



Food Production during the Transition to Capitalism: A Comparative Political Economy of Russia and China

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Abstract

The principal analytical objective of this dissertation is the assessment of changes in the political economy of food production during the transition from socialism to capitalism in Russia and China. The dissertation is equally interested in the consequences of this transition for human welfare resulting from changes in the availability of food. As a *conditio sine qua non* for human survival, food serves as an objective yardstick for human welfare. By studying changes in the political economy of food production it is therefore possible to draw general inferences regarding the welfare implications of the transition to capitalism in Russia and China.

This dissertation uses a combination of classical political economy and comparative institutional analysis: The three empirical chapters show how changes in state objectives result in the formulation of economic policies that in turn shape the organization of food production — with momentous consequences for the Russian and Chinese people. Both countries achieved a significant increase in the output and variety of food, yet new problems concerning the availability, quality, and safety of food products have resulted from the introduction of markets. These problems are not externalities, but rather constitute a necessary consequence of the establishment of a market economy in which profit-oriented actors engage in competitive exchange without regard for human welfare. As a result, both countries are compelled to balance their desire for economic growth with the provision of sufficient and adequate food to their populations.

An in-depth comparison of the development trajectories of two agro-industrial sectors (wheat and pig production) moreover reveals a convergence in government policy and economic institutions, indicating that Russia and China no longer represent alternative transi-

tion models. Following the reassertion of state authority during the first Putin presidency, the Russian government adopted an extensive agricultural modernization program, which strongly resembled China's existing state-guided reform strategy. Recently, both governments have taken active steps towards increasing the global competitiveness of their food economies, while intervening in markets as needed to ensure domestic food security. This demonstrates the centrality of the state in establishing and administering a capitalist economy.

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Nomenclature

AboC	Agricultural Bank of China
ACW	Average carcass weight
ALS	Average litter size
ASF	African Swine Fever
CAFO	Concentrated animal feeding operation
CAYB	China Agriculture Yearbook
CCCPC	Central Committee of the Communist Party of China
CNY	Chinese yuan
CPC	Chinese Communist Party
CPSU	Communist Party of the Soviet Union
CSF	Classical Swine Fever
FBIS	Foreign Broadcast Information Service
Gosagroprom	USSR State Agro-Industrial Committee
IFPRI	International Food Policy Research Institute
MoA	Ministry of Agriculture of the PRC
NBS	National Bureau of Statistics of China
NDRC	National Development and Reform Commission
OECD	Organisation for Economic Co-Operation and Development
PRC	People's Republic of China
PRRS	Porcine Reproductive and Respiratory Syndrome
RAPO	Raion Agro-Industrial Organizations

RSFSR	Russian Soviet Federative Socialist Republic
SGA	State Grain Administration of the PRC
SOE	State-owned enterprise
TVE	Township and village enterprise
UNDP	United Nations Development Programme
USSR	Union of Soviet Socialist Republics
VoC	Varieties of Capitalism
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization

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Explanatory notes

Throughout this dissertation, I provide footnotes (instead of parenthetical citations) for news sources and other non-scholarly materials. For online materials, direct links are provided whenever possible, although in many cases a stable URL is not available, as materials were accessed through Harvard University's electronic library system. The reader is kindly requested to use an internet search engine to independently locate these sources, the majority of which are available free of charge.

Contrary to convention, I provide parenthetical citations *with* page numbers for references to specific facts from secondary sources (e.g. numerical data), even if I do not quote passages directly. This will hopefully enable the reader to navigate the cited literature more effectively.

Chapter 1

Introduction

Today is the first time in our history that we have a chance to prove to ourselves and the world that Russia can develop in a democratic way. That a transition to the next, higher stage of civilization is possible. And this will be accomplished through non-violent methods. Not by coercion, but by persuasion. Not through suppression, but rather the development of the creative potential of every individual. Not through intimidation, but through interest. Not through confrontation, but by harmonising the interests of the individual, society and government. We really live in a unique time. We have a chance to build a new, free, prosperous and strong Russia.

*Dimitry Medvedev, President, Russian Federation*¹

[A]ll that we do in China now serves but one purpose — to eradicate poverty and build on this basis to achieve modernization with prosperity, democracy, advanced culture and harmony. . . . I look forward to the day when the poor people no longer suffer from hunger and are all able to lead a frugal but comfortable life through their own hard work. I look forward to the day when all children can go to school and everyone enjoys proper medical care. I look forward to the day when we all live in a democratic and free society in which everyone has the opportunity and right to pursue happiness.

*Wen Jiabao, Prime Minister, P.R.C.*²

In 1978, China became the first country in the socialist block to officially discard state ownership and central planning as the dominant principles of economic organization. Under the leadership of Deng Xiaoping, Chinese elites implemented a program of reform and opening

¹“Go Russia!” Article published in online newspaper *gazeta.ru*, September 10, 2009.

²Speech at United Nations High-Level Event on Millennium Development Goals, September 25, 2008.

up (*gaige kaifang*) that introduced market relations and profit-oriented governance to the agricultural and state-owned enterprise sectors. A decade after China's initial experiments with markets, the Soviet Union, under Gorbachev's program of economic restructuring (*perestroika*) in 1987, permitted the operation of private businesses for the first time since the end of Lenin's New Economic Policy. By 1992, the USSR had formally dissolved, and the Russian Federation was undergoing shock therapy in hopes of transforming the existing economic system into a modern capitalist economy. Within a period of less than 15 years, the two most prominent socialist countries had relegated central planning and the setting of production targets to the dustbin of history and embarked on a transition to capitalism.³

Taking stock of this transformation two and three decades (respectively) after its initiation, Russian and Chinese politicians depict an overwhelmingly positive picture of the results. According to the statements reproduced above, the two nations are now, for the first time in history, equipped with an economic system that promises to deliver widespread prosperity to a harmonious collective of citizens.⁴ The social scientific community, on the other hand,

³I will be using the terms 'capitalism' and 'market economy' synonymously throughout this dissertation. This is not an entirely obvious choice, considering the divergent meanings that are oftentimes attributed to these terms. For instance, few scholars nowadays have reservations about calling China a market economy (albeit one with 'Chinese' characteristics), but labeling it a *capitalist* economy still elicits tacit protest and, at times, firm objections. This skepticism undoubtedly results from the critical legacy of the term 'capitalism' but is analytically baseless, as both concepts refer to the same economic reality. The designation 'market economy' stresses the *mode of economic coordination* (i.e., exchange-based product and labor markets in which private actors compete over the allocation of scarce resources), whereas 'capitalism' emphasizes the *social purpose* of an exchange-based economic order (i.e., transactions must be lucrative for capital-owners, thereby making sustained profitability a *sine qua non* of economic reproduction). Differentiating between the two is thus merely a matter of ideological preference.

