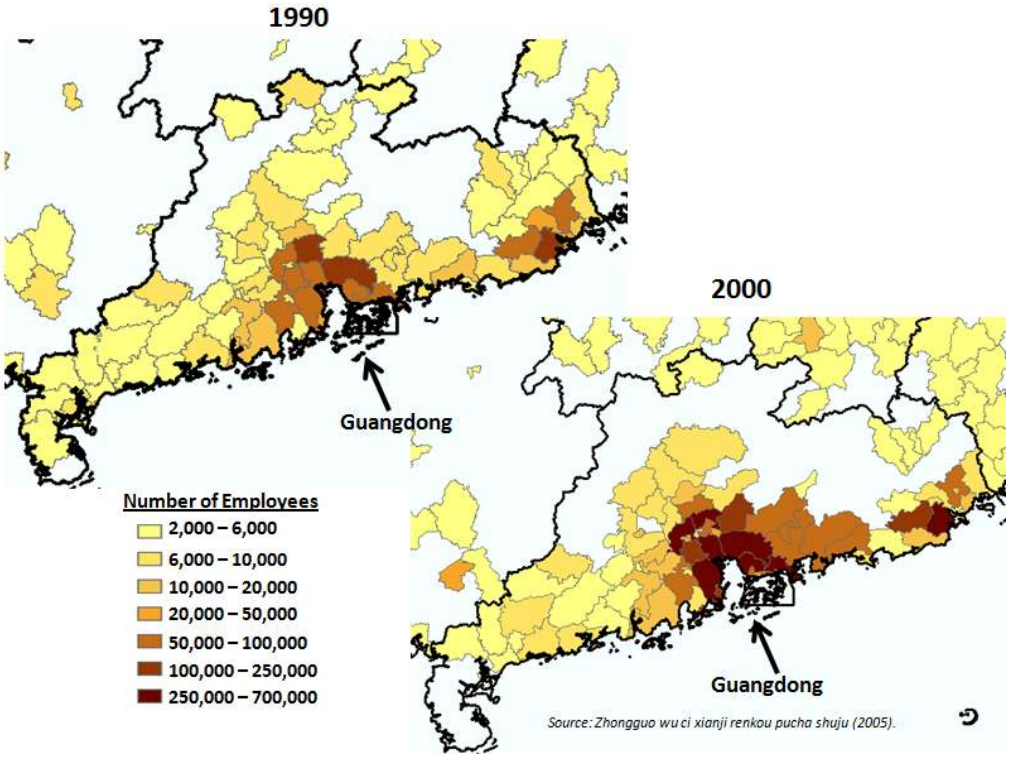


Table 5.1: Garment Employment in Counties and Urban District of the Pearl River Delta, 1990 and 2000

County/District	2000	County/District	1990
Dongguan Shi	681,170	Dongguan Shi	74,764
Jinjiang Shi	244,240	Jinjiang Xian	38,189
Zhongshan Shi	198,730	Zhongshan Shi	36,131
Bao'an Qu	144,530	Bao'an Xian	33,991
Panyu Qu	137,490	Panyu Xian	33,778
Longgang Qu	134,580	Guangzhou Shi	54,477
Nanhai Shi	131,820	Shenzhen Shi	38,936
Baiyun Qu	116,810	***	***
Shunde Shi	62,900	Shunde Xian	33,781
Total	**1,852,270**	**TOTAL**	**344,047**
Percent of National Garment Employment	**24.8%**	**Percent of National Garment Employment**	**8.4%**

Source*: Zhongguo wu ci xianji renkou pucha shuju (2005).*

*** Because of the change in the definitions of cities and counties over the decade, some of the names have changed (such as from 'xian' or rural county to 'shi,' urban county), as well as some cities are renamed according to urban districts.

The pattern of labor migration over the 1990s mirrors the trend in the garment sector, a sector which not only is emblematic of the rise of migrant labor in China, but

has also contributed more than other industries to stimulate migration. It is well-known that interregional labor markets began to be formed over the 1990s. According to census data, the migrant population quadrupled from around 34 million in 1990 to 144 million by 2000.[472] However, even in 2000, around 65 million of these migrants (45%) were employed within the same county where they were also officially registered through China's *hukou* or household registration system. For instance, these 'intra-county' migrants might be rural residents who work in the urban county seat or a villager working in a nearby urban township. Of course, since they live outside of their official place of household residence, this does not make them any less migrants; however, in terms of the influence of global production on *national* trends, this sort of local migrant differs from those who migrate outside of their county (intra-province) or who migrate outside of their provinces (inter-province) to seek employment. These long-distance migrants totaled 79 million workers in 2000, or nearly 12% of China's total workforce, which includes agricultural workers.

Not unlike the trends we saw in the garment sector, the geographic patterns are extremely concentrated, giving pause to the notion that there are 'national' labor markets. Since the 1990 census only differentiates the inter-province from the intra-province migrants, I compare the geographic trends among only the most long-distance migrants who sought employment by travelling outside of their home provinces. Clearly, interprovincial migration has been overwhelmingly concentrated in only a small handful of coastal cities (Figure 5.6). In fact, despite a quadrupling of inter-provincial migration from 11 million to 42.4 million between 1990 and 2000, most areas of inland China have been completely *untouched* by migrants from other provinces and there are even some areas of China which experienced a decline in interprovincial migrants since 1990! Examples of the later include the area around the major inland city of Wuhan and the inter-border region shared by Shandong, Henan, Jiangsu and Anhui provinces. Most striking of course is the concentration of interprovincial migrants in the Shanghai and Guangzhou regions, as well as in Xiamen and Fuzhou city areas in Fujian and the Beijing and Tianjin megapolis region.

[472] *Zhongguo wu ci xianji renkou pucha shuju* 2005.

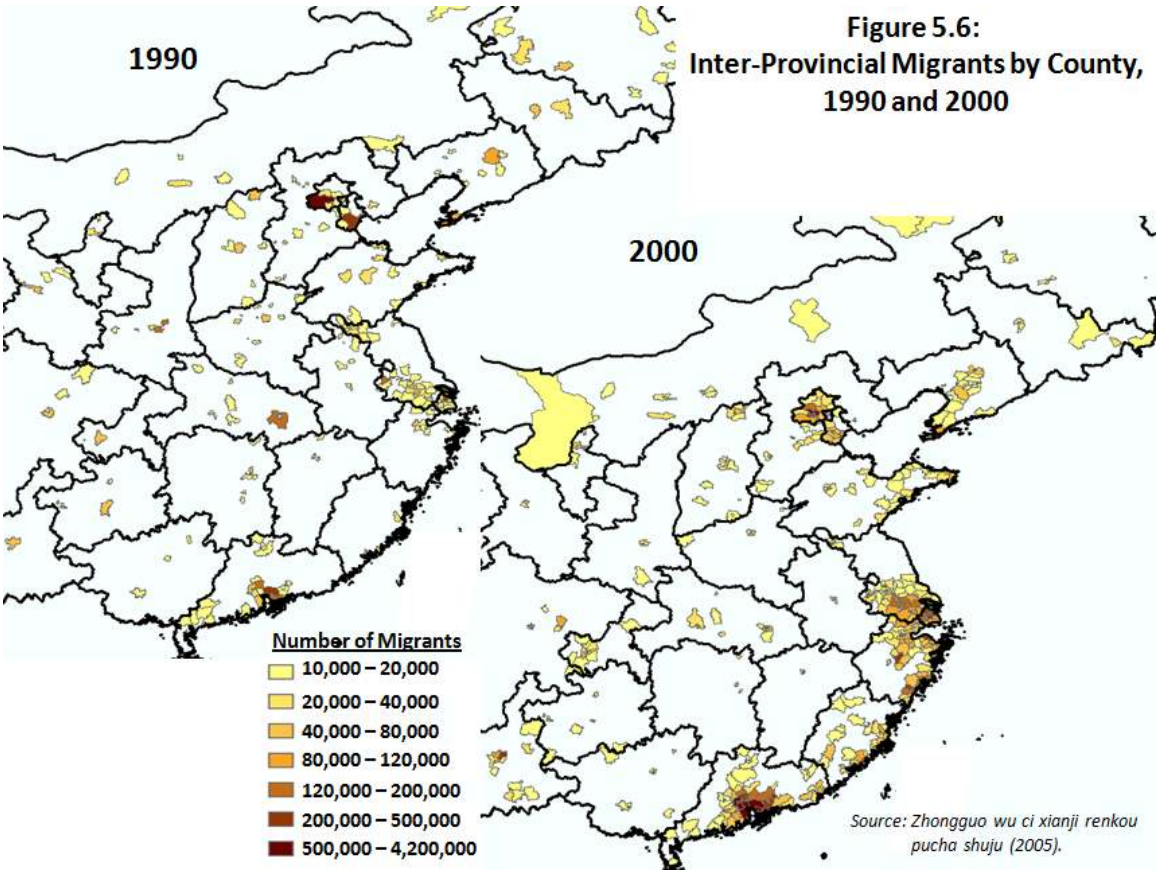


Figure 5.6: Inter-Provincial Migrants by County, 1990 and 2000

Although both the Shanghai and Beijing/Tianjin regions are areas where three provinces intersect (and hence inter-provincial migration may consist of rather short distances across provincial borders), the high concentration of migrants in Guangdong, the Wenzhou region of Zhejiang and along the Fujian coast indicate that this confounding factor is not very significant (Figures 5.7 and 5.8). In fact, a more detailed look at the Shanghai, Guangdong and Fujian regions shows the degree of concentration in a small handful of counties and city districts. For instance, in 1990 there were only four cities or counties in Guangdong with over 80,000 inter-provincial migrants (Guangzhou, Shenzhen, Dongguan and Baoan), all of them contiguous and clustered close to Hong Kong and China's most successful Special Economic Zone in Shenzhen. Added together in 1990, there were about 660,000 inter-provincial migrants residing and working in these four areas after more than a decade had passed since the initial opening of the Shenzhen SEZ in 1979; this accounted for about 6% of the total national inter-provincial migrant population at the time. After another decade had past, in 2000, this skyrocketed to slightly more than 10 million migrants in these same four cities and counties, which accounted for 24% of the national total.

Figure 5.7: Inter-Provincial Migrants by County in Yangtze River Delta, 1990 and 2000

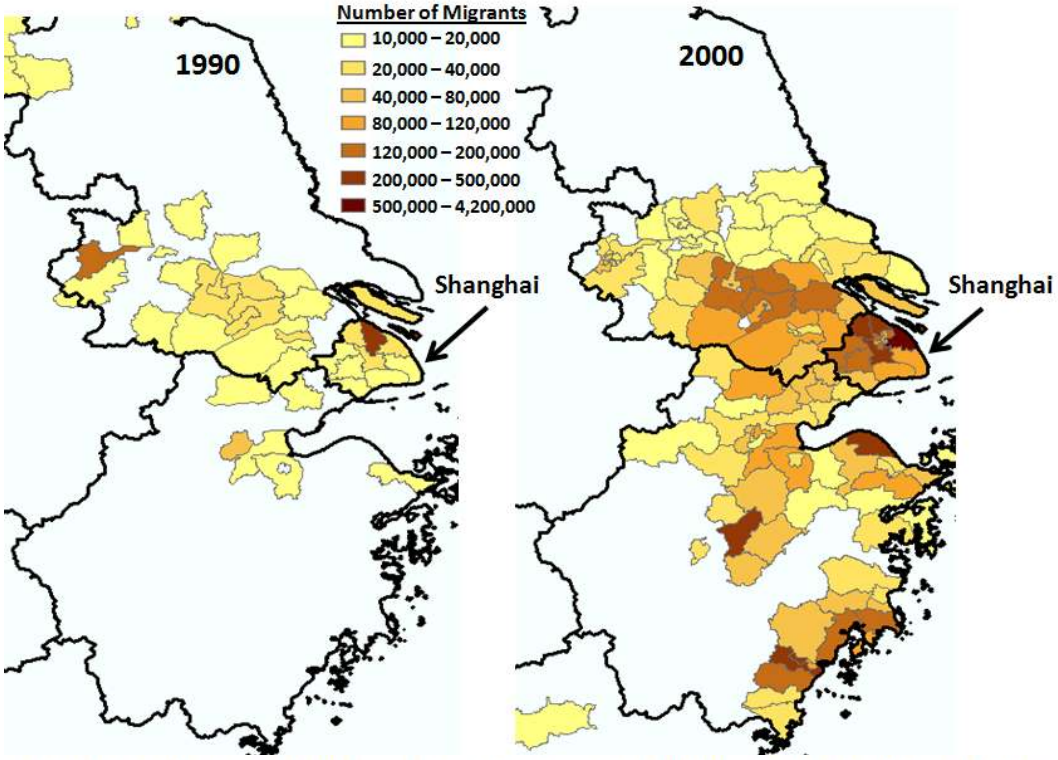
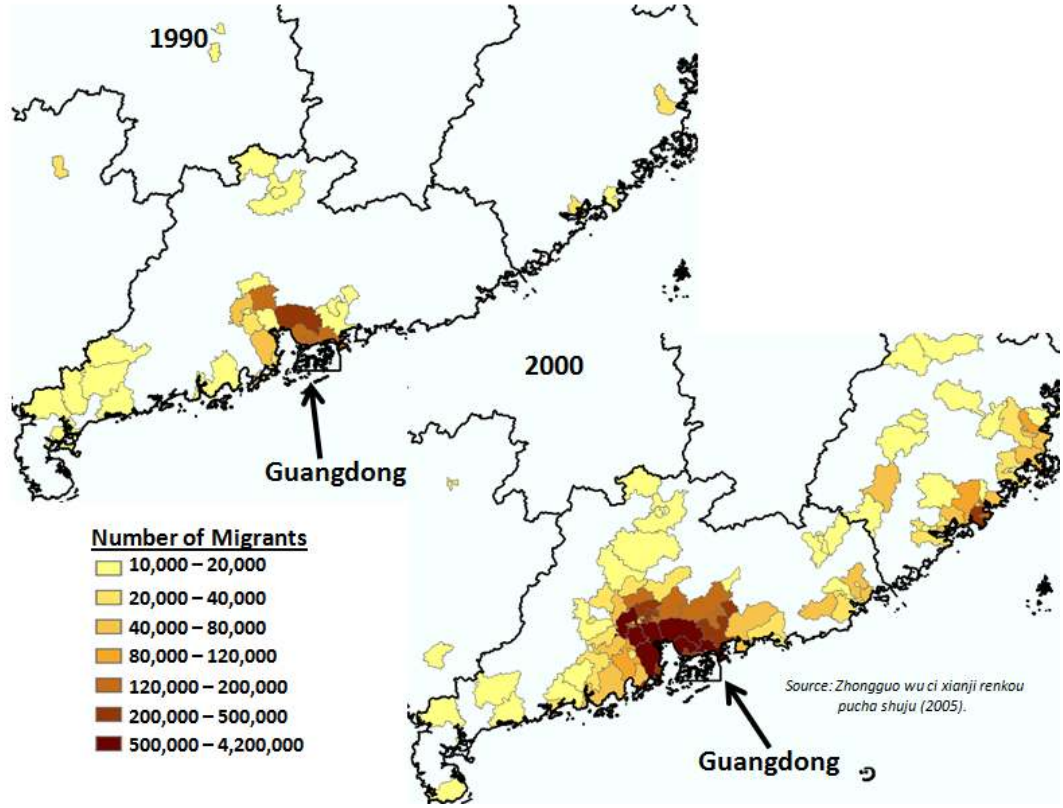


Figure 5.8: Inter-Provincial Migrants by County in Pearl River Delta, 1990 and 2000



Altogether, we find that the entry of global manufacturing occasioned divergent trends in the geography of production in the textiles and garment sectors. While it is well-known that the coastal regions industrialized more rapidly than the inland and became the favored areas for foreign investments and integrated most deeply into international trade, the data presented here add some crucial insights. They show that much of the dynamic is missed when trade and investment patterns are examined in the aggregate. This is because TNC strategies and global manufacturing have transformed as production has reintegrated across national borders through a complex mix of trade, equity and non-equity linkages. We have seen here that in order to appreciate the entry of foreign capital into China, we must consider this fragmentation of production by deconstructing production along the value chain. Here we find that even disaggregated categories like 'light industries,' (of which textiles and garments both belong and in which China has a clear comparative advantage) is of limited use. As we saw, in China the textile industry was hollowed out over the course of the 1990s in spite of the fact that its erstwhile 'customer' – the garment industry – was booming. This is because the chain of production was fragmented. The coastal regions integrated in certain segments of the production chain, like midstream dyeing and printing and downstream garments, but these nodes were overwhelmingly supplied by imported intermediary goods, like cloth and chemical fibers. Consequently, garment manufacturing offered few 'backward' linkages to the labor-intensive textile sector. Instead of rejuvenating the upstream, the textile industry became hollowed out, shedding 5 million workers, or half of its workforce between 1990 and 2000.

This disarticulation between textile and garments is not simply an issue of employment creation. Textiles and garments are different types of industries, both in general, but particularly in China. This is because state policy actively encouraged the dispersion of state investments in textiles to provide employment and basic goods to a wide population across as many counties as possible. By contrast, the export-orientation of garments meant that at this node, production capacity and employment became extremely concentrated. This was reflected in China's migration data where millions of migrant laborers concentrated in a tiny handful of counties. Thus, the disarticulation across the value chain has had broader implications than simply lost employment opportunities.

But, the shift from textiles to garments is significant beyond the numbers of migrants and the new geography of migration. This is because the composition of the textile and garment labor forces themselves is distinct. As the 'old' stalwart industry of the Mao-era, the textile labor force consisted of laborers from an older generation who had built up considerable skills because they had spent most of their working lives in the same state-owned factories. Thus, the workforce was older, skilled, local, familiar with each other and well compensated by Chinese standards.

The rising garment sector of the Deng-era was just the opposite. As we saw above, this labor force consisted largely of migrant workers who started out with little or no skills because they were younger and came from areas which had generally experienced less in the way of industrialization (or at least, the young migrants would have had little experience in their hometown factories). Compensation was far less in comparison to the employees of state-owned factories, though it was perhaps higher than

the alternatives available to this age and gender group. Thus, the two industries, despite being broadly labor intensive, were constituted by different workforces. If there was any commonality between the textile and garment labor force, it was that they were both overwhelmingly female. This is because Mao-era egalitarianism had raised the status of women and incorporated female labor into the national project of industrialization. Unlike in other countries, where the entry of TNCs may offer new opportunities to female labor, in China, they had already long been incorporated into the labor force by the time foreign firms entered.

As inland migration became more common, factory owners and managers in the growth pole regions in eastern China where migrants agglomerated were offered greater flexibility in hiring choices between locals and migrants. In general, the choice revolved around skill levels and technology. As a general rule in textiles, more advanced machinery does not necessarily guarantee higher quality goods, especially in certain processes like dyeing and finishing cloth, although greater automation can take more human error out of production, such as in man-made fiber manufacturing.[473] So, in regions in China with mixes of skilled and unskilled workers, owners and managers have a degree of choice in how to mix automation with skill levels (although this varied by production process along the chain). The cheapness of labor also makes a difference in some manufacturing processes because a skilled laborer can simultaneously oversee more machines and processes; by contrast, tasks can be broken down so that multiple, less skilled workers oversee the same series of processes. For instance, skills are critical in fiber selection and yarn repair in spinning, but only minimal skills are needed to oversee most weaving machines.[474] As mentioned, several processes in dyeing, shrinking and finishing need very skilled labor, especially color mixing and time-sensitive processes in dyeing. Skills in finishing are even more crucial because it is here that communication with garment firms is crucial, so much so that foreign firms generally use foreign supervisors.[475] Garment manufacturing is semi-skilled and more open to migrant laborers, though this partly depends on the cutting machines and sophistication of the stitching.

This meant that local labor had an advantage in job and skill acquisition. Since owners and managers were usually locals, they sourced their skilled labor through local networks, familial or otherwise.[476] In general, labor acquired through social networks was considered more disciplined and certainly were less likely to leave.[477] This meant that employers became more willing to invest time and energy in their skill development. Furthermore, depending on the location of the factory, some local workers would not need to reside in the company dormitories or eat in company canteens, which are common forms of accommodation in China. Even if the local skilled workers could not commute to work, they were usually segregated from unskilled workers because employers were obligated to offer better living arrangements, housed in dorms with fewer roommates, televisions and climate control.[478] Migrants were considered temporary

[473] Informant #53 (Shenzhen, Guangdong), #41 (Foshan, Guangdong)
[474] Informant #80, 81 (Dezhou, Shandong)
[475] Informant #92 (Shanghai), #97 (Tianjin).
[476] Informant #119 (Yuhang, Zhejiang).
[477] Informants #49 (Qingyuan, Guangdong), #103 (Hangzhou, Zhejiang).
[478] Informants #35, #37 (Foshan, Guangdong).

because they circulated more quickly through local labor markets seeking better opportunities. As such, their skill levels had a more built-in glass ceiling. And they were usually housed in more crowded dorms with fewer amenities.[479] The exceptions which prove the rule were non-local employers and their workers. For instance, in factories owned by non-natives in the Shaoxing region in Zhejiang and in the Linping region near Hangzhou, owners and managers said they sourced as many long-term laborers as possible through their hometowns, even as far away as Shaanxi province in western China.[480] By doing so, they achieved greater labor control and stability than would have been the case by hiring migrant laborers.

To summarize, the substantial entry of foreign firms, especially in lower-skilled industries and their intense geographical concentration, meant that labor was increasingly sourced on a national level in these regions, drawing in much unskilled labor. This opportunity to hire migrant labor and match them to different technology levels, broke up the local orientation of the labor force which had long been a feature of the Mao-era. With the larger size and admixture of migrant labor, the overall labor force became increasingly diversified. This greater flexibility and choice was good for owners and for the flexibility of the overall regional economy, but it created a work force that in many ways became highly fragmented, stratified and non-local. Skilled labor was at once more aligned with and better disciplined by owners, particularly since they were sourced through personal networks and likely came from the same native place and spoke a common linguistic dialect as the owners. Unskilled workers were not only divided from skilled workers but were internally divided since they likely came from many different provinces and native places, so that, given China's linguistic diversity, communication was severely hampered. Thus, the capacity to mix and match different combinations of technology and skill levels created a new shop floor environment in which workers of different age groups, in different living arrangements and with different linguistic backgrounds intermingled, but had no foundation for alliance. Obviously, this changes the context and opportunities for collective bargaining, but does not eliminate it. For instance, one factory owner with many migrant workers from Jiangxi province recalled how he was confronted by workers after they had returned from their hometowns over Chinese New Year, the one time of year that migrants return home. [481] Apparently, several workers from the same hometown had compared notes with other migrant worker acquaintances over the holidays and realized they had been underpaid. Upon their return and after discussions with other workers, they demanded wage increases which the owner said he was forced to accept. While this examples shows that collective action was still possible, it emerges from very different circumstances among the migrant population than was the case in the older state-owned firms or even in local labor markets. In this instance, collective action was still based on local connections, but because of the fragmentations of the workforce, it occurred within a very narrow window of opportunity during the three days of holiday over Chinese New Year.

[479] Informants #119 (Yuhang, Zhejiang), #32 (Foshan, Guangdong).
[480] Informants #108, #109 (Shaoxing,Zhejiang), #9 (Yuhang, Zhejiang).
[481] Informant #112 (Shaoxing,Zhejiang).

Inequality in China: A Look along the Value Chain

China has transformed from one of the most egalitarian countries in the world to become a society where inequality has begun to rival that of Latin America and South Asia. There are many ways in which the issue of inequality has been studied in China. For instance, an early debate, mostly among sociologists, concerned the implications of China's marketization on social stratification, in particular income earnings. The Market Transition Theory, most fully formulated in the China field by Victor Nee in 1989, stated that as markets took root in China, the income 'returns' to those holding political power as a cadre would gradually decline, while incomes of households without political connections and those with greater 'human capital' (education) would rise with marketization.[482] This was debated and countered by a slew of sociologists over more than a decade who tested and retested the idea. [483] The most common counter-argument was that those in possession of political 'capital' were well-positioned to convert this into higher incomes for themselves, family and friends.

Given China's size, however, a more common approach to rising inequality was geographic in nature. Researchers considered rising inequality between rural and urban areas, as well as at different levels of geographic scope, such as between broad regions, between provinces or within provinces. In general, regional studies either examined the unevenness of policies between regions, such as the large literatures on China's coastal development strategy[484] or inequality in center-local fiscal contracting;[485] otherwise, they compared across regions according to a variety of structural or historical factors, including resource endowments, income levels, distance to or transportation linkages with urban centers, or Mao-era legacies of industrialization, such as the large literature comparing the Sunan and Wenzhou regions.[486]

These latter studies on geographic regions share in common a 'location' understanding of inequality. By this I mean that the causal sources of regional inequality are thought to reside *within* the regional unit, whatever the level of geographic aggregation (such as between villages, counties or provinces). For instance, resource endowments, industrial legacies, or policy advantages in taxation, openness to foreign

[482] This was originally formulated in Nee 1989 and then gradually altered over time, such as Nee 1991.

[483] For a sampling of the debate, see Nee 1989, 1991 and the special "Symposium on Market Transition" in the American Journal of Sociology vol. 101 (4), published in 1995.

[484] Many studies examine the impact of preferential open door policies on coastal provinces in terms of the location of foreign investment and origin of exports. For a sampling, see Wang and Hu 1999; Dermurger, et al., 2002; Tian 1999; Jian, et al. 1996; Chen and Fleischer 1996; Duncan and Tian 1999; Wei 2000, 2004, Wu 2005, Yang 1990, 1997, Demurger 2001.

[485] Studies of unequal center-provincial fiscal arrangements include Li 1998; Tsui 1991; Tian 1999; Wang and Hu 1999. Raiser 1998, Yang 1990, 1997 and Duncan and Tian 1999. There are many other studies on policy unevenness across regions, for perhaps the best treatment, see Wang and Hu 1999 and Fan 1995.

[486] This is a very large literature and much of the debate centers on the geographic level most salient to China's inequality. Again, Wang and Hu 1999 is a good start, although they completely set aside the issue of intra-provincial and intra-provincial rural-urban inequality. Wei 2000 also covers many of these issues. For intra-provincial inequality, see Tsui, 1993, Lyons 1998 (Fujian); Wei 2000; Wei and Kim 2002 (Jiangsu), Fan 1995 (5 provinces); Weng, 2002 (Guangdong); Yang 1997; Peng, 1999; and Long and Ng 2001. See Peng 1999 on the importance of rural-urban linkages. There are large literatures which focus on only Sunan or Wenzhou alone, but for the most careful explicit comparisons of the two, see Whiting 2001, Zhang 2008. Also, see Bramall 2007 for the most thorough discussion and detailed analysis of the importance of the Maoist industrial legacy in rural industrialization. His book looks well beyond the Sunan-Wenzhou distinction.

investments or otherwise, are all attributes of the geographic unit. Each unit is thus perceived as being a relatively 'self-contained' entity which can be easily compared with the next one on different attributes or variables, and thus easily manipulated for statistical analysis.

What has not been considered very much, however, is how different regions are linked together either with other regions within China, or with the international economy. Although my findings are only preliminary, in the remainder of this chapter, I seek to show one way by which we can appreciate how *economic linkages* between regions and with the international economy have profoundly contributed to the rise of inequality in China. In other words, inequality in China (and elsewhere potentially) may be less about internal attributes of the different regions, than about the nature of and changes in the linkages by which different regions are connected together. The causal forces are not attributes of regions, but the linkages between them.[487]

I do this through the same approach applied in previous chapters: by looking at nodes along the cotton, wool and silk value chains. Despite the fact that the three agro-industries are broadly similar and can be found in both inland and coastal regions, the fate and fortunes of farmers, workers and firms in the three chains differed quite dramatically due to the nature of the linkages which bound them together along the value chain. In other words, changes in income or profits are best explained through shifts in how nodes are regulated and become interlinked, regardless of the geographic location of the producer groups in that node or broad differences in policy or even local leaders. The silk chain's 'one-way' integration into global export markets, the wool chain's division between raw fiber and industry in the inland and coastal regions and the decline of the state commercial system along the cotton chains created very distinct patterns of income, employment, and profits. Below, I examine these changing fortunes in the wool, silk and cotton sectors and illustrate how they offer new insights on the issue of regional inequality.

Wool

In the past chapters, we saw how the linkages of the domestic wool economy between inland sheep and goat herding and the inland and coastal wool industry were transformed. While this geographic division was initiated through China's experience with colonialism, it was partially (if incompletely) reversed by Mao-era industrial policy which sought an egalitarian regional distribution of state funds as well as more efficient utilization of natural resources by setting up factories in the inland regions and closer to their sources of raw materials. During the reform era, gradual liberalization in the wool and mutton nexus led to a decline in the state commercial system which had stitched the national agro-industrial wool economy together, but failed to instigate a re-integration of the inland and coastal regions through market exchange. Instead, the coastal-inland divide in the wool sector deepened substantially. For instance, we saw how the different pricing systems of the raw wool and mutton co-commodities led to the rapid slaughtering of sheep in the inland regions over the 1980s while the coastal industrial processors more

[487] One of the few literatures which does discuss linkages is the issue of overseas Chinese entrepreneurs and the influx of capital from overseas communities which concentrated in certain regions of China.

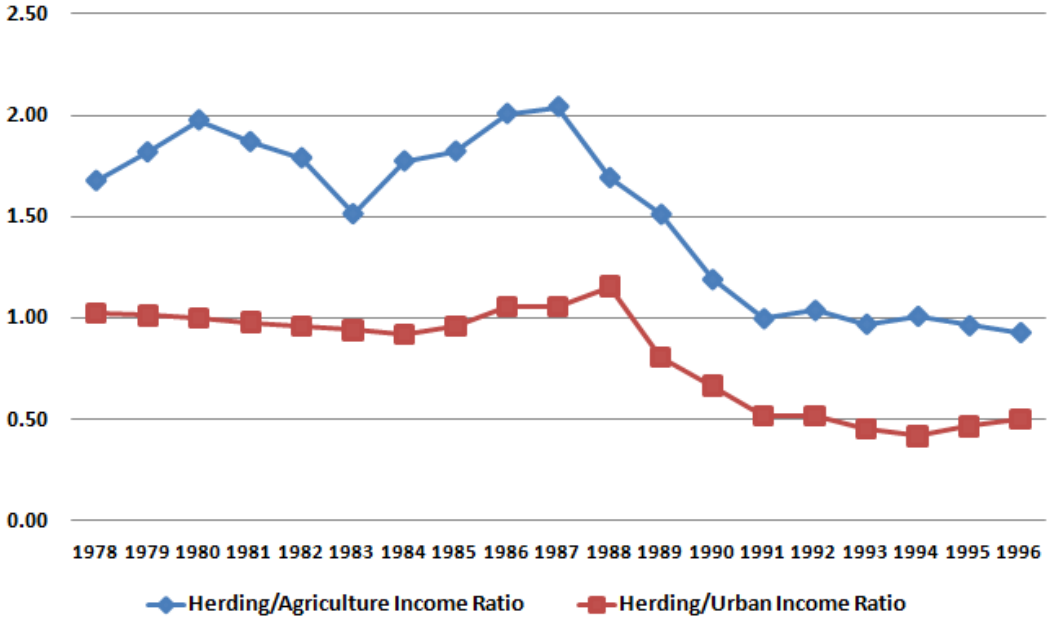
than doubled their industrial capacity during the domestic 'wool craze.' This division between inland herding and coastal industry led Beijing to grant more wool import quotas to coastal factories to source raw wool from international markets; Beijing also imposed the 'Three Selfs' policy on inland provinces by banning wool imports to inland regions in order to force them to integrate their agro-industrial wool economies by 'self raising, self selling and self processing' wool. How did this 'delinking' affect herders, industry and workers in inland and coastal regions both before and after the commodity wars?