⁴These views should by no means be dismissed as the propaganda of top level government officials. Rather, they reflect a dominant position in public and political discourse in Russia and China, as well as in the West. Concerning China, political leaders and commentators across the political spectrum do not cease to emphasize that the Chinese today are better off than they were under socialism, typically citing poverty reduction and growing average incomes as evidence of the beneficial impact of market reforms and China's integration with the global economy. The number of people who have been 'lifted out of poverty' is by far the most frequently cited statistic in this regard. It is based on a World Bank report indicating that between 1981 and 2001 the number of Chinese living below the international poverty line has declined by two-thirds, or 422.1 million (Chen and Ravallion 2004, 153; see Pogge (2007) for a critical discussion of this figure).

Russia's economic performance has, of course, been more ambivalent, considering the tremendous poverty and economic chaos that ensued when Russian reformers applied their program of 'shock therapy' to rapidly marketize the stagnant Soviet economy. Despite the disastrous outcomes of capitalist reforms, it did not occur to Russian elites to revise their judgment of socialism or their expectations of capitalism; instead, a mix of corruption, policy mistakes, and incompetence was blamed for the economic depression and the resulting human catastrophe. As early as 1995, Alexander Lebed, a military general and influential political

has reached little consensus concerning the human welfare implications of the transition to capitalism. A review of the existing literature reveals considerable diversity regarding empirical findings and scholarly assessments, spanning the gamut from the affirmative to the critical. On one end of the spectrum, the dominant position holds that a combination of markets and private property yields the most efficient — and, according to classical economic theory, fair — distribution of societal resources, equating economic growth with rising overall prosperity. The phrase “reform without losers” (Lau, Qian, and Roland 2000, 120), for instance, was widely cited in the context of China’s transition, and is emblematic of the view that the government’s ‘dual-track’ approach to economic reform produced Pareto-efficient outcomes, leading to higher incomes for the majority of the population without disadvantaging any particular socioeconomic group.⁵ On the other end of the spectrum, scholars have emphasized the emergence of various, and sometimes glaring, social ills that resulted from the transition, including stark inequality, urban-rural (China) and center-periphery (Russia) development gaps, pollution, hunger, homelessness, and poverty. Some authors treat these problems as preventable ‘externalities’ of the market economy that can be alleviated or entirely avoided through the implementation of appropriate public policies; others view them as direct consequences of market reforms and capitalist development.⁶

Given these disparate and sometimes contradictory assessments, this dissertation aims to systematically evaluate the impact of transition reforms on human welfare. My analytical approach consists of comparing the *political economy of food production* in Russia and China, linking nutrition outcomes, which serve as an indicator of human well-being, to changes in the institutional organization of the economy. Employing a combination of comparative

figure, said that “The person who does not regret the collapse of the Soviet Union has no heart. But the person who thinks it can be put back together has no brain” (“General’s Rising Star May Eclipse Yeltsin,” by James P. Gallagher. *Chicago Tribune*, January 22, 1995). Variations of Lebed’s pragmatic assessment have since been repeated on numerous occasions by presidents Yeltsin and Putin.

⁵‘Dual-tracking’ refers to the (temporary) coexistence of markets and central planning, which constituted a core component of China’s gradual transition strategy. During the early reform period, for instance, farmers had to fulfill minimum production targets, for which they were guaranteed state prices, but were permitted to sell any output in excess of this quota at market prices. For a systematic overview of the ‘dual-track’ strategy, see Naughton (2007, 91-98).

⁶References to this literature are provided at appropriate points throughout the text.

historical and institutional analysis, this dissertation investigates the sequencing and content of reforms in the agro-food economies of Russia and China, and appraises the implications of institutional arrangements for nutritional provision.⁷

1.1 Food as an objective benchmark of human welfare

In order to investigate the effects of market reforms on human well-being, it is necessary to identify an analytical benchmark that accurately determines how an economic system satisfies human needs. Food is a *conditio sine qua non* of human survival and welfare. It constitutes one of the few categories of consumption that can plausibly be considered a need rather than a want, and therefore forms an appropriate basis upon which to evaluate the effects of market reforms on human well-being. Food, moreover, is highly suitable for assessing the welfare implications of post-communist capitalism, as the relationship between *price* and *use* is special: although food is produced and traded as a commodity (as all other goods and services in a market economy), it is a commodity distinct from most others in that it satisfies a basic human need — the need for daily sustenance: Human beings must consume a minimum amount of calories and nutrients per day in order to survive. This is not the case with most other commodities, be they cars, aluminum, footwear, or toothbrushes. Nonetheless, as with all other commodities, food is produced for sale and with the goal of realizing a profit (rather than feeding people).

This objective is illustrated by the recent decision of Goldman Sachs to acquire a dozen pig farms in China’s Fujian and Hunan provinces.⁸ This foray into hog breeding is far from an aberration. In 2009, private investment firms spent \$932 million on investments in the

⁷I use the term *agro-food economy* to denote the sub-sectors of the economy devoted to the production and distribution of food, including primary production (agriculture and animal husbandry), secondary production (food processing and manufacturing), and distribution and marketing of food (this dissertation focuses only on the first two); the terms *agro-food economy*, *food economy* and *food production system* are used synonymously throughout this dissertation.

⁸“Chinese farmers bring home bacon for banks,” by Malcolm Moore. *The Sunday Telegraph*, August 24, 2008.

agribusiness and food and beverage sectors in China, up from \$189 million in 2008.⁹ As food has become commodified and its production fully integrated into global trade flows, several international financial firms have created funds specifically dedicated to investing in the agro-food sectors. As documented by the marketing brochure of one such fund, food is considered an area for systematic and lucrative capital investment:

The fund, DWS Global Agribusiness, invests in that most basic human need: food. That's not new, but our idea to invest along all parts of the agribusiness chain is unique. . . . The food supply chain offers a full basket of promising investment opportunities all the way from land and plantation owners to biotechnology, agro-technology, food processing, manufacturing and distribution.¹⁰

Similarly, the website *AgriMoney.com* — a self-described “investors’ link to the food chain” — advertises its services by alluding to the resurgence of agricultural commodities as an investment target of global finance:

The increasing numbers of mouths to feed, the demand for ever-more sophisticated diets, and the potential for turning food into fuel has turned the growing business into big business. Agriculture, to which financial markets owe a debt of history, is back at the forefront of investment thinking.¹¹

Today, the agro-food economies of Russia and China operate according to market principles, implying that food products are traded as commodities, and both farms and enterprises operate in accordance with the criteria of profit-oriented governance. By studying the institutional organization of food production, as well as its effects on nutritional provision — which serves as an objective indicator of human welfare —, it is therefore possible to draw general inferences about the welfare implications the transition to capitalism in those

⁹“Private-Equity Firms Go Farming in China,” by Jonathan Shieber. *Wall Street Journal*, May 3, 2010. See also “China’s Food Chain Lures Private Equity”, by Wei Lingling and Laurie Burkitt. *Wall Street Journal*, August 29, 2011.