In the case of inland herders, data are limited at the national and provincial levels, but if we examine particular counties where sheep and goat herding is extensive, the general trends are clear and they are consistent across different herding regions that are separated by hundreds and even thousands of kilometers, indicating that the trends in these nodes were national in scope. Take for instance the prefectural region of Yikezhao in Inner Mongolia, which is one of the main regions of sheep herding in China.[488] Before the state increased the price of wool (and contemporaneous with the much higher free market price rise in mutton), about 10-11% of the population (*including* the urban population) was classified as "herding" (*mumin*), which according to China's statistical system meant that more than 50% of their income derived from animal husbandry. After the state prices rose, the share of herding households climbed to 21-22% of the population, which is a substantial proportion given how little labor is used in herding compared to agriculture.[489]

More importantly, before 1986-7 herders were consistently making between 50% and 100% *more* in income than agricultural families in the region (see Figure 5.9). This does not mean that their overall standard of living was twice that of crop farmers. For one, herding households are less self-sufficient, so they must use more of their cash income on market purchases of non-animal foods or other necessities compared to crop farmers who are generally more self-sufficient.[490] Furthermore, social services, such as education and healthcare, are less developed in the more remote and sparsely populated pastoral lands, compared to agricultural lands. Thus, standard of living should be considered separately from incomes.

[488] See Longworth and Williamson 1993.
[489] *Yikezhao meng huihuang de wushi nian 1947-1996*: 97. Of course, it is hard to know how much this jump was due to the state price increases which meant that the proportion of income derived from husbandry would increase overnight, and how much was due to the heightened attraction of raising animals which the price hikes induced.
[490] Longworth and Williamson 1993: 101.

Figure 5.9: Herding, Agriculture and Urban Income Ratios: Yikezhao Prefecture, Inner Mongolia, 1978-1996



Source: *Yikezhao meng huihuang de wushi nian 1947-1996*: 184.

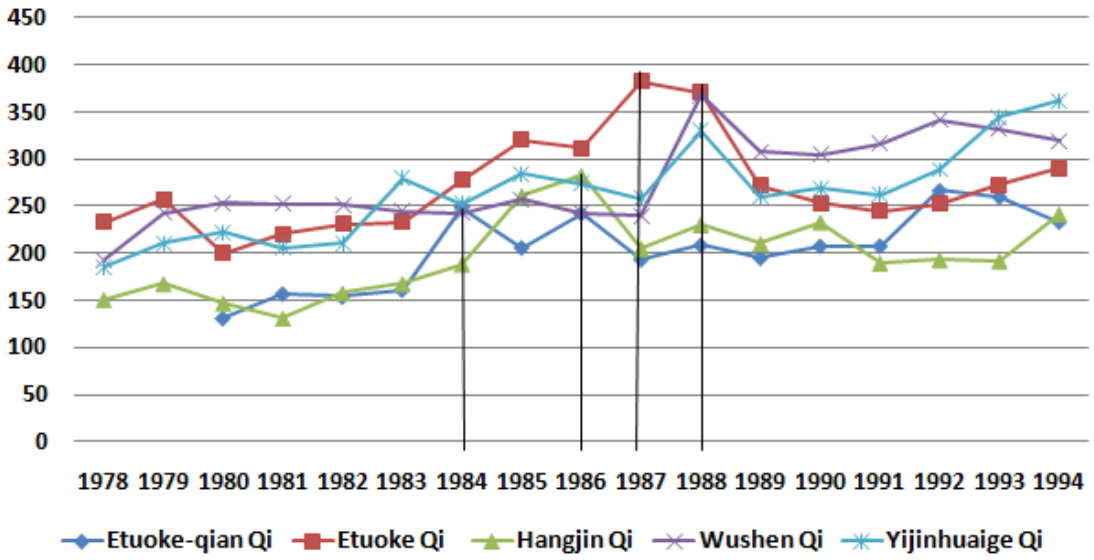
Nevertheless, in the overall region of Yikezhao, which consists of one urban city (*Dongsheng*) and 7 banners (*qi*), which is the name given to the administrative equivalent of a Chinese 'county' in minority regions, the incomes of herdering households were consistently well above crop farming families and even more surprising, they were consistently identical to urban dwellers (Figure 5.9). It was not until 1987 that herding households experienced a dramatic decline in their incomes relative to both farming households and urban dwellers. By 1991, they were making the equivalent of crop farmers and only about half of the income of urban dwellers. Although it is well-known that the 1989 recession halted the rise of real incomes throughout China, by comparing the *ratio* of herder incomes with farmers and urban dwellers in neighboring counties, we can see that herders alone suffered a sharp relative change in fortune, something which did not reverse after the end of the recession in 1992 (Figure 5.9). The data show that something occurred in which the terms of trade were permanently reversed for herders, but not for farmers or urbanites all living in the same region.

As we saw in prior chapters, the mid- to late 1980s was a turning point in wool commerce. In 1985, raw wool commerce was decentralized to provinces and it was between 1985 and 1988 that coastal firms were permitted more import quotas to source wool on international markets. The share of wool imports rose from around 35% of domestic production to 80%. With the 1989 recession, both the domestic and international wool markets completely collapsed, however inland wool and the coastal industry remained delinked through the 1990s, as coastal firms increased their imports to 130% of domestic fiber production after 1992. China's domestic wool market became increasingly *less* integrated with the expanding liberalization of raw wool, and inland

herders suffered a severe relative decline in income, from which they did not recover even after China's economic boom resumed in 1992.

In fact, these declining incomes were not simply 'relative' to other sectors of the local economy in Yikezhao. In absolute terms as well, the real incomes of herders declined for half a decade or more, and sometimes took almost a decade to return to their pre-recession highs – a lost decade for herding families (Figure 5.10). The ratio data above do not tell us whether it was the rising fortunes of farmers and urbanites or the misfortunes of herders which drove the falling ratios. However, Figure 5.10 clearly shows that herding families were increasingly damaged by the delinking of domestic agriculture and the deterioration of state commerce which had historically integrated east and west. This illustrates that the commonly accepted notion that mandatory state commercial quotas and state fixed prices were invariably a 'hidden taxation' and 'heavy burden' on agriculture cultivators (as the idea of 'price scissors' suggests) is belied in the case of herders who did substantially better under a regime of state commercial monopoly.

Figure 5.10: Yikezhao Pastoral Counties: Real Incomes of Herding Households, 1978-1994 (RMB/year)



Source: *Yikezhao meng huihuang de wushi nian 1947-1996*: 348, 379, 417, 455, 493.

Although these five counties are only a small sample of the 266 counties that were classified as pastoral or semi-pastoral between 1985 and 1990, it is interesting to note that herders' incomes peaked in different years between 1984 and 1988 (the vertical lines in Figure 5.10 indicate the peak incomes in different counties).[491] This is peculiar because one would expect that herder incomes would consistently *increase* during the period of the wool commodity wars (a seller's market) which waged between 1985 and 1989 as

[491] Longworth and Williamson 1993: 34-5.

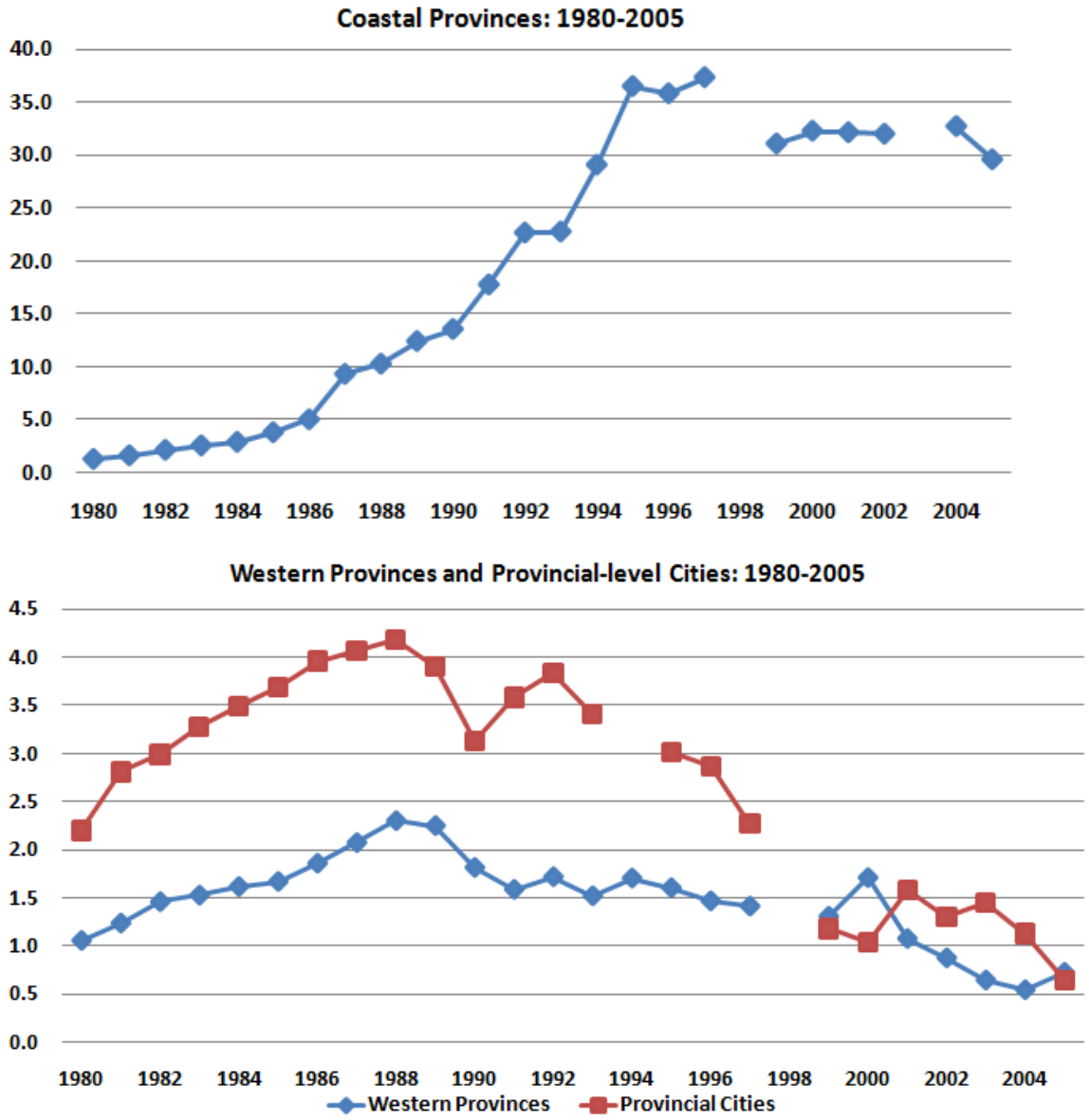
local governments and factories feverishly vied for limited wool supplies. However, the 'market' forces of the wars only weakly and irregularly reached back along the chain to the herders. Below, we will see that this counter-intuitive finding is true of cotton growing as well, but not of silk; as such, it illustrates the commodity specific nature of regulation in China and its influence on income.

Finally, all of the points made thus far are not unique to the region of Yikezhao in Inner Mongolia. Nearly identical income trends can be found in other major sheep and goat herding regions of China including in Balinyou, Wongniute, Aohan, and Alukeerqin counties (or banners) in the Chifeng region of Inner Mongolia, as well as in the much more distant pastoral regions of Sunan and Dunhuang counties in Gansu province and in Cabucaer and Hebukesaier counties in the extreme northwest of China's Xinjiang province, bordering with Kazakhistan.[492] Even more surprising, in six of these eight counties, real rural incomes reached a peak between 1983 and 1985 and then remained static or declined during the wool wars! Clearly, in these counties at least, it was likely the traders (government or otherwise) were reaping the benefits of the wool wars, not the herders.

In industry, a similar 'split' occurred between the inland and coastal regions, although internal to the coastal regions, there was also a shift of production out of the major cities. For instance, throughout the 1980s, wool yarn spinning grew rapidly across all regions of China: the inland mills, coastal mills and even in the three provincial-level cities of Shanghai, Beijing and Tianjin (Figure 5.11). The regional fault lines did not appear until the beginning of China's major recession in 1989. In both the major inland raw wool producing provinces as well as in the three major cities, industrial wool processing declined in absolute terms. While these areas experienced a steady de-industrialization, the coastal mills outside of the major cities enjoyed a boom in production. Even more surprising, they grew substantially even during China's major national recession, which implies that during the downturn, they expanded by taking market share from the inland mills while relying on imported raw wool. Furthermore, during the boom of the 1990s and even in the post-Multifiber Agreement period (starting from 1999), the industrial foundation of the inland provinces continued to decline.

[492] See Longworth and Williamson 1993: 102-03, 132, 161.

Figure 5.11: Wool Yarn Production: Coastal, Inland and Large Urban Regions 1980-2005 (10,000 tons)



Sources: *Zhongguo fangzhi gongye nianjian* (various years), *Zhongguo fangzhi gongye fazhan baogao* (various years).
Eastern provinces include: Hebei, Jiangsu, Zhejiang and Shandong, the primary centers of the wool industry along the coast. Provincial-level cities include: Beijing, Tianjin and Shanghai. Inland provinces include: Inner Mongolia, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang.

In wool, it appears that the *timing* of the change in the fortunes of herders and industry appears to be a function of the economic linkages between different nodes along the chain, different regions in China and the international economy. The importance of linkages binding regions together can be better appreciated when we consider that the economies of most regions in China, particularly at the county or sub-county levels, lack diversification. While in the aggregate, the wool industry cannot be considered a pillar

industry of inland provinces, at least compared to the economic importance of raw material extraction, for many cities in western China it is a very important industrial employer and especially foreign exchange earner. Herding is also a crucial economic activity in the pastoral regions of China. As is true for silk and cotton, local economies with less diversification are much more likely to be affected by the structure of interregional linkages. In our next commodity, our focus shifts to the ties between China's local silk economies and global trade.

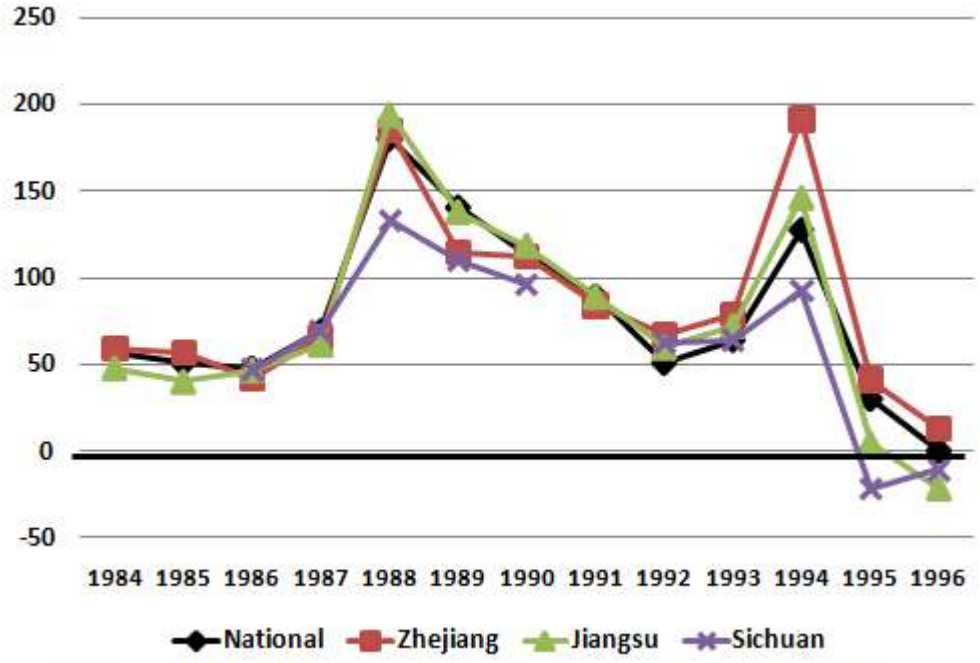
Silk

In most ways, silk is just the opposite of wool. In order to balance price stability in global silks with maximizing foreign exchange earnings, China has traditionally organized silk by unifying the entire chain under a single, monopoly corporation. Unlike the deep geographic fissures in wool production and processing, cocoon cultivation and the silk processing industry became highly clustered during the reform era, often in rural regions of inland China as well as in eastern China surrounding Shanghai. The combination of China's regulation of silk, its leading position in the global industry and the clustering of the agro-industry meant that local economies were deeply linked into the global market and global price incentives were communicated backward along the length of the value chain.

If my analysis from previous chapters is correct, then we should expect to find that the economic returns to cocoon cultivation and the patterns of industrial development would be highly attuned to the fluctuations of the global economy, rather than to China's domestic economy. Furthermore, from the clustering of the industry, we should not find much evidence of the type of deep fractures which split China's inland and coastal regions in wool cultivation and wool industry processing. Finally, in 1994 we should find sudden changes across the agro-industry as the US and EU erected trade barriers against Chinese silk products.

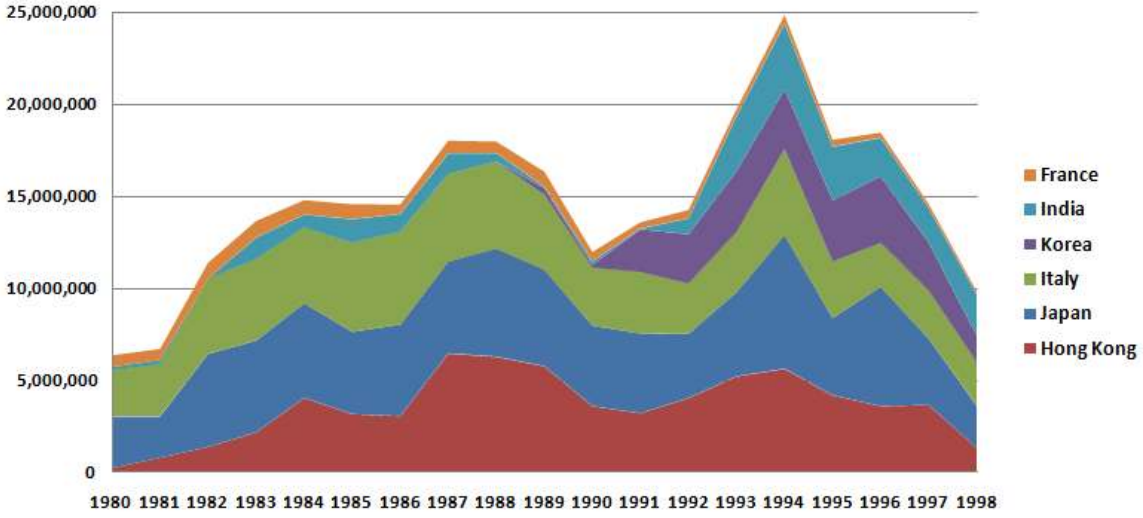
Both the local-global structure of the industry and its domestic clustering are easily visible in agricultural cocoon cultivation and the industrial nodes alike. Over the 1980s and 1990s, the real profits of cocoon farmers reached a peak in 1988-89 and again in 1994 (Figure 5.12). This pattern of fluctuation mirrors perfectly the peaks and troths of the global trade in silk over this period (Figure 5.13). Sharp rises in global demand were matched with very high real profits for Chinese cocoon farmers. What is more, even during China's severe recessionary period between 1989 and 1992, when we saw wool herder incomes plummet and the inland provinces suffer from de-industrialization in wool textiles, cocoon cultivators continued to earn very high profits per 50 kilograms of raw cocoons. Finally, despite the deep integration of Chinese silk into global markets, cocoon cultivators, regardless of their geographic location in inland or coastal China, enjoyed the same pattern of profitability. This is best illustrated by the fact that in the inland provinces of Sichuan, silkworm cultivators earned as much as their coastal province counterparts. Geography was irrelevant for silk .

Figure 5.12: Real Profits per 50kg of Silkworm Cocoons (*Yuan*)



Source: *Jianguo yilai quanguo zhuyao nong chanpin chengben shouyi ziliao huibian 1953-1997*

Figure 5.13: Imports of Chinese Raw Silk by Country 1980-1998 (kg)

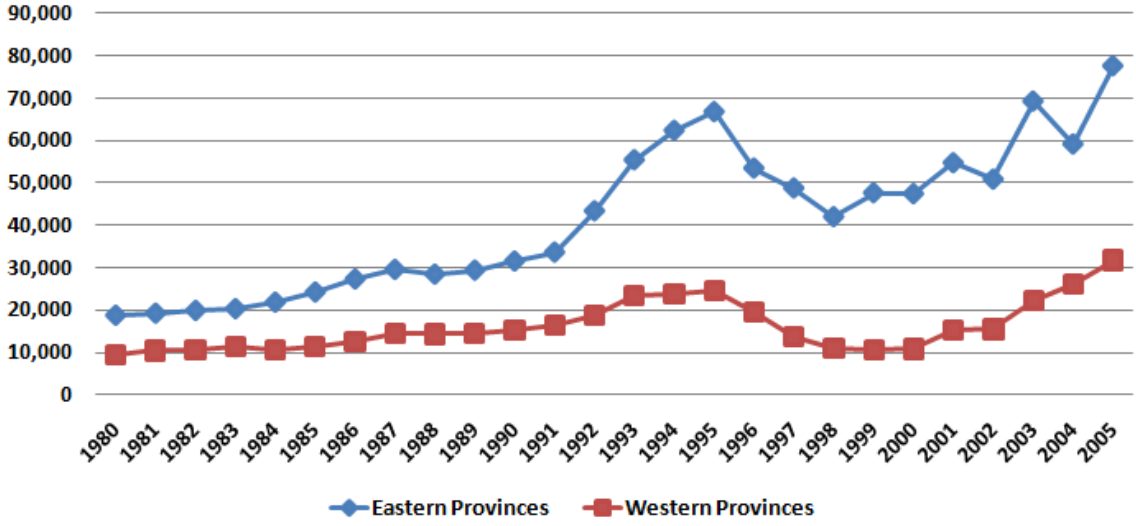


Source: United Nations Commodity Trade Statistics Database

Similarly, in contrast to the de-industrialization of China's inland wool industry which became unrelenting starting from the 1989 recession, neither coastal nor inland industrial silk processors were affected by China's domestic recession (Figure 5.14). Again this indicates the local-global linkages of the silk agro-industry and the regional

clustering of cocoon cultivation with industrial processing. At least in the silk agro-industry chain, the presumed 'advantages' of coastal China are simply not evident.

Figure 5.14: Raw Silk Production in Coastal and Inland 1980-2005, (tons)



Sources: *Zhongguo fangzhi gongye nianjian* (various years), *Zhongguo fangzhi gongye fazhan baogao* (various years).
Eastern provinces include: Shanghai, Zhejiang, Jiangsu and Guangdong. Inland Provinces include: Sichuan, Chongqing and Guangxi.

This changed in 1994, the turning point in the Chinese silk industry. To recall from chapter 3, it was in 1994 that the US and EU violated the principles of the Multifiber Agreement by suddenly imposing tariffs and quotas on Chinese silk goods. Because of the integrated nature of the silk agro-industry, this reversal severely influenced all links along the chain. In no small manner, this was due to the suddenness of the erection of the tariff and quota walls, something that no one in the industry foresaw. Trade journals from this period of time indicate that this reversal in the long-standing free trade of silk came as a complete surprise to even the well-informed and business savvy Hong Kong silk industry and traders.[493] The domestic Chinese agro-industry had little time to adjust and it unraveled at an astonishing speed.

Over the half decade after the peak years of 1994-95, the agro-industry was cut to half its size (Table 5.2). Despite the many years of effort and investment required to bring mulberry trees to maturity, slightly over half of the plantation area was torn up and converted to other usages, destroying much agricultural wealth in the process. Profits to silkworm farmers also plummeted (Figure 5.12 above). With declining demand and the tearing up of the plantations, cocoon cultivation and trade was reduced by about 40%. Although somewhat less of China's silk machinery was scraped outright (15-30%), we do not have figures on how much machinery was mothballed, but never disposed of. Finally, the most dramatic setback was suffered by the industrial silk workers, mostly

[493] See any issue of Textile Asia, a Hong Kong based trade journal, from the January 1994 issue and after.

female. Given the extent of bankruptcies in silk, which were just then becoming more commonplace in China, no less than 1 million workers and employees lost their job, or about 61% of China's silk industry labor force (Table 5.2).

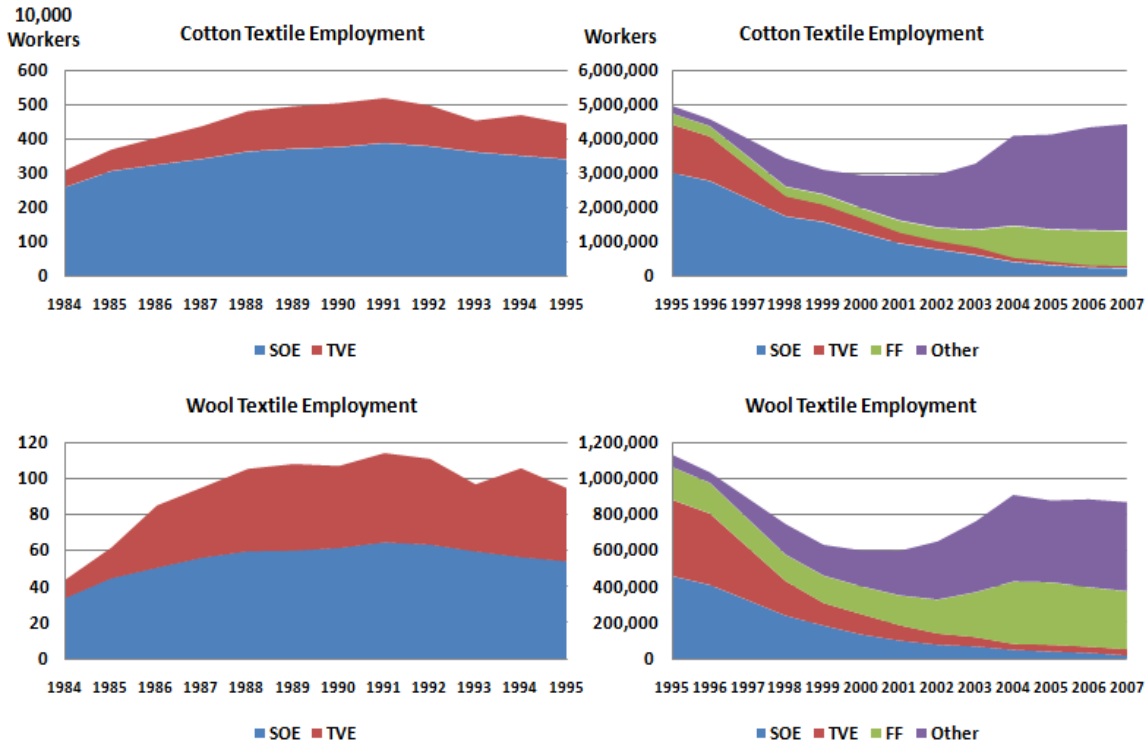
Table 5.2: Decline of China's Silk Sector, 1994-2000

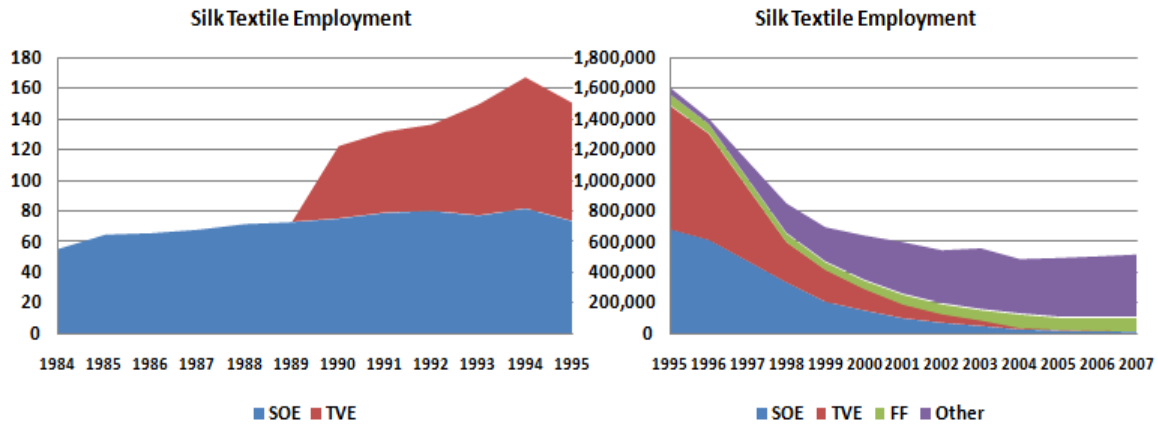
Mulberry Trees Plantation Area	-52.0%
Raw Cocoon Production	-39.9%
Raw Cocoon Purchasing	-41.1%
Machinery: Reeling	-27.5%
Machinery: Looms	-16.5%
Industrial Workforce	-60.7%

Zhongguo sichou nianjian 2000: 468, 471,472, 512, 514.

In fact, of the three sub-sectors only the silk industry failed to recover its prior employment levels during the period between 1999 and 2005, which marked the elimination of the Multifiber Agreement and the first period of global free trade in textiles and garment since at least the 1950s. While the wool and cotton industries added heavily to their workforces during this period of global liberalization, silk industry employment remained constant at its deflated, post-crisis size (Figure 5.15).

Figure 5.15: Employment Trends by Ownership in Cotton, Wool and Silk Sectors 1984-2007





Note: SOE is State-owned Enterprise, TVE is Township and Village Enterprise, FF is Foreign Firm and Other is a remainder category. This last category increased in share after 1998 because of the ownership transformation of SOEs and TVEs which were changed to a variety of different corporate ownership forms. These data derive from two different sources with slightly different classification systems in calculating the three sectors. Despite this difference, the total employment for SOEs and TVEs are quite similar indicating that they are measuring the same segments. The left hand figures are displayed in multiples of 10,000 workers, while the right hand figure is simply total workers.
Source: Left hand figures: *Zhongguo fangzhi gongye nianjian* (various years); Right hand figures: *Zhongguo shichang nianjian* (various years)

To a certain extent, the changing fortunes of sheep herders, workers and factories in the wool sector can be used to support a regional or location advantage approach to inequality since both inland herders and industry experienced an absolute and relative decline compared to coastal provinces. The one factor in wool which supports an economic linkages interpretation is the timing of change in the sector. Nonetheless, although the time line seems to match better with an economic linkage interpretation, the shift in fortunes from west to east in wool makes it hard to be sure that the economic linkages were determinative. By contrast, the silk agro-industry offers a clear illustration of how the structure and regulation of economic linkages determines the changing fortunes of agriculture and industry more than the location advantages enjoyed by coastal China. We see a similar if more complex pattern in the cotton sector.

Cotton

The cotton agro-industry offers a more challenging combination of trends, partly due to the different role of the state in cotton, and partly because China's third attempt at the liberalization of cotton markets created a more complex series of changes. The liberalization of cotton was occasioned by the entry of China into the WTO in 2001[494] and spurred on by the gradual phasing out of the MFA between 1999 and 2005. This liberalization of cotton starting from around 2000 illustrates once again the importance of the regulation of economic linkages in determining the fortunes of those along the chain.