¹⁰http://www.dws.com/EN/MediaLibrary/Document/PDF/DWS_GlobalAgribusiness_Brochure.pdf (accessed February 12, 2010).

¹¹“About us.” <http://www.agrimoney.com/1/page/about-us/> (accessed April 1, 2012).

countries.¹²¹³

1.2 Comparing Russia and China: rationale and logic of inquiry

Russia and China constitute appropriate cases for studying the welfare implications of the capitalist transition for several reasons. Most significantly, there exist obvious commonalities between their political and economic trajectories. The policy elites of both countries have pursued similar underlying objectives, even as they opted for differing development strategies: the decision of Russian and Chinese elites to abandon state planning and henceforth rely on markets as the primary mode of economic coordination meant that the state relinquished a major part of its economic authority to private businessmen and entrepreneurs. By now, this transformation has been essentially completed in both countries, where commodities ranging from cars to foodstuffs to labor are traded on markets, and state-owned enterprises, to the extent that they have not been privatized, compete with private firms.

A comparison of Russia and China makes sense because of the two countries' divergent

¹²It may be objected that such inferences would only apply to the food and agriculture sectors and hence be inapplicable to the economy at large. I would argue, however, that a focus on food and agriculture does not limit the scope of inference, as the organizational peculiarities of different economic sectors are largely the result of objective constraints in these particular fields. (The capital investments required for the extraction, transport, and refining of oil, for example, constitute a natural barrier for market entry, causing most national oil industries to be oligopolistically or even monopolistically organized.) These peculiarities form the subject of research in fields such as organizational sociology and industrial economics, but do not constitute the focus of this dissertation. Rather than focusing on particular features of the agro-food economy, this dissertation investigates the broader institutional characteristics of post-communist capitalism, including property relations, the commodification of products and labor, and the emergence of profit-oriented governance. These features are enacted and enforced by the state and are *not* sector-specific. Patterns observed in a study of the institutional organization of food production will therefore appear as manifestations of regulatory principles that also govern economic life in other areas of the economy. The special role of food as an essential precondition of human survival moreover permits general inferences regarding the relationship between capitalism and human well-being.

¹³Methodologically, this dissertation contributes to recent scholarship advocating the use of alternative measures of socioeconomic development in lieu of aggregate economic indicators and statistical averages, which obscure existing inequalities between different social groups and geographical regions, and constitute a poor approximation of the notion of human well-being (e.g., Siglitz, Sen, and Fitoussi 2008; Hall and Lamont 2009).

institutional starting points and subsequent reform trajectories. Their differential economic performance is frequently characterized by invoking the dichotomy of shock therapy (Russia) vs. gradualism (China). For China, the results of the transition have been unparalleled, as it became one of the few developing countries ever to ascend to the ranks of global economic powers.¹⁴ China's recent overtaking of Japan as the world's second-largest economy bears testimony to this development. Russia, after being hailed as the poster child of the 'failed' transition to capitalism a mere decade ago, has managed to stage a surprising economic resurgence. Initially facilitated by a favorable currency exchange rate, and subsequently fueled by a high oil price, this resurgence has been achieved through drastic changes in government policy.¹⁵ Following the re-assertion of state authority under President Putin, the Russian economy went through a period of consolidation and restructuring. Relying on significant state guidance in the form of industrial policy and direct state involvement in the economy, the Russian state has since attempted to overcome the country's strong reliance on raw material exports and become an attractive destination for foreign capital investments.

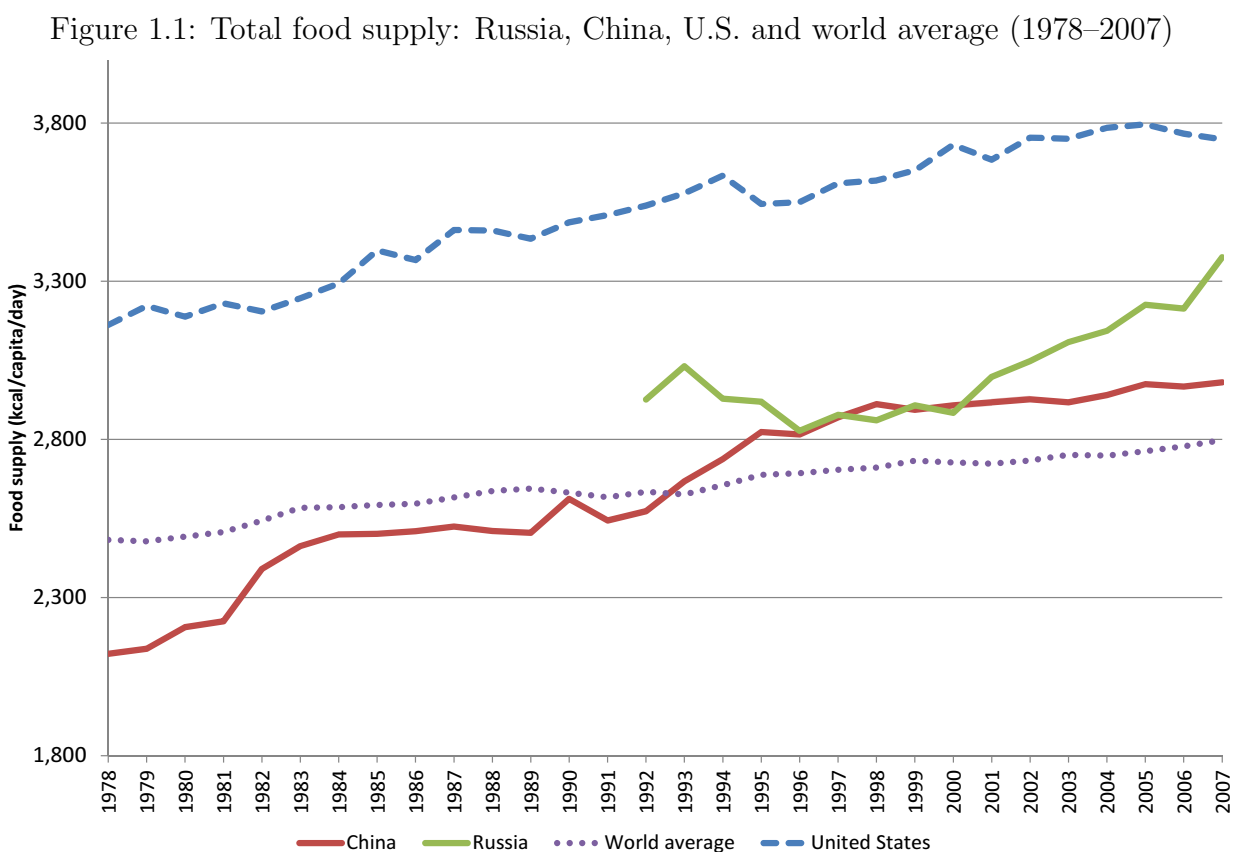
The general economic trajectories of Russia and China are reflected in the development of their respective agro-food economies. China, whose agricultural sector had stagnated during the socialist period, has become the world's largest agricultural producer and consumer. All sectors of the food economy underwent extensive (if gradual), restructuring, allowing China to emerge as a net exporter in various food and processed food categories, and attracting a significant degree of foreign capital (especially in the food processing and retail sectors). The Russian agro-food economy was plunged into a severe crisis following the onset of market reforms, with the state rapidly liberalizing food prices and privatizing farms, processing enterprises, and retail outlets. During the first half of the 2000 decade, the government partially re-regulated food markets and implemented extensive government