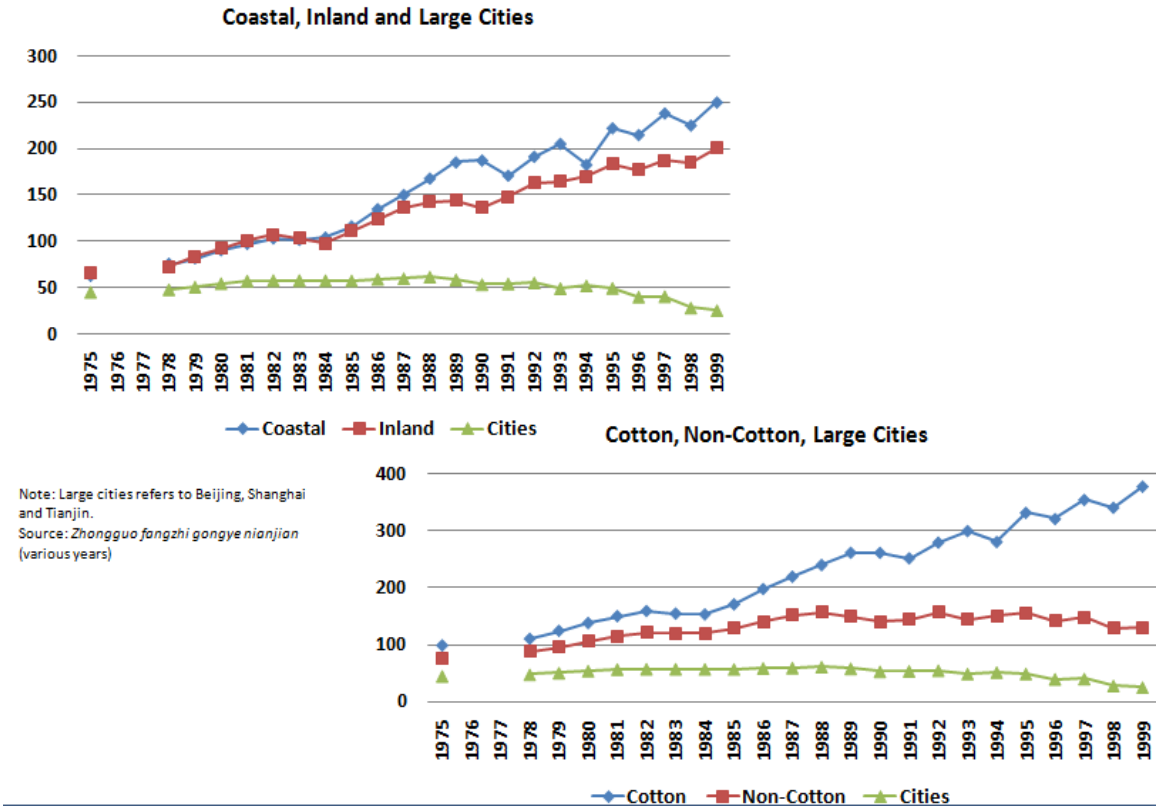
The cotton sector shares with silk a substantial degree of state control over the raw commodity. In silk, China's monopoly silk corporation controlled the chain from cocoon procurements to exports of final goods. Although the cotton chain is not monopolized in the same way, the raw fibers have been one of the most heavily regulated

[494] This is Bjorn Alpermann's argument (2006, 2010).

commodities in China, and one of the few for which free markets were never permitted except for the two experimental liberalizations in 1985 and 1992 (both of which were reversed). Furthermore, domestic growers of cotton and cocoons have been well protected from the influence of global commodity markets. In cotton, this is because foreign trade was never liberalized like other commodities and has remained under the monopoly control of a single trading corporation, Chinatex, which in cotton operates much the same as Mao-era state trading. Silk is no less protected, but for wholly different reasons: China's dominance in cocoon cultivation means that a natural barrier exists against the importation of the global commodity.

These state controls and protections are reflected in both the agricultural and industrial nodes in cotton. Continued control over the raw fibers means that their local cultivation offers local governments greater leverage over the commodity, something which is reflected in the growth of the local textile industry. As Figure 5.16 shows, when cotton yarn production is compared across coastal and inland provinces, there is little difference in the trend lines over time; however, when comparing cotton-growing and non-cotton growing provinces (which both contain inland and coastal provinces), the trend lines diverge quite dramatically. Thus, much like in silk, it is the cotton-cultivating provinces that have maintained the most vigorous cotton textile industries, regardless of their location in inland or coastal China. By contrast in wool, which was liberalized earlier and more thoroughly, the inland regions de-industrialized and the coastal provinces came to dominate. In silk and again in cotton, so long as the raw fibers remained under (local) state control and China remained delinked from global commodity markets, regions with local cultivation continued to have a thriving industry. Throughout the 1990s, cotton-growing provinces, both inland and coastal, continued to expand their production capacity and create employment. The provinces without cotton cultivation, which include China's major coastal economic powerhouses of Zhejiang, Fujian and Guangdong provinces, experienced no expansion in their cotton textile industries (Figure 5.16).

Figure 5.16: Comparison of Cotton Yarn Production in Coastal/Inland and Cotton/Non-Cotton Provinces, 1975-1999 (10,000 tons)



Note: Large cities refers to Beijing, Shanghai and Tianjin.
Source: *Zhongguo fangzhi gongye nianjian* (various years)

However, this changed as China prepared its industry for the phasing out of the MFA starting slowly in 1999 and building more rapidly each consecutive year through 2005. These included a wide range of policies and incentives that encouraged expansion and technological upgrading, such as subsidized interest-free loans, government grants and awards for upgrading.[495] Further, as part of China's WTO accession protocol, foreign trade in lint cotton, while not fully liberalized, was substantially taken out of the control of Chinatex's hands. On the one hand, the WTO required that nearly 900,000 metric tons of cotton be allowed to enter China tariff-free, and additional cotton at a graduated tariff schedule.[496] In addition, the import channels to enter the Chinese cotton market were liberalized as a certain percentage of cotton imports had to be tradable outside of Chinatex's wide network of firms.

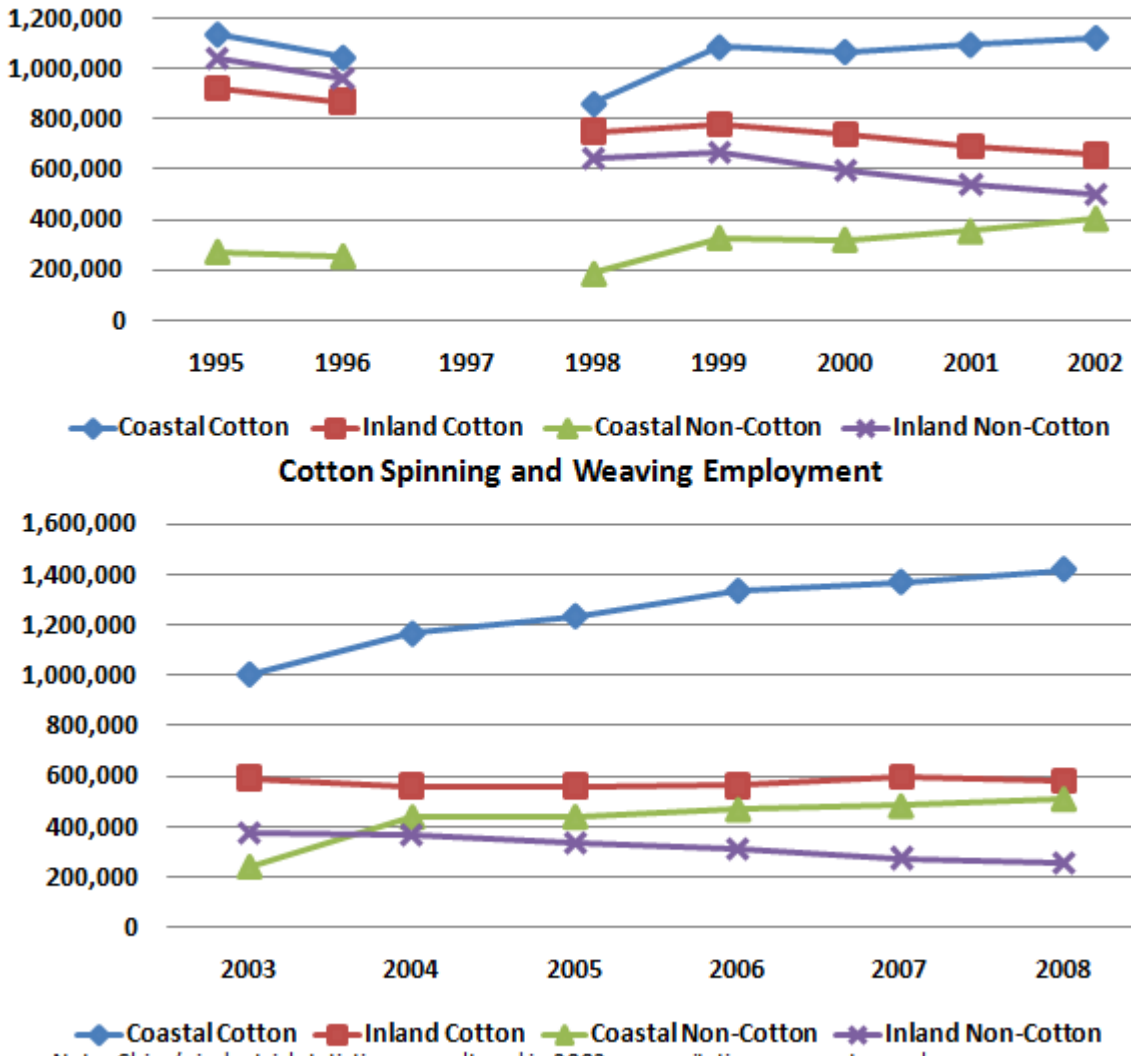
This new era of liberalization in both the domestic and foreign commerce of raw cotton influenced the downstream cotton textile industry in which production switched from being centered on the location of domestic cotton cultivation to one based on the inland-coastal divide. In other words, commercial liberalization over this period shifted the cotton industry from a situation similar to silk to a situation similar to wool. For

[495] Informants #78 (Dezhou, Shandong), #83 (Gaomi, Shandong).
[496] Informant #90 (Shanghai)

instance, in the spinning and weaving sectors, the nodes which absorbed by far the largest number of workers in cotton textiles, the late 1990s was a period of drastic cuts in employment and a high incidence of bankruptcy among firms nationwide. According to the only available annual data on a provincial level in this industrial node, between 1995 and 1998, 27.5% of the workforce, or about one million jobs, were eliminated (see Figure 5.17 for all data in this paragraph). However, it was the non-cotton growing provinces, both coastal and inland which suffered the largest cuts: coastal non-cotton provinces lost 31.5% of their workforce and inland provinces 38%.[497] By contrast, inland cotton-growing provinces surprisingly experienced the *least* severe attrition in their workforce with slightly less than 19% of jobs lost,[498] whereas coastal cotton-growing provinces, like Hebei, Shandong and Jiangsu shed jobs at a rate slightly less than the national average (24%).[499] It is interesting to note that arguments concerning the regional pattern of state industrial lay-offs are not wrong.[500] However, this evidence suggests that the pattern of lay-offs and bankruptcies was more nuanced and might benefit from more precise classifications than broad regional economies, like the northeast, lower Yangtze or upper Yangtze regions. Examined along the production chain, specific commodities and industrial sectors offer more precision and better leverage to observe the regional nature of lay-offs and bankruptcy.[501]

[497] These data are from *Zhongguo shichang nianjian* 1997, 2000. Again, these coastal provinces include some of the most economically dynamic provinces in China, including Zhejiang, Fujian and Guangdong provinces.
[498] *Zhongguo shichang nianjian* 1997, 2000.
[499] *Zhongguo shichang nianjian* 1997, 2000
[500] See Hurst 2002, 2009.
[501] It is important to specify this point. My claim is that the pattern of bankruptcies and lay-offs is best observed through a commodity and sectoral lens. However, the other claims made by Hurst, especially in terms of the ability of regional economies to reabsorb labor, may very well abide by a regional logic. In a word, the 'destructive' and 'creative' halves of economic restructuring are distinct processes, and analyzing them requires distinct approaches.

Figure 5.17: Changes in Cotton Textile Employment, 1995 – 2008



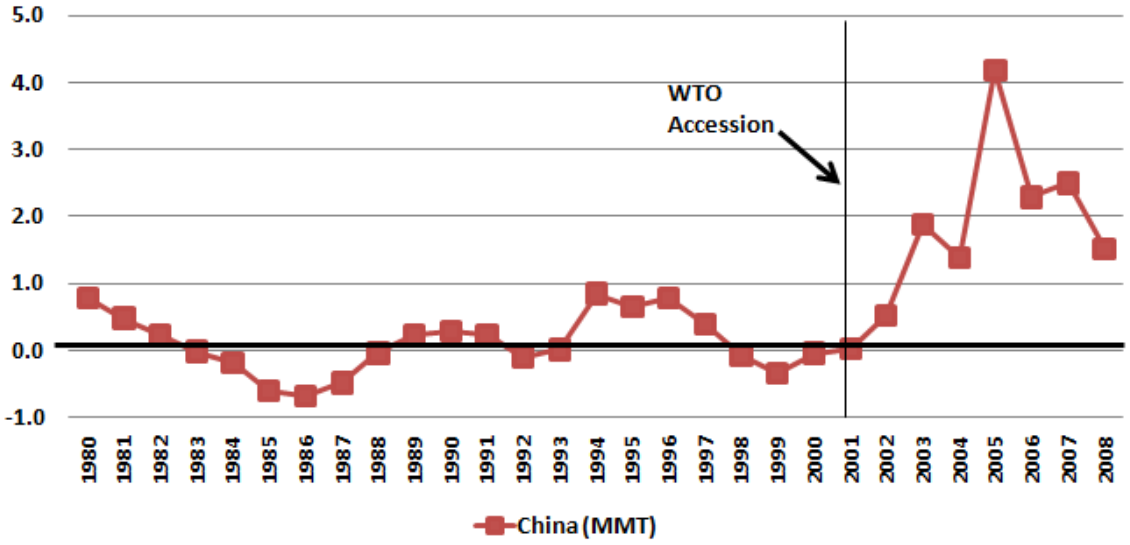
Note: China's industrial statistics were altered in 2003, necessitating a separate graph.
Source: Zhongguo shichang nianjian (China Market Yearbook) (various years).

This claim is further supported by the restructuring of the cotton industry after the liberalization of domestic cotton and partial opening of import channels. China's rapid shift in regulating cotton as part of its WTO accession and its strategy to gain market share after the ending of the MFA is clearly seen in its changing pattern of cotton trade. Throughout the 1970s through to the end of the 1990s, Chinatex was tasked with using cotton imports and exports to balance overall supplies in the domestic market. In years with excess domestic cotton harvests, Chinatex exported the unusable cotton; in years where China's harvest ran short, it imported moderate amounts (Figure 5.18).[502] It

[502] This is quite similar to India's cotton policy, but contrasts with that of the U.S., for instance.

wasn't until China's entry into the WTO and the post-MFA reshuffling of the textile and garment world that China rapidly became a huge importer of cotton (Figure 5.18). Prior to this period, the most that China had imported in any one year was around 700,000 to 800,000 metric tons (and it is no coincidence that these record imports occurred during the years of China's cotton wars between 1994 and 1996). It was based on these record imports (not projected demand) that the US and Chinese trade representatives bargained over the WTO cotton tariff quota system. It is for this reason that the duty-free level of 892,000 metric tons per year was hailed as a major win for American cotton growers, and considered such a threat to Chinese growers.[503] However, by 2003, China was already importing 1.5 million metric tons and in 2005, it imported an astounding 4 million tons, making the negotiations over cotton's duty-free level appear rather inconsequential in hindsight.[504]

Figure 5.18: Net Cotton Imports,1980-2008
(Million metric tons)



Source: United Nations Commodity Trade Statistics Database

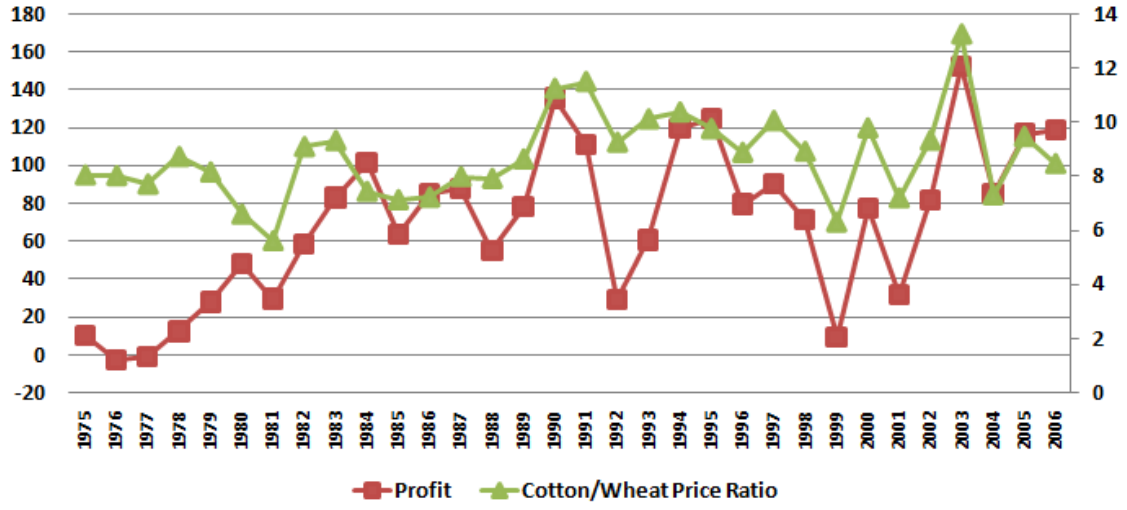
Starting from 1999, we find that this liberalization of imported cotton and the liberalization of domestic cotton markets bolstered the cotton textile industry of the coastal provinces, including the non-cotton coastal provinces; at the same time, it undermined the inland provinces, including the cotton cultivating regions. In other words, despite the fact that coastal China had enjoyed preferential policy advantages over inland provinces for over a decade, on top of its well-known advantages in industrial skills, technology and capital accumulation, it was not until China altered its commercial regulation of the raw commodity that the coastal regions were enabled to utilize these advantages. Thus, on top of the employment losses prior to 1998 discussed earlier,

[503] Informant #90 (Shanghai).
[504] Informant #78 (Dezhou, Shandong).

between 1998 and 2002, cotton cultivating inland provinces lost an additional 12.5% of their cotton textile labor force and non-cotton inland provinces lost another 22% (again, all data in this paragraph refer to Figure 5.17 above). By contrast, trends in cotton textile employment in coastal provinces rapidly went in the opposite direction, rising 30% in the cotton provinces and a staggering 115% in non-cotton provinces. Since China's statistical bureau partially reclassified its system of industrial classification in 2003, I am forced to present that data after 2003 separately. During the period from 2003 to 2008, this same shift between coastal and inland provinces continued. Over these five years, inland non-cotton provinces lost an additional 31% of workers and inland cotton provinces remained about steady, only losing about 2% more. During the same period, the coast continued to roar ahead in the newly liberalized environment, with cotton provinces adding another 41% of cotton workers and non-cotton provinces an additional 114%. This drives home the point that broad policy or endowment advantages enjoyed by coastal provinces are dependent upon favorable commodity-level regulations of economic linkages across the agro-industrial chain, including within the domestic and between the domestic and international economies.

Lastly, how did cotton farmers fare both during the era of state controls over cotton and thereafter? As we saw earlier, cotton pricing, as well as the provision of state-supplied agricultural inputs, such as fertilizer and diesel fuel, were carefully coordinated to mesh with the state's goals in the grain harvest. As such, the changes in the price ratio of cotton to wheat mirrors quite closely the profits earned by cotton farmers and their degree of willingness to cultivate fibers over grains (Figure 5.19). The only exception to this was during China's liberalization of cotton markets in 1992 when farmers, uncertain about the market demand for cotton, got cold feet and rapidly shifted out of the riskier and more expensive cultivation of cotton. Furthermore, we see that similar to wool herders, cotton farmers did not enjoy the fruits of the frenzied seller's market in cotton during the cotton wars of the late 1980s. In fact, they profited to a greater extent in 1983 and 1984 which was prior to the failed liberalization of cotton in 1985-87 and prior to the huge demand for cotton starting in 1988 when cotton spinning capacity was feverishly installed. It was not until 1990-91 that cotton farming profits rose, and true to form, there were the same years that the state increased procurement prices. This implies that the real winners of the intense struggles over the undersupplied harvests were local government bureaus, most likely the Supply and Marketing Cooperatives. Farmers gained little during this extreme seller's market. By contrast, however, despite the rise of imported cotton from half a million tons to almost four million after 1999, cotton farmers surprisingly profited greatly during the post-WTO era of liberalization. This was a period of exceptional ferment in the textile industry when textiles and garments were traded freely on a global scale for the first time since the 1950s. Although China's most recent liberalization of cotton has been the most sustained since the beginning of reforms, questions remain as to whether its new system of free cotton commerce will prove stable enough to support the livelihoods of farmers and industry alike, as well as continue to meet state goals. In a way, the post-MFA period is unique because it is transitional and demand for Chinese textiles and garments skyrocketed, as many analysts predicted would happen. However, the longer the current global recession lasts, the stability of the current system will be increasingly tested.

Figure 5.19: Cotton Profits per *Mu* of Land (left) and Price Ratio (right), 1975-2006



Source: *Jianguo yilai quanguo zhuyao nongchanpin chengben shouyi ziliao huibian 1953-1997.*
Note: one mu of land is 1/15th a hectare.

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This chapter has examined the influence along the value chain of China's entry into global production networks, as well as more broadly, the winners and losers of those whose livelihood is made from these three commodities. Two important points were made. First, the transformation in global production over the past decades requires us to disaggregate the production process and become much more precise in our investigations of the impact of international integration. This chapter has shown that even a 'sectoral' lens, such as light industries, hides many of the most important trends in foreign trade and investment. In fact, even partially aggregated data, such as combining textiles and garments together, risk missing crucial changes. Here, we saw the shift in industrial employment along the value chain, a counter-intuitive net loss of employment after the doubling of China's garment industry, and its contribution to the creation of highly concentrated 'national' labor markets in China over the 1990s. Apart from the sheer size of this shift, this transformation implied a substantial demographic and geographic shift in the composition of China's industrial labor force, with potent political implications for the possibilities for collective action in China.

Second, China's rising inequality may be more fruitfully examined through appreciating the regulation of economic linkages which weave together the value chains and different regions of China and the international economy. Despite the long-standing and broad policy advantages of coastal China and the entrenched disparity in endowments, we found that these more straightforward 'location' variables were substantially less useful in explaining the winners and losers among producer groups in

different regions of China. Once again, examining the dynamic of concrete commodities along the value chain proved useful in revealing new patterns in China's rising inequality.

Chapter 6

Conclusion

The concept of the commodity has quite dissimilar, even opposite, connotations. On the one hand, a commodity is something unique. In terms of labor regulation or applications of technology and knowledge, cotton, wool and silkworm cultivation are very distinctive, each requiring its own unique set of regulations, standards and techniques for cultivation. This is even truer if we consider the wider range of commodities. No one could confuse the unique techniques employed in cultivating rice and wheat, or mining coal and ores or the many other industrial commodities from cotton yarn to steel bars to chemical resins, each produced through their own labor and technological processes to be transformed into something of use.

On the other hand, in the sense of 'commodification,' the concept is quite the opposite, becoming almost synonymous with standardization, or an entity that has become so undifferentiated that it can be easily measured, priced and exchanged on the market. Through commodification, all of these unique labor processes, applications of technology, expertise and innovation become undifferentiated under the common metric of prices. In a way, it is this process of commodification, a transformation of 'value,' that lies at the heart of China's creation of a market economy. The on-going transition between economic systems in China requires if nothing else a transformation – a *re-valuation* – of many heterogeneous things and resources. Over time, things which once possessed heterogeneous values, oftentimes based on the complex system of state standards and goals under socialism, have become integrated into a common metric of price, a concept which itself takes on new meaning with the end of socialism.

A concrete illustration of this is China's gradual restructuring of its statistical system, the primary lens through which the economy is measured and evaluated (see Appendix II on this issue). Over the past three decades, there are innumerable instances of China's State Statistical Bureau dropping previous measures, introducing new ones, redefining old ones, or simply surveying new slices of the economy. A study of the changes in the statistical system could fill a dissertation in itself. In fact, many of the longitudinal statistical figures in this dissertation were tediously cobbled together from different sources in an effort to show the true continuity and change of the economy without misrepresenting it given the numerous periodic changes in the way China was measuring its economy in transition. This change in measurement is emblematic of the revaluation of 'things' and through things, people and work. There is no single event one can point at to see this transformation of value; there are many ways to observe and interpret this. For instance, on the one hand, under socialism China manufactured 'products' (*chanpin*) which were once measured in physical outputs; over time, these became transformed into marketized commodities (*shangpin*), measured in *renminbi*. Likewise, whereas socialism valorized production and those who produced, markets require a rich consumer culture with social status attached to those most capable of performing

consumption. Whereas the Communists' first major task upon coming to power in 1949 was to control inflation and socialize risk within the state, the building of market societies entails the encouragement of individual risk-taking, entrepreneurialism, the individual drive to accumulate, and hopefully the wherewithal to hedge these risks. In the wake of this transformation, the Marxist connotations for concepts such as the 'market,' 'prices,' 'value,' 'labor,' and 'capitalist,' required re-interpretation and redeployment as the population had to believe that markets would better serve themselves and their country – just the opposite of what they were long told. In all of these and other implicit ways, a revaluation has taken place, contributing to the process of commodification.

This process of 'revaluation' in China has been slower than in other post-socialist countries. This dissertation has endeavored to trace these transformations using three commodities as comparative case studies. It has attempted to balance the uniqueness of each commodity while at the same time narrating the general progression of revaluation in China. Using a commodity lens, this dissertation has been in dialogue with several major debates concerning China's transition to a market economy and its economic development. These include the relationship between the planned economy and the creation of markets, China's international integration and the nature of its rising inequality. In one way or another, the different insights were derived from deconstructing the economy into concrete commodities, and tracing them through different segments of the production chain from raw materials to final production and trade. Much of the narration has compared the regulation of these commodities by different combinations of state actors and institutions which coalesced around each 'node' along the three chains. Despite what might first appear to be quite similar sub-sectors, these three textile industries in fact reveal wide variation in China's strategies, goals, and mode of regulation, which when combined together have led to quite different outcomes.

This approach is quite unlike the way China's economy has been commonly analyzed. Rather than examining the creation of markets in specific commodities, China's transitional economy has been usually analyzed through a New Institutional Economics lens that has focused on major, economy-wide reforms, such as decollectivization, fiscal decentralization, dual-track pricing and international liberalization. Although applied to different issue areas in China, these major institutional reforms are seen to have altered the incentive structures of government and economic actors, which in turn motivated them to make the productive investments that generated China's growth. Thus, there is a relatively straight line between economic incentives, institutions and growth. It is this 'unleashing' of economic interests through institutional reform which serves as the implicit assumption of many sub-literatures in Chinese political economy. Overall, this understanding of the creation of a market economy is quite unlike the process of revaluation or commodification addressed earlier.

Second, the study of the Chinese economy has been most commonly analyzed on an aggregate level of analysis. Whether studying agriculture or industry or FDI, these realms of the economy are rarely disaggregated in a rigorous manner. Most importantly, Chinese price data is uncritically used to create aggregate measures, such as gross value of industrial or agricultural output, which combine heterogeneous goods into a common metric. This subtle transformation of value permits scholars to study issues at an

aggregated level of analysis. While this is done without a second thought in market economies where general price equilibrium is presumed, in China during a period of economic transition and with extensive government controls of prices, this is even a larger leap of faith. In general, scholars disaggregate largely for methodological reasons and most commonly by comparing across geographic regions, rather than comparing across sectors. This dissertation is no different in taking advantage of these methodological opportunities for comparative research. However, it is the substantive insights garnered from a commodity level perspective which lie at the core of this research.

By disaggregating the commodity, we find that many of the major economy-wide reforms which have pre-occupied scholarship on the Chinese economy often lose their explanatory power when examined through a commodity lens. As we saw, the outcomes of de-collectivization or fiscal decentralization or the dual price mechanism differed substantially in each commodity, even at times running in opposite directions. In the case of China's openness to foreign trade and investment and rising inequality, we also found unexpected variation both by commodity and between different nodes along the production chain. Given how similar these industries are in terms of capital and labor intensity and economies of scale, we would expect that broad policy changes should have a consistent effect in this modest corner of the economy. We find that the reason they do not have a consistent influence is that the institutions and regulations (or lack thereof) at the commodity level differed widely between these otherwise closely related agro-industries.

This led to another substantive insight. Through the lens of commodities, we see in greater detail how the Chinese state was institutionally structured and the strategies and means by which Beijing and local governments utilized state institutions to achieve their particular goals, for instance in food and clothing provision, foreign exchange earnings or regional economic development. It was these institutional powers which (unlike the Soviet Union) the Chinese state retained and which created the capacity for it to regulate each sub-sector differently and for different goals. Through these retained institutional and regulatory powers, Beijing was able to better control the pace and direction of reforms, for instance by delimiting the scope of liberalization to only some domestic commodities for more than a decade before expanding it to others and before creating factor markets. Of course, control over reforms was often elusive as the example of the commodity wars makes clear.

It is the sequential and partial nature of the reforms that scholars refer to by Chinese 'gradualism.' However, the concept of 'gradualism' or 'partial' reforms or a 'hybrid' economy does not have a single or agreed upon meaning; and again, it is the detailed process tracing of concrete commodities which leads me to offer a different interpretation of 'partial' reforms, in particular in terms of the role of the Chinese state and how it went about reforming the economy. While I have implicitly addressed the role of the state in the previous chapters, I have not addressed it directly.

It is well-known that there are many detractors to the notion that a socialist planned economy can be successfully reformed in a 'partial,' 'mixed,' or 'hybrid'

fashion.[505] China, of course, is the paradigmatic case of successful gradual reforms and a hybrid economy. China makes it difficult for the naysayers to sustain this line of argument (though that does not stop their being resurrected).[506] However, even among avowed 'gradualists' within the China field, partial reforms and hybridization is not a unified concept, containing different meanings for different people. And because of these differences, the role of the Chinese state in the reform period varies by author. For instance, this is frequently the case when it comes to understanding China's diverse ownership patterns. In its simplest conceptualization, China's economy is understood as bifurcated into 'state' and 'non-state' sectors, and invariably the non-state sector is seen as the engine of China's growth or productivity.[507] In this understanding, the role of the state in reforms is quite simple: it is to get out of the way! Other, more nuanced conceptualizations examine the various economic *relationships* which link local governments with local business. The diverse types of relationships have spawned an enormous literature theorizing the nature of these interdependencies, including many conceptualizations of the state like 'local state corporatism' or 'commodified communism.'[508] These relationships include both the regulation of and assistance to local businesses, as well as the particular contractual relationship between governments and collectively-owned firms.[509] A further layer of complexity in the hybridization of ownership concerns the inter-enterprise networks which link together state firms and non-state firms in various ownership or sub-contracting relationships.[510] For all of these scholars, the role of the state is central to China's development. Most importantly, the (local) state operates as the foundation of China's property rights, creating the functional equivalent of secure private property. As such, they are also seen as the engine of China's system of capital accumulation and investment, replacing the role of the private bourgeoisie in a sort of modified Gerschenkronian fashion.

In addition to China's mixed ownership forms and relationships between local government and business, hybridization and partial reforms also take center stage for scholars who emphasize China's changing regulation of exchange. Attributes of China's mixed forms of exchange include the participation of local state bureaus and firms in transacting on markets, the maintenance of local monopsonies and local protectionism side by side with the liberalization of national markets, as well as the competition generated between state units.[511] The phenomenon of the 'state-entrepreneur' highlights the dual role and dual incentives which face state bureaucrats and managers as they

[505] Kornai is at the center of this school, though there are plenty of others, including Aslund, Woo, Sachs, Balcerovicz,and Blanchard.
[506] For instance, the claims of Sachs, et al. (1994) are easily dispatched by Rawski's rejoinder (1999).
[507] For instance, Nee, Peng, and Sachs make these clear distinctions, though Nee revised his earlier thinking.
[508] Oi (1992, 1999), Walder (1995), Wank (1999), Duckett (1998).
[509] See the many combinations in Oi and Walder, 1999.
[510] For sub-contracting see Christensen 1992, Buck 2006. While sub-contracting is relatively straightforward, the types of inter-enterprise networks uncovered by David Stark offer a distinctly new type of hybridization of the economy (Stark 1996). In Stark's understanding, the ownership of individual firms are relatively more clear through the process of corporatization (or securitization) of ownership, but the inter-enterprise networks blur the lines between the state and non-state.
[511] Although they take different approaches, this is well reflected in the work of Sicular 1995, Rozelle, et al. 2000 as well as the large literature on federalism in China like Montinola, et al. 1996, Weingast, Qian and others.

produce for both the market and planned economy 'tracks.'[512] For some of these scholars, the remnants of the planned economy function simply to remain a source of social stability in China. For instance, the planned economy was seen as useful because it maintained the status of China's privileged urban industrial workers which served to pacify them and pre-empt social unrest. Likewise, the planned economy also ensured the provision of 'economic rents' to industrial and government elites within the state sector, thus reducing the potential that they would block reforms.