¹⁴The economist Stanley Fischer somewhat exuberantly called China's transition "the greatest increase in economic well-being within a 15-year period in all of history (perhaps excluding the period after the invention [sic] of fire)" (1994, 131).

¹⁵See Popov (2007a) for a comparative review of Russian economic performance during the Yeltsin and Putin presidencies.

programs to modernize agriculture and food production. Since 2001, Russian food supply — which had declined by nearly 10 percent between 1993 and 1996, and then remained stagnant until the end of the decade — has expanded consistently, growing over 17 percent between 2000 and 2007 (Figure 1.1).

Overall, my dissertation thus juxtaposes China as a case of ‘successful’ capitalist development, and Russia as a case of ‘disaster followed by catch-up’. This comparative rationale is graphically represented in Figure 1.1, which charts the total available food supply (not discounting waste) in both countries over time:



1.3 The food situation today

The reorganization of the Russian and Chinese food economies according to capitalist principles has produced uneven outcomes both within and across the two cases. There is no doubt, however, that both countries have made significant progress, especially in recent years, toward providing their populations with a more stable food supply, as the following brief review of their historical trajectories through the lens of statistical performance indicators demonstrates.

1.3.1 Production and availability

China

China's food economy remained wrought with problems throughout the socialist period, with per capita food consumption remaining largely stagnant during the two decades following the collectivization of agriculture in 1955, even as agricultural output values more than doubled during the same period. In a study reviewing food consumption trends during the Mao era, Lardy (1982, 159-60) offers the following summary assessment of the bleak accomplishments in this area:

Except for a few years in the mid-1950s and late 1970s, average per capita food consumption since 1949 does not appear to have reached the prewar level. In several short periods grain consumption fell to such low levels that mortality almost certainly increased. The per capita availability of other foods probably declined, particularly between 1966 and 1977 when official policy emphasized grain at the expense of cash crops, livestock products, and other non-grain foods.

The food situation changed fundamentally after 1978. As Table 1.1 indicates, China recorded significant gains in agricultural output and productivity following the introduction of economic reforms, even as the agricultural workforce declined by over a third. From the perspective of the government, the objective of feeding its population was thus largely achieved, rendering famines and mass starvation a phenomenon of the past. Until recently,

Table 1.1: Trends in Chinese agricultural production (1978–2009)

	1978	1980	1985	1990	1995	2000	2005	2007	2009
Gross output index (1978=100)	100	102	112	122	139	156	171	177	186
Grain production (million tonnes)	273.0	280.3	339.9	404.7	418.7	407.3	429.4	457.8	483.3
Yield (tons/hectare)	2.8	2.9	3.8	4.3	4.7	4.8	5.2	5.3	5.4
Meat production (million tonnes)	11.1	14.8	20.9	30.4	48.2	62.1	71.2	70.5	78.1
Farm employment (% of total)	–	68.7	62.4	60.1	52.2	50.0	44.8	40.8	–

Sources: FAO (2012); World Bank (2012).

China was nearly fully autarkic in its supply of food; since the middle of the 2000 decade, however, China has been a net importer of food — even as it remains a net exporter in certain product categories, including seafood, fruits and vegetables, and processed food products (Wilkinson 2009, 46).

Russia

Although Soviet agricultural production during the *perestroika* years did not fulfill the high expectations of central planners, this was by no means threatening to the nation’s food security, as both gross output and consumption of food actually increased slightly during the period from 1986 to 1990 (von Braun et al. 1996, 1). By the end of the decade, per capita consumption levels of major food products were, in fact, approaching those of the advanced industrialized economies of Europe and North America (Serova 1995; see also Liefert 2001).¹⁶ Agricultural reforms under Gorbachev did, however, cause growing disruptions to existing distribution channels, as well as some degree of consumer price inflation (Brooks and Gardner 2004; Brooks 1990c). In addition, high levels of food subsidies and rising import costs were increasingly perceived as an unsustainable financial burden by the Soviet government, which had started to apply principles of cost-accounting to its own finances (Johnson 1996). Brooks

¹⁶As Dronin and Bellinger (2005, 310) point out, per capita consumption figures likely overstate actually available amounts, given that the Soviet Union’s inadequate transportation and storage infrastructure led to frequent shortages in stores, as well as significant loss of foodstuffs and raw products due to spoilage. Incidentally, this problem persists to the present day: according to recent estimates, equipment and infrastructure deficiencies cause Russia an annual loss of 15–20 million tons on grain, 1 million tons of meat, and 7 million tons of milk (“Russia’s Machines Cost 20 Million Tons of Grain, Institute Says”, by Marina Sysoyeva. *Bloomberg*, October 13, 2011).

and Gardner (2004, 574) underscore the broader disruptive implications of Gorbachev’s reforms in the food economy, noting that “[a]gricultural policy [under *perestroika*] . . . played a material role in the collapse of the Soviet economy and the inauguration of the transition.”

Following the dissolution of the Soviet Union, Russian reformers believed that liberalized prices and privatized farm land would invigorate the stagnant agricultural sector and ensure a more stable and variegated supply of food to the population.¹⁷ Western policy advisers, who otherwise displayed a great deal of optimism regarding the potential of market reforms in Russia, were more skeptical about the chances of successfully restructuring the agricultural sector. As early as 1992, a World Bank report on agricultural reforms in Russia subtitled “An Agenda for the Transition” offered the following pessimistic assessment:

In the short term the costs of reform will outweigh the benefits. The first set of reforms in Russia have resulted in a deterioration in agriculture’s terms of trade and in declining farm profitability. This trend is expected to continue with the unification of exchange rates, new hikes in domestic energy prices, and higher credit costs. Retail food prices, once heavily subsidized, have soared. Income distribution has widened as household incomes increasingly diverge, with especially difficult consequences for the lowest income segments of the population (1992, 45).