Through the lens of individual commodities, this dissertation offers a quite different interpretation of partial reforms which provides new insights into the role of the state in reforms, in particular how the planned economy interpenetrated with nascent markets and contributed to China's economic growth. In my understanding, partial reforms refer to the fact that each commodity was regulated and reformed quite distinctly, creating a heterogeneous regulatory regime. The importance of this uneven or hybrid regulatory system is that it generated powerful dynamics between commodities. It is precisely because the Chinese government went about liberalizing in this uneven and patchwork way that a commodity perspective takes on greater significance. Rather than seeing Chinese growth as stemming from the changed incentives facing local government actors or seeing the planned economy as passively ensuring social stability, at a commodity level of analysis, we find that the dynamism of China's nascent markets was actually *dependent on* the structure of the planned economy. In other words, the growth which a NIE approach has imputed to the liberalization of economic 'interests' in the form of markets is perhaps a mirage; in many ways, the appearance of market growth was in fact derived from the planned half of China's hybrid economy.

There were many concrete illustrations of this. In Chapter 1, this understanding of partial reforms revealed an alternative explanation for China's bouts of inflation in the 1980s. Rather than seeing inflation as driven by industrial investments and urban wage hikes, by decomposing inflation into its constituent parts, we found that it was quite narrowly concentrated within non-staple agricultural goods. The concentration of China's inflation in non-staples was in many ways a function of the unevenness of price controls between different agricultural goods and commodities. On the one hand, selective state increases in agricultural prices provided new purchasing power to rural cultivators, and on the other hand, the liberalization of some non-staples meant that this new buying power became overwhelmingly concentrated in these commodities. The urban economy had little influence on inflation in this period as was seen by the unchanged consumption levels of city dwellers. This oversight in our understanding of Chinese inflation was a result of examining China's economy in the aggregate; decomposing it led to a different interpretation of the Chinese state.

However, through a commodity lens, we find many other instances of the interpenetration of the planned and market economies. In both chapters 2 and 3, we find that differences in the regulation of closely related co-commodities created powerful synergies between plan and market, such as between staple cotton textiles and 'luxury'

[512] Naughton's work is most closely associated with this idea as he observes that market competition touches all firms, so that production decisions on the margin are market driven even for state firms who must also meet their planned quotas. (Naughton 1995). However, there are plenty of others who share this conceptualization. Rozelle et al. 2000 and Rozelle 1994.

textiles like wool. A similar dynamic was found between wool and its co-commodity mutton, as well as between cotton and grains. In addition to co-commodities, we also found that the path dependent nature of quotas and planning in major crops like grains created uneven patterns of profitability in adjacent and climatically identical regions. The uneven geography of profitability was a function of the unevenness of each county's quotas developed over the socialist era, in combination with the opening of grain markets; together, they created highly uneven patterns of agricultural cultivation. Thus, in all of these and other ways, the partial reforms of the planned economy created cross-currents which triggered the explosiveness of China's new markets. In China, it was the remnants of the planned economy in the form of partial reforms at a commodity level which fed the growth of China's nascent markets.

Apart from a new interpretation of partial reforms and the role of the state, another major insight of a commodity perspective is that there appears a disconnect between the broad economy-wide reforms most commonly cited as the foundation of China's economic success and production. As we saw, the timing and expected impact of the broad, economy-wide reforms like decollectivization, fiscal decentralization or reforms of trade and foreign investments did not match well with production trends on the ground in particular commodities. De-collectivization produced directly opposite trends in the cultivation of cotton, wool and silk. The influence of fiscal decentralization was also very inconsistent at a commodity level. For instance, local government 'investment rushes' in each textile sub-sector was separated by half a decade or more despite the common incentives provided by fiscal decentralization as well as identical technical barriers to entry in cotton, wool and silk textiles. Rather, we found that each commodity had its own unique trajectory and that local government decisions to intervene in regional commodity markets diverged markedly. However, what local governments shared in common was a long-standing institutional capacity to intervene in agricultural commerce. Similarly, the preferential investment, labor and tax policies which favored coastal China were, if anything, highly contingent on changes in the domestic and foreign commercial regulation of raw materials. In all of these instances, the timing of broad institutional and policy changes and the production trends on the ground did not match well at all.

Relatedly, this also highlighted a very different 'periodization' for Chinese reforms. A commodity lens broke sharply from unilinear national narratives which commonly structure the political and economic history of contemporary China as they brought into relief new and multifarious periodizations. For instance, cocoon cultivation and the silk industry boomed during China's major recession, but then collapsed in 1994 and never recovered in the post-MFA period, all of which ran counter to cotton and wool. Likewise, the wool herders and the wool and cotton industry experienced quite different periods when their terms of trade were altered, something which depended on the regulation of their raw fibers.

Global Production and International Integration

No less than in analyzing the relationship between plan and market, decomposing industries along the value chain yielded important insights by revealing new patterns and

more nuance to our understanding of the role of trade and FDI in China. A view along the value chain revealed the imprint of contemporary transformations in global production on China's domestic economy. Given the fragmentation of the production process into cross-national networks, I argued that the only way to fully observe the influence of global production on China is to gather data at *each node* along the production chain. As we saw, even research which has been sensitive to patterns of trade and investment in different sectors of China's economy (such as light and heavy industry) is liable to miss much in China's international integration. Through examining the nodes along the chain, we found foreign capital overwhelmingly concentrated in the downstream nodes, despite their all being light industries. With their supply chains stretched globally, this created a fragmentation in China's domestic economy, splitting textiles from garments with many potent political implications for China's labor force.

Of course, before the influence of global production could be felt, China first had to alter its complex system of foreign trade and investment which mixed strategies of continental and autarkic countries with small, export-oriented countries, together with export protectionism, an outgrowth of state socialist price controls. In chapter 3 and 4, I argued that China's reform of this complex foreign trade and investment regime served as a partial solution to the crippling effects of China's extensive and localized mode of industrial growth. Decollectivization and the opening of rural markets created the conditions for the 'extensive and localized' industrialization of the 1980s in which capital and off-farm labor remained largely regional while only commodities began to be exchanged across administrative borders. This combination underlay the phenomenon of the commodity wars in which local governments intervened to control the cross-border circulation of agricultural raw materials. These wars dramatically bid up the prices of raw materials to global price levels, which created a dual crisis by driving industrial profits into the red and undermining China's primary export advantage in its most important foreign exchange earning industries. However, the commodity price inflation also brought new opportunities to reformers' goal of international liberalization by undermining China's need to maintain export protectionism to preserve domestic price controls. Altogether, these dual crises led reformers to shift to an intensive growth strategy which they accomplished through a patchwork of policy changes, including eliminating a large share of China's domestic machinery industry, absorbing foreign technology, and opening to foreign capital and East Asian networked production. It was through this industrial re-orientation that foreign capital flooded into the Chinese economy; and given the recent changes in global manufacturing, foreign investments took on the uneven patterns across different nodes of the value chains.

While these unusual patterns of foreign trade and investments in China may be interesting in themselves, it is the implications of this influx that is central. As we saw in chapter 5, this re-orientation of industry ushered in major changes in China's industrial labor force and farmers alike. It might seem straightforward that the increase in employment and foreign exchange earnings which foreign garment manufacturers and traders bring to China is an unalloyed good. And in certain ways, this is true. However, the changes in global manufacturing meant that international integration also brought with it a disarticulation of China's domestic economy. We saw that China's highly developed textile industry became delinked from the garment production node, so much

so that the doubling of garment production in China corresponded with the lay-off of nearly 5 million textile workers. While the notion of export processing is hardly unique to China, the difference is the composition of each country's older industrial system and the possibilities for it to 'link forward' into export-oriented production. The importance of backward and forward linkages, which was one of the hallmarks of industrialization for advanced industrialized countries, has not been replicated in China. Furthermore, this disarticulation occasioned a dramatic shift in the geography of production and with it the creation of a national labor market as the underemployed migrated to concentrated growth poles within and across provinces. These new labor markets embodied a shift in the demography of China's industrial workforce. The older, more skilled, local and tight-knit workforce of China's textile industry was increasingly disassembled, and a younger, less skilled, mixed and fragmented migrant labor force arose – a transition that has altered the possibilities for collective action among Chinese workers.

Inequality in China

The last major issue area to which a commodity perspective has been fruitfully applied is the rising regional inequality in China. In contrast to studying regional inequality as an outgrowth of location differences rooted in the unevenness of preferential policies, tax burdens, endowments, geographic location and so forth, we found that profits, income, employment and production in different regions were patterned according to differences in the regulation of economic *linkages* which bind together the value chain between China's regions and with the international economy. For instance, it was the complex set of events which led to the delinking of sheep herders from wool textile firms that severely deepened the rift between the inland and coastal regions within the wool economy. Herders who were separated by thousands of kilometers similarly experienced sustained periods of declining incomes even during the height of the wool wars. At the same time, inland wool textile centers were increasingly eliminated as state policy forced western province to rely on local wool while at the same time liberalizing the sourcing of raw wool.

This shift of advantage to the coastal provinces at first may appear to support the general claim of coastal China's advantages over inland China. However, once we compare the case of wool to silk and cotton, we find that these other fibers did not conform to an inland-coastal pattern. For different reasons, silk and cotton were strictly regulated by their respective sets of state agencies, while at the same time the foreign trade ministry moderated the influence of global commodity markets in order to preserve the economic security of farmers and industrial stability of textiles. Given the power of local governments over local harvests, this meant that regions which cultivated raw silk or cotton fiber possessed a defining advantage over other provinces and counties which lacked local cultivation. This was true regardless of their position in inland or coastal China. Thus, in silk and cotton, growth in industrial production and employment were patterned closely to China's raw material bases, not to the division between coastal and inland regions. This point was further reinforced by comparing the period before and after China's liberalization of domestic and foreign trade in cotton as part of its WTO accession. The restructuring of the economic linkages between cotton, cotton textiles and

foreign trade shifted the pattern of cotton textile production and employment from one centered around raw fiber cultivation to one centered around the coastal and inland divide. The point is that preferential policies and superior locational endowments had favored coastal China for ten to twenty years *before* this, but it was only with the changes in the regulation of domestic and foreign commerce of the agriculture fibers that the geography of downstream industrial production was transformed and began to reflect a coastal-inland pattern. Thus, in all of these instances, the distribution of income, profits and employment across social groups and between regions is better explained by the regulation of economic linkages by which they were bound together than broad locational advantages. This is not to deny the clear empirical fact that coastal provinces are richer. Rather, it is to claim that the reason for their advancement cannot be so easily reduced to factors found within their geographic borders. We have to be sensitive to the ways in which local economies have become linked to each other and with the international economy.

Global Value Chains

The concept of value chains has remained a constant throughout this dissertation, but thus far I have only tangentially addressed this literature. Previously, I compared the first and second generations of industrial studies. The first generation on 'sectoral governance' understood sectors through a technology lens. By contrast, the more recent approach to sectors, which includes the idea of value chains, stresses the importance of corporate strategies and organization.

In actuality, however, my usage of the value chain framework has been more opportunistic in nature than reflective of the original concepts. This is because my dissertation substantially diverges from the literature by making three substantial modifications: first, it focuses on the broader institutional environment of industrial sectors; second, it follows the value chain backwards and deeper into the domestic economy; and third, it examines distributional outcomes across social groups and regions, where previous studies focused simply at the level of the firm. I consider each of these modifications in reverse order below.

One weakness of the literature is that most empirical studies remain doggedly *firm-focused* in that the emphasis is generally on how leading multinationals influence the governance of the overall value chain and the firms linked into it. Analysis is usually restricted to firms linked into the chain and the core empirical question is the possibilities for firm-level 'upgrading' given TNC strategy and the structure of chain governance. While useful for certain purposes, this approach makes it particularly problematic to determine the broader implications of the value chains in terms of the possibilities for development and implications for distribution and inequality. For instance, the focus on firm-level upgrading considers whether and how a domestic firm which is linked into a production network can successfully upgrade, and thus presumably capture more value-added. However, remaining at the firm level misses much. In this dissertation, I've focused on the level of the sub-sector or 'node,' like cotton spinning, rather than individual firms. As we saw in chapter 6, the influence of integrating into networked production was fruitfully analyzed through different nodes, rather than remaining with

the firm-level framework. This allows the literature to speak to broader implications in development.

A related but second problem with the literature is that because of its firm-level focus, it often fixates only on the link that immediately feeds into the global chain (e.g. garments), without following the chain deeper into the domestic economy.[513] A strictly firm-level focus on the garment node for instance does not consider how it might influence the upstream sectors in textiles or even further back into agriculture. As much of the literature stands now, the question of whether there are broader implications on these economies apart from at the firm level is generally left only implicitly answered. I have tried to directly examine these influences.

For instance, whether and how much of a country's exported garments are manufactured using domestic cotton, wool, silk or chemical fibers or other intermediary inputs indicates the potential influence that the globalized node holds for the remainder of the chain. As we saw earlier, the different ways in which the three value chains were linked into the international economy had a noticeable influence along the value chain. For instance, we saw clear differences between the incomes of silkworm farmers and sheep herders based on how their respective downstream industries were linked into global production. We know that these differences in income were transmitted through the textile chain because China exports only very small amounts of wool (and cotton) and unprocessed cocoons. Cotton, wool and silk is either processed into industrial products in China or eventually scrapped.

Third, in order to adapt the concept of the value chain to China's bureaucratic structure, I have spent considerable time detailing the many state agencies which regulate each node along the chain from foreign trade backwards to agriculture. We saw how the three commodities were regulated by very different combinations of state institutions. For instance, at the one extreme, the silk chain was centralized under a single monopoly corporation, and at the other extreme, the cotton chain was highly fragmented, though no less regulated by the state. These sorts of observations go well beyond the usual investigations of chain governance which is restricted to the role of a leading TNC and other intermediary firms. In fact, this has been one area in which the ambitions of practitioners have exceeded their research results.[514]

To conclude, we might ask how value chains are an object of study for politics. Even though this dissertation has touched on many core political questions, including the role of changes in state institutions, rising inequality and economic reforms, there is the question of how one can consider the chains themselves a topic of political inquiry. On the one hand, economic and producer groups, whether farmers, industrial workers or business leaders, are often incorporated into political analysis. Most commonly, they are studied according to how they are organized and how their interests are mediated through political institutions, whether these are pluralist, societal or state corporatist or otherwise. In China's state socialism, there was little intermediation in the typical sense of the word, at least outside of the well-known struggles between bureaucracies within the state

[513] This is truer of scholars who study industrial goods, like garments, whereas those who study agricultural commodities like coffee or fresh fruits, are likely to follow the chain back to its source given their subject matter.
[514] See Gereffi's original outline which consisted of four elements, including the broader institutional setting (Gereffi 1994, 1999), and Bair's criticism for the literatures negligence of institutions (Bair 2005).

apparatus. Although there has been some change over the reform era in intermediation at the national level, for instance through the gradual separation of firms from the state bureaucracy, most scholarly attention has rightfully been focused at the local level.[515]

While the issue of intermediation is certainly very important in many countries, it perhaps unduly limits itself to only one dimension in how producer groups come into conflict and change the terms of trade. Intermediation examines how interests become aggregated and by being aggregated are then transformed into articulated and intentional goals. Depending on the structure of a country's political institutions and the relative influence of these different organized groups, these intentional goals are more or less satisfied through the political system. Thus, intermediation concerns the aggregation of interests and intentional goal-seeking among economic groups, which is undeniably an important feature of politics.

But, should the realm of politics be limited to the intentional goals of organized groups? Are there other ways by which economic interests are translated and satisfied which does not rely on their being intentionally aggregated or even articulated, let alone being satisfied through the political system? How do different economic groups successfully change the terms of trade outside of these channels?

Value chains is one approach which forces scholars to be more sensitive to these alternative means for changing the terms of trade, whether between countries or between groups or regions within countries. As my focus on government organizations illustrate, this approach does not foreclose opportunities to include changes in the formal institutions of the state or organizations of producer groups. Rather, given its focus on the stages of production itself, it more closely examines the possibilities for the terms of trade to become tilted through means that are less formally organized, less likely to be publicly articulated and less likely to be channeled through the political system, and yet no less important in defining the terms of trade.

The commodity wars were one example of this. As mentioned earlier, for many cultivators across many regions of China, agricultural incomes did not increase during the commodity wars. The declining profit among farmers was contrary to expectations given the intense seller's market. At the national level, these outcomes were not the result of the intentional actions of well-organized groups. And yet we find similar shifts in the terms of trade not just in a few isolated cases or places, but as a national trend in areas separated by thousands of kilometers. These sorts of changes in the terms of trade between contending producer groups are harder to observe than formal organization and policy changes, and the reasons for such changes are even harder to prove. But, nonetheless we have to be vigilant in trying to detect them and thus we have to examine elements outside of the more conventional structures of politics, like bureaucracies, business associations or unions. Given that value chains begin with the production process itself, they force us to look more closely at the direct relationship between producer groups, rather than their intermediation through a third party.

It is often said that when one carries a hammer, everything looks like a nail. As an analytic tool, this is true of value chains as well. This is partly because they travel well to other, very different contexts. There is no reason to think that value chains as

[515] The main work on government-business intermediation at the national level is Scott Kennedy's (2005).

utilized here cannot be applied to other industries, such as coal and iron ore mining, steel smelting and rolling and production of steel goods. But, they need not remain restricted to manufacturing processes. I give one illustration from current events.

There is much talk today about the underlying causes of the current economic crisis which everyone agrees originated with the financial industry in the US and abroad. No less than in something simple like textiles, the players engaged in generating the financial crisis were organized along a chain: from homeowners to mortgage brokers to finance companies to electronic mortgage registries to Wall Street investment banks to rating agencies to the final investors in mortgages. By passing through this chain, home mortgages were revalued, that is commodified or securitized into easily tradable securities. Prior to the crisis, it appeared that most everyone along the chain was gaining (though some more than others). But now, the rhetoric has shifted to the unequal terms of trade that developed between main street and Wall Street. While we will not know the ultimate winners and losers for some time to come, we know that the shifting terms of trade in favor of one group over another was not achieved simply through the intermediation of political institutions. Rather, the linkages aligned along the chain which wove these diverse group of players together was if nothing else a *market innovation* which grew and changed over time. The nodes along the chain were created without a full-blown blueprint and they developed in ways both intended and unintended. This is not to say that government regulation or the role of organized producer groups had no role. To be sure, a host of these factors intervened in this crisis: the repeal of Glass-Steagall, the lack of vigilance of various regulatory authorities, the lobbying of bankers, the support of federal housing programs in extending homeownership, and any other of the many and complex elements that structured the creation of these markets. However, at the heart of the problem was the actual structuring of the market relationships between homeowners and the long chain of intermediaries and credit providers which shaped the terms of trade and linked them all together – most of which is outside of the channels of political intermediation and state institutions. That is, it is helpful to look at the market through the lens of the concrete commodities themselves, rather than to see markets as abstractions which appear as the residual factors outside of the formal structures. For the study of political economy, a value chain helps to theorize these factors and does so through detailed and empirically rich process-tracing of concrete commodities.

Appendix I: List of Informants

Informant	Location	Position
#1	Beijing	Owner
#2	Beijing	Owner
#3	Beijing	Manager
#4	Beijing	Sales Manager
#5	Beijing	Manager
#6	Beijing	Manager
#7	Beijing	Sales Manager
#8	Beijing	Owner
#9	Beijing	Fashion Designer
#10	Beijing	Owner
#11	Beijing	Manager
#12	Beijing	Owner,
#13	Beijing	Owner
#14	Beijing	Owner
#15	Beijing	Sales Manager
#16	Beijing	Owner
#17	Beijing	Professor
#18	Beijing	Professor
#19	Beijing	Professor
#20	Beijing	Professor
#21	Beijing	Post-doctoral fellow
#22	Beijing	Post-doctoral fellow
#23	Beijing	Professor, Fashion Designer
#24	Beijing	Owner
#25	Beijing	Owner
#26	Beijing	Sales Manager
#27	Beijing	Owner
#28	Fujian, Xiamen	Owner
#29	Fujian, Xiamen	Owner
#30	Fujian, Xiamen	Foreman
#31	Guangdong, Foshan	Owner
#32	Guangdong, Foshan	Owner
#33	Guangdong, Foshan	Owner
#34	Guangdong, Foshan	Owner
#35	Guangdong, Foshan	Owner
#36	Guangdong, Foshan	Manager
#37	Guangdong, Foshan	Owner
#38	Guangdong, Foshan	Foreman
#39	Guangdong, Foshan	Owner
#40	Guangdong, Foshan	Foreman
#41	Guangdong, Foshan	Foreman
#42	Guangdong, Foshan	Owner
#43	Guangdong, Foshan	Foreman

#44	Guangdong, Foshan	Manager
#45	Guangdong, Guangzhou	Manager
#46	Guangdong, Guangzhou	Owner
#47	Guangdong, Qingyuan	Manager
#48	Guangdong, Qingyuan	Manager
#49	Guangdong, Qingyuan	Owner
#50	Guangdong, Shantou	Owner
#51	Guangdong, Shantou	Owner
#52	Guangdong, Shantou	Owner
#53	Guangdong, Shenzhen	Foreman
#54	Guangdong, Shenzhen	Owner
#55	Guangdong, Shenzhen	Manager
#56	Guangdong, Shenzhen	Foreman
#57	Guangdong, Zhongshan,	Owner
#58	Guangdong, Zhuhai	Manager
#59	Hebei Tangshan	Retailer
#60	Hebei, Tangshan	Manager
#61	Hong Kong	Manager
#62	Hong Kong	Manager
#63	Hong Kong	Manager
#64	Hong Kong	Foreign Designer
#65	Hong Kong	Foreign Designer
#66	Jiangsu, Nantong	County, Government Official
#67	Jiangsu, Nantong	Township, Party Secretary
#68	Jiangsu, Nantong	Township, Party Vice Secretary
#69	Jiangsu, Nantong	County, Party Official
#70	Jilin, Changchun	Owner
#71	Shandong, Binzhou	County, Government Official
#72	Shandong, Binzhou	Manager
#73	Shandong, Binzhou	Foreman
#74	Shandong, Binzhou	County, Government Official
#75	Shandong, Binzhou	Manager, Sales
#76	Shandong, Binzhou	Manager
#77	Shandong, Binzhou	Owner
#78	Shandong, Dezhou	Manager
#79	Shandong, Dezhou	Manager
#80	Shandong, Dezhou	Owner
#81	Shandong, Dezhou	Foreman
#82	Shandong, Dezhou	Design Department Manager
#83	Shandong, Dongying	Owner
#84	Shandong, Zibo	Wholesaler Retailer
#85	Shandong, Zibo	Wholesaler Retailer
#86	Shandong, Gaomi	Manager
#87	Shandong, Gaomi	Foreman
#88	Shandong, Zibo	Owner
#89	Shanghai	Owner
#90	Shanghai	Manager
#91	Shanghai	Owner
#92	Shanghai	Manager (Foreign-owned firm)

#93	Shanghai	Owner
#94	Shanghai	Owner
#95	Shanghai	Manager
#96	Shanghai	Manager
#97	Tianjin	Manager (Foreign-owned firm)
#98	Zhejiang, Haining	Owner
#99	Zhejiang, Haining	Manager
#100	Zhejiang, Hangzhou	Owner
#101	Zhejiang, Hangzhou	Foreman
#102	Zhejiang, Hangzhou	Secretary
#103	Zhejiang, Hangzhou	Owner
#104	Zhejiang, Hangzhou	Manager
#105	Zhejiang, Hangzhou	Owner
#106	Zhejiang, Hangzhou	Owner
#107	Zhejiang, Jinhua	Sales Manager
#108	Zhejiang, Shaoxing	Owner
#109	Zhejiang, Shaoxing	Manager
#110	Zhejiang, Shaoxing	Foreman
#111	Zhejiang, Shaoxing	Owner
#112	Zhejiang, Shaoxing	Owner
#113	Zhejiang, Shaoxing	Trader
#114	Zhejiang, Shaoxing	Trader
#115	Zhejiang, Shaoxing	Trader
#116	Zhejiang, Shaoxing	Sales Manager
#117	Zhejiang, Yuhang	Manager
#118	Zhejiang, Yuhang	Association Manager
#119	Zhejiang, Yuhang	Owner
#120	Zhejiang, Yuhang	Association Manager
#121	Zhejiang, Yuhang	Owner
#122	Zhejiang, Yuhang	Manager
#123	Zhejiang, Yuhang	Owner
#124	Zhejiang, Yuhang	Foreman
#125	India, Coimbatore	Textile Association Head

Note: Many exchanges with informants were not formalized interviews, but rather open-ended discussions, which generally focused on their experiences as owners, managers, or other line of work. Some of them I knew personally, or came to know personally over time, and with these individuals, I had frequent discussions over a period of two years, each time learning with greater depth the intricacies of the textile industry, domestic commerce, and so forth. 'Location' refers to the *primary* region where informants were located during discussions, which usually is also the place where they worked and/or owned an important part of their business, though this was not always the case. This is because some of these individuals were extremely mobile and travelled quite regularly through many major cities in China, so discussions were not necessarily only conducted in these regions. Regions are arranged in alphabetical order by province and then major city. Finally, 'position' refers to the most important role the individual played in the company, but not necessarily the only role. This is because in many smaller and medium-sized firms, there are fewer, formalized positions. For instance, owners also conducted managerial duties. Furthermore, managers were sometimes identified as being specialized, such as in sales, but many simply identified themselves as managers, without specifying a particular area of duty. Upon further conversation, it was possible to ascertain their scope of duties, but these were not always formalized with a title. Furthermore, in spite of this de facto specialization, their duties often crossed different arenas, and so there was less foundation on which to give them a separate label as a certain kind of manager.

Appendix II: Usage of Chinese Statistical Materials

There is substantial controversy over the accuracy and reliability of statistics in China. Apart from inherent problems of collecting large volumes of statistics each year from many sources across a large country, in China in particular, there also are built-in incentives for local government officials to fudge the numbers. This is because a substantial part of their evaluations as officials is based on local economic growth, employment, infrastructure development, and so forth. Of course, China's statistical bureau realizes this and they have developed techniques for identifying and correcting for inconsistencies in the data. Nonetheless, the accuracy of statistical data is compromised. Furthermore, as China's economy has reformed and undergone dramatic changes, the statistical bureau's measurement of the economy has changed and their classifications have altered over time. This requires vigilance when collecting longitudinal data, such as by constantly referencing definitions included in yearly statistical guides and specialized dictionaries in order to detect when and what changes in definition have occurred. Finally, it is important to find out the underlying composition of Chinese statistical data. Chinese statistics are often too highly aggregated, and they do not sufficiently define the different components which make up the aggregated data, so users of these data are often in the dark as to exactly what is being measured and how. This creates much frustration when cross-referencing data between different statistical guides; it is not uncommon that data fail to match up precisely across sources, in spite of putatively measuring the same thing.

Given these problem, it is wise to use caution when employing Chinese statistics. For this reason, I have used various rules of thumb when utilizing data. For instance, statistics in this dissertation are used largely to find relatively simple – and ideally, clear and bold – trends in the data, rather than fine-tuned or minor differences. In general, I assume that dramatic increases or decreases over time indicate that 'something happened' in the economy, even if the precise values in any one or multiple years are not fully accurate. Even better, if the changes occurred at a certain point in time which matches something we know about policy changes or otherwise, then this further supports the data's reliability. Likewise, using different sources of data to triangulate the timing and the magnitude of changes adds further support. For instance, if China's State Statistical Bureau publishes data that suggest record cotton harvests over a period of several years *and* there are frequent references in the Chinese media to excess cotton rotting in state storage facilities *and* China's trading partners are recording a rapid shift in China's trade in raw cotton from large quantities of imports to large quantities of exports, then altogether these three sources of data point to the same phenomenon; it is less likely that local government officials are artificially inflating the data to demonstrate the success of their local farmers or economy, although a *portion* of the total figures may certainly include such '*shui fen*' or 'water' in the statistics. However, since I largely present data which demonstrate relatively large changes or trends over time (rather than precise quantities), the fabricated portions are less threatening to my empirical inferences.

Since I have focused so intensely on a relatively small and well-defined segment of the economy, it is much easier to discover inconsistencies, conduct cross-references and triangulate data. In this sense, my use and approach to statistical data is much stronger than simply cherry-picking variables from China's massive body of statistical data, potentially taking them out of context and plugging them into statistical regressions. In constructing a complex narrative over time, it is much more difficult to misuse data because there are so many opportunities to find inconsistencies when presenting a more complete story over time, as opposed to small fragments of a larger and changing picture. This is simply one of the strengthens of historical narratives compared to cross-sectional investigations.

Furthermore, in any longitudinal data, I have tried to offer as much of the trend line as possible. Of course, this needs to be balanced with making one's point and focusing the reader's attention, in order to avoid unnecessarily disruptive and confusing qualifications to explain data changes outside of the specific time period under discussion. Nonetheless, some China scholarship does frequently abuse quantitative data by choosing a particular year to cut off the presentation of longitudinal data, or even worse, by choosing just two years to compare and implicitly assuming a relatively straight line connects them. These abuses of data are made easier in the case of China because of the substantial volatility in the economy, changes in data definitions over time, and the multiple but inconsistent data sources which may appear to measure the same thing, but in fact, do not. As such, I have favored the inclusion of more longitudinal data, rather than less, up to the point where I believe it will create greater confusion than clarity.

There are many other rules of thumb when employing Chinese statistics. For instance, I favor the use of data published later, rather than earlier since the statistical bureau frequently revises earlier publications based on future data, and also corrects errors from earlier years. When inconsistencies across data sources appear irresolvable without further data collection, then I have adopted a conservative strategy of choosing the data set which *least* supports my argument. Occasionally, data from non-Chinese sources are utilized, and they are sometimes employed to verify the accuracy of Chinese data. In fact, some managers of major textile firms told me that they preferred to use published data from international organizations and the U.S. government over Chinese sources when available, because of their perceived greater accuracy and precision. For instance, Chinese export data are probably less accurate than adding together the import data of China's trade partners, for the simple fact that countries generally devote more resources to controlling and recording foreign imports into their country, than to estimating the quantities and value of goods exiting their country in the form of exports. In the case of China, discrepancies between these two types of export data do exist, and so preference was given to the data source which least supported my argument.

Whenever possible, I have also tested the composition of aggregated data by collecting statistics from multiple sources and then adding them together to see if they match or come close to matching the totals of the aggregated data over a period of multiple years. This not only helps to define the meaning and composition of a particular measure, but it helps discover if and when changes in definitions occurred, since these changes are not always explicitly made clear in the publications. Of course, some of the

major changes in measurement are obvious and well-known, so at times, I have been forced to sacrifice clarity and continuity in the data by splitting up longitudinal data into separate graphs since they measured substantively different things.

One problem particular to the textile and especially the garment industries is that they are populated by small-scale firms which slip through the cracks of the statistical bureau. An extreme example of this is my experience with small households in rural or peri-urban regions of northern Zhejiang province which produce final goods in their household in a form of a putting-out system. In interviews in the area, I did find out that some of this production is accounted for because it is frequently the case that the larger, registered firms in the area purchase these goods which then become part of their in-house sales. But, without a doubt, there is much room for inaccuracy. The only way to ameliorate this is to compare the yearly statistical data with various forms of census data. For instance, I have compared the 1985 and 1995 industrial census data of the textile and garment industries with the yearly statistical sources in those same years (and a couple of years before and after to see if there are any 'jumps' in the data). This can help identify the existence of major discrepancies. The industrial census of 1995 provides a particularly good benchmark in the textile and garment industries because a 3,000 page volume was published which lists the location and sub-sector (among other things) of all of the surveyed firms for that census. The same was done with the population census data in 1990 and 2000 in terms of employment by industrial sector. As a general rule, I have found that the textile industry data is relatively accurate, but the garment industry data is much less so (and increasingly less so over time). For instance, when comparing employment figures between the yearly statistical guides and the 1990 and 2000 population census data, the textile industry data of the two sources differed by only about 1-3%, whereas the two sets of data for garment industry employment differed by up to 49%. This implies that yearly data on the garment industry is extremely inaccurate, even compared to another light industry, like textiles, which due to the larger scale of industrial firms is more accurately measured. Finally, for any year prior to 1993, the internal documents and statistics of the Ministry of Textile Industry were used and compared to other yearly sources of data to ensure as much accuracy as possible. This sort of cross-referencing helps to improve our confidence in the use of any single statistical measure over time.

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