Table 1.2: Trends in Russian agricultural production (1992–2009)

	1992	1995	2000	2005	2007	2009
Gross output index (1978=100)	100	73	62	73	76	81
Grain production (million tonnes)	103.8	61.9	64.3	76.6	80.2	95.6
Yield (tons/hectare)	1.7	1.2	1.6	1.9	2.0	2.3
Meat production (million tonnes)	8.3	5.8	4.4	4.9	5.8	6.6
Farm employment (% of total)	15.4	15.7	14.5	10.2	9.0	9.7

Sources: FAO (2012); World Bank (2012).

The trend did indeed continue. Between 1992 and 2000, Russia’s total agricultural output declined by nearly 40 percent (Table 1.2).¹⁸ Since the Brezhnev era, the Soviet government had been subsidizing both food producers and consumers through a series of direct and

¹⁷See Wegren (Wegren and O’Brien 2002, 8-13) for a concise overview of agricultural reform objectives and outcomes under Yeltsin.

¹⁸Most of this decline involved livestock products and feed grain (Liefert 2001).

indirect channels (Liefert 2001). When these subsidies were drastically curtailed in 1992, the simultaneous liberalization of prices and consequent exposure to market competition caused many of the formally subsidized producers to go out of business or shift into lower-value production lines. This problem was compounded by the removal of consumer subsidies, which resulted in a major demand contraction at a time when producers already faced extreme and unprecedented pressures in adapting to the new economic conditions.¹⁹ The collapse of Russia’s food economy culminated in 1998, when acute food shortages forced the government to request food aid from the European Union and the United States.²⁰

Since the beginning of the new millennium, domestic food production has increased every year, even though total agricultural output has yet to reach pre-transition levels. Because demand — especially for high-value food products — was growing at a faster rate than domestic production, Russia increasingly resorted to food imports to meet consumer needs (Liefert, Liefert, and Shane 2009b).²¹ By now, it has re-emerged as a net exporter of grain, and several state-led development programs have been implemented to further reduce import dependency and expand the share of domestic production (Liefert, Liefert, and Serova 2009a; Wegren 2011a).²²

¹⁹Economists and other analysts of the transition routinely describe the elimination of subsidies as a move toward greater economic efficiency. Brooks and Gardner (2004, 577), for example, write that the “extremity [of this economic adjustment] derived from the overcorrection of past subsidization.” It bears remembering, however, that the transfer payments used in the Soviet economy were not subsidies — that is, they were not assistance payments extended by the state in order to temporarily shield producers or consumers from market competition. Rather, these transfers (which oftentimes did not even take place in monetary form) served the purpose of creating a broadly egalitarian distribution of resources in Soviet society and preventing the emergence of relative wealth disparities between population groups or regions (Wegren 1998, 19).

²⁰“Facing Severe Shortage of Food, Russia Seeks Foreign Relief Aid”, by Michael R. Gordon. *New York Times*, October 10, 1998.

²¹Between 2000 and 2008, Russia’s total agricultural imports more than quadrupled, increasing from \$7 billion to over \$33 billion (Rosstat 2009).

²²Commenting on the fact that the market share of domestic food products reached close to 60 percent in 2011, Russian First Deputy Prime Minister Viktor Zubkov noted that, “[o]ver the past five years, we have doubled poultry production, upped pork production 50% and began to restore beef cattle, which had until recently virtually been inexistent. . . . Most importantly [sic], perhaps, was that for the first time since 1990 not only did the number of cows stop falling, it increased” (“Battle for harvest remains in past, work continues as normal”. *Ria Novosti*, January 10, 2012. Cited in *Johnson’s Russia List* #2012-6, January 10, 2012.)

1.3.2 Food consumption and diet

China

Table 1.3: Trends in Chinese dietary composition (1978–2007)

	1978	1980	1985	1990	1995	2000	2005	2007
Food supply (kcal/capita/day)	2,122	2,206	2,501	2,612	2,823	2,908	2,974	2,981
Share of animal products (% of total)	6.7	8.0	9.5	12.0	16.5	19.7	21.5	21.4
Protein supply quantity (g/capita/day)	52.4	55.1	63.6	67.5	79.1	86.2	89.4	88.9
Fat supply quantity (g/capita/day)	29.0	35.1	45.6	56.4	71.1	81.1	87.8	91.7

Source: FAO (2012)

With an average caloric intake of 2,122 kcal/pppd in 1978, China ranked among the developing nations of the world.²³ Following the introduction of agricultural reforms, higher production levels and rising average incomes brought about an increase in the per capita consumption of food, as well as improvements in the quality of nutrition (Popkin et al. 1993). By 2007, an average Chinese person was consuming just under 3,000 kcal/pppd (Table 1.3). Simultaneously, China experienced a diversification in food consumption patterns and a shift toward a more energy-intensive diet, signified by considerable increases in the intake of animal-source foods and edible oils (Popkin 2008). Compared to the Mao era, when many Chinese considered meat consumption to be a luxury reserved for special occasions, pork, beef, and poultry have become pillars of the Chinese diet.²⁴

Russia

In Russia, the “reform-driven drop in agricultural production and consumption” (Liefert 2001, 268) precipitated an inverse trend in the composition of popular nutrition. People adapted to the new economic conditions by shifting their diet from animal to vegetable

²³Note that Tables 1.3 and 1.4 display the *gross availability* of food products per capita, which may differ from the amount of food consumed by actual individuals.

²⁴According to government survey data, per capita meat consumption in urban areas increased from 20.5 kg in 1981 to 33 kg in 2005, while rural consumption grew from 9.5 kg to about 21 kg (Liu and Deblitz 2007; see also Wang, Zhou, and Cox 2005). As Guo et al. (2000) and Du et al. (2004) have shown, Chinese meat consumption has grown in direct proportion to rising incomes.

Table 1.4: Trends in Soviet and Russian dietary composition (1985–2007)

	<i>USSR</i>		<i>Russia</i>				
	1985-87	1988-90	1992	1995	2000	2005	2007
Food supply (kcal/capita/day)	3,376	3,365	2,926	2,919	2,884	3,226	3,375
Share of animal products (% of total)	26.6	27.7	26.2	25.6	21.8	22.4	22.7
Protein supply quantity (g/capita/day)	106.0	106.3	91.8	90.4	84.3	96.1	100.0
Fat supply quantity (g/capita/day)	101.8	105.5	81.0	81.0	76.1	89.5	94.4

Source: FAO (2012)

products, causing average caloric intake per capita to remain roughly constant between 1992 and 2000 (Table 1.4; see also Sedik, Sotnikov, and Wiesmann 2003, 12-16). This figure, of course, conceals nutritional inequalities that emerged as a consequence of poverty and forced reliance on household farming. As Liefert (2001, 267) elucidates,

[r]eform has threatened food security in Russia not because of inadequate overall supplies of foodstuffs, but because of problems involving access to food for segments of the population and certain regions within the country. The inflation and rising unemployment of the transition period increased poverty, such that food became less affordable to a growing share of the population. . . . Reports suggest that as much as 30 percent of the Russian population might be living below the poverty level.

Since the beginning of the 2000 decade, poverty levels have significantly declined, alleviating the threat of acute food insecurity that had plagued large segments of the Russian population. Data from a recurrent opinion survey by the Levada Center (2010, Table 5-1-1), an independent polling and research organization, indicates that the share of Russians who persistently struggle to afford food has decreased from 22 percent in 2001 to under 10 percent in 2010. Rising average incomes also mediated the relative financial burden of acquiring food: according to another Levada Center poll, the share of Russian households that spend most of their income on food declined from over 50 percent during the early years of the Yeltsin presidency to 12 percent in 2010 (*ibid.*, Table 14-5; see also Liefert, Lohmar, and Serova 2003).

1.3.3 Persistent problems and emerging contradictions

Recent improvements in absolute output and average availability have led many scholars to draw overwhelmingly positive assessments of the two countries' reform trajectories. Veeck (2000, 339), for instance, commenting on the gains in Chinese agricultural performance, claims that “any suggestion that the Chinese people were better off prior to the reforms is indefensible.” Russia, whose agricultural economy was not long ago described as “underperforming” (Brooks et al. 1996, ix) and “stagnating” (Spoor and Visser 2001, 899), was recently referred to as a “major player in world agricultural markets” in a United States Department of Agriculture (USDA) publication (Liefert et al. 2009a, 47), while Wegren (2011b, 211) calls the emergence of a Russian private farm sector an “emerging success.”²⁵

The significance of these trends notwithstanding, performance metrics such as growth rates, market shares, and per capita consumption figures only afford a partial view of the food situation in contemporary Russia and China, as quantitative indicators fail to capture, and may even obscure, many critical developments. Indeed, a closer inspection of the empirical record reveals that the introduction of private property and markets far from eliminated food-related problems — and, in fact, precipitated the rise of many new and unexpected challenges, which persistently affect the lives of many Russians and Chinese today. These issues range from hunger and malnutrition to deficiencies in the quality and safety of food products to severe environmental and ecological threats. They do not concern the absolute or average availability of food, but rather the conditions under which it is produced and distributed.

²⁵As evidence Wegren cites the growing contribution of private farms to the nation's food supply, increasing average landholdings, and growing political clout of private farmers' associations. Following the privatization of farm land and agricultural operators during the Yeltsin administration, the majority of state and collective farms had been transformed into large-scale “capitalist latifundia” (Szelényi 1998, 13), greatly constraining private farmers' business opportunities and access to land. Many observers subsequently blamed the continued existence of inefficient large-scale operators for Russia's agricultural stagnation, and expressed skepticism about the possibility of farm restructuring and the emergence of a viable private sector in agriculture (Bogdanovsky 2000; Spoor and Visser 2005; *inter alii*).

Hunger, malnutrition, and obesity

Even though the availability of food in China has improved since the beginning of the reform era, many people still suffer from hunger. The Food and Agriculture Organization of the United Nations (FAO) estimates that there are currently 127.4 million undernourished people in China, which accounts for about 10 percent of the population and is nearly equivalent to Russia's entire population (FAO 2009b, 48).²⁶ The prevalence of insufficient or inadequate nutrition is especially pronounced in rural areas (Liu et al. 2008). Even as China has reached its Millennium Development Goal of reducing the prevalence of underweight and poor nutrition among children by half more than a decade ahead of its 2015 schedule, over 20 percent of children in rural China continue to suffer from stunted growth, due to low-quality food products and micro-nutrient deficiencies (Svedberg 2007, 4). In recent years, a body of micro-level research has moreover documented a disproportionate occurrence of anemia and other forms of malnutrition among children in poor rural areas (Zhu and Liao 2004; Luo et al. 2009; Luo et al. 2011a; Luo et al. 2011b).

At the same time, the rapid transformation of dietary habits among more affluent members of Chinese society — signified, in particular, by a large increase in animal fat consumption — has given rise to increasingly unhealthy patterns of over-nutrition (Paeratakul et al. 1998; Stookey et al. 2001; Du et al. 2002; Luo et al. 2006; Popkin 2008). Today, overweight and obesity — which may cause severe health problems such as diabetes, hypertension, and a series of cardiovascular conditions — constitute a serious public health challenge.²⁷ In

²⁶Using the cutoff point developed by the FAO, inadequate food consumption occurs below a daily intake of 1,800 kcal per capita (FAO 1996, Appendix 3). To put this value into perspective, a sociology graduate student living in Cambridge, Massachusetts, who bridges the hours between his 368-kcal breakfast (bowl of oatmeal with reduced-fat milk, glass of orange juice) and 989-kcal lunch (take-out burrito with grilled chicken, no sour cream, glass of coke) by sipping on an iced espresso beverage from Starbucks (Venti Iced Peppermint Mocha, whole milk, whipped cream, 510 kcal) will have crossed this threshold by approximately 1 pm. The average per capita caloric in the United States is 2,673 kcal; due to significant spoilage and waste, this value is about 1,200 kcal lower than the technically available amount of 3,900 kcal (USDA 2010).

²⁷A recent nation-wide survey found that nearly 10 percent of Chinese presently suffer from diabetes, and another 15.5 percent have been diagnosed as being pre-diabetic (Yang et al. 2010). Using data from 2003, Zhao et al. (2008) estimated the medical costs attributable to overweight and obesity to be \$2.75 billion (CNY 21.11 billion), already accounting for over 25 of the total costs associated with the treatment of hypertension, type 2 diabetes, coronary heart disease, and stroke.

2002, according to World Health Organization (WHO) criteria, there were 215 million obese and overweight individuals in China: 184 million overweight people, and a further 31 million obese people — an increase of 39 and 97 percent, respectively, compared to 1992 (Wu 2006, 362; see Xi et al. 2011 for a review of secular obesity trends between 1993 and 2009). By the end of the decade, more than one in four Chinese adults had been recorded as being either overweight or obese (Popkin 2008).²⁸ Among children, 12.5 percent are considered obese by WHO standards, and 40 percent are overweight (Svedberg 2007, 4).²⁹

As striking as these nutritional inequalities is the fact that, in 2008, China exported 170,000 tons of frozen meat, 230,000 tons of soybeans, 1,240,000 tons of rice and corn, 1,750,000 tons of fish, 1,900,000 tons of fruit, and 6,240,000 tons of vegetables, to name only some of the main export commodities (NBS 2009, Table 17-9). Transformed into daily caloric intake values, using the guidelines provided by the USDA (Gebhardt and Thomas 2002) and the FAO (2002a), these quantities would translate into an additional 160-280 kcal per hungry person per day. If China were to distribute its export food products to the undernourished part of its population, this would alleviate some of its most severe domestic food security concerns.³⁰

Judging by aggregate statistics, food insecurity is less of a concern in Russia than in China. Based on government data, it is estimated that around 2 percent of Russian citizens were undernourished in the 2003–2005 period (IFPRI 2009, 42). Moreover, Russian obesity increased by 38 percent during the transition, rising from 20.3 percent of the population in 1994 to 28 percent in 2004, which would suggest that food has not been in short supply (Huffman and Rizov 2007, 380; see also Huffman and Rizov 2010). Still, these figures conceal

²⁸The magnitude of the problem is also illustrated by the growing popularity of weight-loss camps in China (“Fat camp shows China battling the bulge”, by Sui-Lee Wee and Sabrina Mao. *Reuters*, August 26, 2011).

²⁹Whereas in the United States and Europe, childhood and adolescent obesity are especially prevalent among poorer segments of the population, China’s obese children predominantly come from families with higher incomes and advanced education levels (Hsu et al. 2011; Cui et al. 2010). Among adults, longitudinal research on dietary change indicates a greater propensity toward overweight and obesity among members of lower socioeconomic groups (Popkin 2008; see also Guo et al. 2000; Du et al. 2004).

³⁰This logic also applies on the global level. World agriculture produces 17 percent more calories per person today than it did in 1970, despite a 70 percent population increase. This is enough to provide everyone in the world with at least 2,720 kcal per day (FAO 2002b, 9).

the particular face of hunger in contemporary Russia. While the majority of people have access to sufficient food, a minority remains persistently deprived, largely due to poverty. For example, the residents of Russia's hundreds of Soviet-era mono-industrial towns face hunger or even starvation when the only local employer and tax-payer goes out of business, as demonstrated by the consequences of recent factory closures in the towns of Pikalovo and Vyatskiye Polyany.³¹

The persistence of hunger in both countries appears contradictory. In China, nearly one in ten people go hungry, despite considerable annual food exports and growing prevalence of obesity. In Russia, too, obesity is considered a major public health risk, even as the residents of factory towns potentially face starvation. These contradictions indicate that food production in a market economy is organized according to considerations other than the provision of minimal daily sustenance to all members of the population. Whereas in the past, hunger resulted from food shortages that were the consequences of poor planning and disastrous economic policies, such as Mao's Great Leap Forward and Khrushchev's Virgin Lands Campaign, access to food nowadays is no longer merely a matter of physical availability. Instead, food insecurity results from someone's *inability to pay the price* a seller requests based on his own cost-revenue calculations. In particular, the most destitute will thus be deprived from access to food, as vendors rather let their products perish than give them away for free.

Food prices

High and volatile food prices play an important role in accounting for the persistence of hunger and the emergence of inadequate nutrition patterns in both China and Russia. Even though food price increases affect all segments of the population, inflation has particularly devastating impacts for social groups whose members already struggle to afford food or are

³¹"Unrest threat as crisis hits Russia." *BBC News*. March 31, 2009. "Russian TV says people starving in town where defence plant fails to pay wages" (excerpt from report by state-owned Russian news channel *Rossiia 24* on March 9, 2010. *BBC Monitoring*. Cited in *Johnson's Russia List* #2010-48, March 10, 2010).

routinely forced to make dietary compromises.³²

In China (as also noted above), meat has become a permanent feature of the national diet, with pork accounting for nearly two thirds of total meat consumption (Ortega et al. 2009). Since prices entered a period of recurrent upsurges in 2010, growing numbers of Chinese are no longer able to afford the variety and quality of food products to which they have grown accustomed. Inflation, especially in basic commodities, has been a major source of social discontent and, in some instances, public protest.³³ Threatened by the possibility of social unrest, the government has reacted to the accelerating rate of inflation with market interventions in the form of subsidies and various price-stabilizing measures, somewhat reducing pressures on consumers.^{34,35}

After experiencing a period of extreme food price volatility during the early transition years, Russian consumers were hit by another round of sharp price increases in 2010 and 2011. At a time when global food prices had barely recovered from their (then) all-time highs of 2008, a combination of drought and wildfires in the summer of 2010 destroyed a third of the country's grain crop and prompted a major spike in the price of basic foodstuffs.³⁶ While the magnitude of the recent food price hikes has not approached the "hyper-inflation" of the Yeltsin era, it nonetheless transformed popular food staples like cabbage and potatoes into "luxury goods" and triggered protests in parts of the country.³⁷

³²A recent calculation by the UNDP illustrates the extent to which even minor food price increases might exacerbate food insecurity among the poor. Under the World Bank's \$1.25 (PPP) per person per day guidelines, the Chinese poverty rate is estimated at around 16 percent (UNDP 2009). If one instead uses a \$2 (PPP) cutoff, the figure jumps to 36.3 percent — over one third of the population (ibid.).

³³"Surging Chinese price rises fuel protests", by Jamil Anderlini. *Financial Times*, June 14, 2011.

³⁴"China inflation eases to 15-month low, policy easing eyed." *Reuters*, January 12, 2012.

³⁵Producers and sellers of food are the main beneficiaries of high price levels (considering that their own cost-revenue calculations give rise to inflation in the first place), whereas consumers experience it as a form of relative impoverishment. Yet producers themselves may be exposed to existential risks if a sudden drop in market prices upsets their calculations, an economic reality that was starkly illustrated by a Chinese farmer who was driven to such despair by an unexpected decline in vegetable prices that he committed suicide. See "Vegetable price plummets, farmer hangs himself in desperation." *China Hush*, April 28, 2011. <http://www.chinahush.com/2011/04/28/vegetable-price-plummets-farmer-hangs-himself-in-desperation> (accessed October 3, 2011).

³⁶"Moscow's deadly smog returns as wildfires continue to rage." *The Guardian*, August 15, 2010.

³⁷"Cabbage and potatoes: Russia's new luxury goods", by Eleanor Dermey. *Associated Free Press*, February 19, 2011. "Russians wary as food prices rocket", by Malcolm Borthwick. *BBC News*, February 25, 2011. "Protest In Russian Far East Against Price Hikes." *Radio Free Europe*, January 28, 2011.

Food safety and quality

In an environment of high prices and clear limits to consumer spending ability, many food producers have resorted to alternative means of expanding their profit margins. Instead of — or sometimes, in addition to — increasing revenues through further price increases, these producers have attempted to lower their manufacturing and procurement costs by economizing on product quality and safety. Meanwhile, Chinese food consumers, already burdened by increases in the relative cost of food, are eager to purchase cheaper products, unaware of the sometimes egregious health risks associated with their consumption. In 2011, government statistics counted over 60,000 cases involving sub-standard and harmful food products, prompting a senior official to remark that the nation’s food safety presently suffers from a “feeble foundation”.³⁸

In 2011, it was discovered that pig breeders across China had been feeding their animals the metabolic enhancer clenbuterol, which causes meat to become leaner and induces cancer in those who ingest it.³⁹ Later that year, products by the popular milk producer Mengniu were found to contain a different carcinogenic substance, aflatoxin, which enters cow milk via contaminated feed.⁴⁰ In yet another incident, discarded cooking oil was collected from restaurants’ kitchen waste, crudely reprocessed, relabeled, and then sold to restaurants and consumers — with profit margins ranging between 65 and 100 percent.⁴¹ Fake products, a phenomenon typically associated with the apparel industry and entertainment media, have recently become a major concern in China’s food economy.⁴² In October 2011, municipal

http://www.rferl.org/content/russia_far_east_rising_prices/2290849.html (accessed October 4, 2011).

³⁸“China’s food safety suffers ‘feeble foundation’.” *China Daily*, January 10, 2012.

³⁹“China bans production, sale of clenbuterol.” *China Daily*, September 30, 2011.

⁴⁰“Toxin found in Mengniu’s milk”, by Qiang Xiaoji. *China Daily*, December 26, 2011.

⁴¹“Staggering profits lure traders into waste cooking oil business in SW China.” *Xinhua*, October 18, 2011.

⁴²Unlike watching a pirated DVD, which will at worst cause frustration due to poor image quality, consuming a fake or mislabeled food item can have serious and potentially lethal health consequences. The consumption of clenbuterol-tainted pork, for instance, caused hundreds of people to fall sick (“Hundreds in China Fall Ill; Additive Suspected.” *Wall Street Journal*, April 26, 2011). In April 2008, three infants died and hundreds fell ill after drinking milk contaminated with melamine; a similar incident in 2011 involving nitrate-tainted milk killed three children (“China ‘tainted milk’ kills three children.” *BBC News*, April 8, 2011). In August of the same year, at least 11 people died in Xinjiang province from consuming vinegar that had been tainted with a poisonous antifreeze agent, adding to the 45 deaths already associated with

authorities in Chongqing ordered several Wal-Mart branches to temporarily close down after allegedly mislabeling and selling ordinary pork as more expensive organic pork.⁴³ The growing prevalence of counterfeit varieties of American name-brand seeds was the subject of a recent article in the *Wall Street Journal*:

Thousands of companies across the country are taking bags of common seeds for corn, soybeans and other crops and passing them off as super seeds — whether genetically modified or simply superior breeds — from global biotechnology giants like Monsanto and Pioneer Hi-Bred [author’s note: a subsidiary of de Nemours & Co.].⁴⁴

While scandals involving deaths and intellectual property violations have received international media attention, many others, which were not given the same global coverage, were no less controversial within China.⁴⁵ In recent years, the food industry’s apparent disregard for human safety has been a source of major public dissatisfaction and violent reactions across China.⁴⁶ The Chinese government has responded to the food safety crisis through enhanced regulatory enforcement and a series of well-publicized crackdowns.⁴⁷ New regulations and

consumption of poisonous food products that year (“Deaths linked to tainted vinegar in Xinjiang.” *China Daily*, August 23, 2011).

⁴³“Wal-Mart employees arrested after pork scandal.” *China Daily*, October 12, 2011.

⁴⁴“China’s Counterfeiters Get Seedy.” *China Realtime Report (Wall Street Journal)*, August 5, 2011. <http://blogs.wsj.com/chinarealtime/2011/08/05/chinas-counterfeiters-get-seedy> (accessed December 4, 2011).

⁴⁵Many of these incidents have been reported by online news sources. In November 2011, the website *NetEase* reported the discovery of a garbage landfill that had been converted into a cattle feedlot (“Just another food scandal: landfill becomes cattle feedlot.” *China Hush*, November 8, 2011. <http://www.chinahush.com/2011/11/08/just-another-food-scandal-landfill-becomes-cattle-feedlot> [accessed December 7, 2011]). In similar case earlier that year, farmers had used a landfill to feed and house pigs (“Pig farmers using garbage as feed”, by Zhang Jiawei. *China Daily*, March 23, 2011). A more bizarre incident occurred in April 2011, when pork that had been treated with a harmful additive to give it the appearance and taste of beef was labeled as the latter and sold on markets in Anhui Province (“Harmful food additives turn pork into ‘beef’” *Global Times*, April 13, 2011). In an equally outlandish discovery, pig meat sold at a market in Beijing was found to be glowing in the dark (“Pork emits creepy blue light”, by Lu Yanyu. *China Daily*, December 13, 2011).

⁴⁶Upon finding out that their school’s kitchen had been using drainage oil in meal preparation, a group of over 300 students at a middle school in Guizhou province proceeded to demolish the school’s cafeteria (“Students smash canteen over gutter oil”, by Xu Wei and Su Jiangyuan. *China Daily*, December 20, 2011). The dairy producer Mengniu, shortly after dangerous toxins had been discovered in its products, became the target of an online attack when its corporate website was hacked and replaced by a protest message (“Mengniu website hacked after milk scandal”. *Reuters*, December 29, 2011).

⁴⁷In the lean meat additive scandal, for instance, authorities arrested nearly 1,000 people, over 100 of whom received sentences, including one suspended death penalty (“China arrests over 900 in tainted pork

stricter controls have not lowered the frequency of scandals, but in fact have only served to further illuminate the magnitude of the problem.⁴⁸

Russian food safety violations, though perhaps less colorful than some of the Chinese cases, have been equally severe in their implications for Russian consumers. In 2011, tests carried out by the Center for Grain Quality Control (FGBU), a division of Russia’s Federal Service for Veterinary and Phytosanitary Surveillance (*Rosselkhoz nadzor*), revealed that nearly one third of inspected grains and processed grains did not meet the government’s regulatory requirements for quality and safety of food products.⁴⁹ Studies have also revealed that many Russian foods contain residues of organic and chemical pollutants, resulting from contaminated animal feed, excessive fertilizer use, and unsafe farming practices (Gorbunov et al. 2003; Polder et al. 2010).⁵⁰

Russia has moreover been affected by multiple outbreaks of viral epidemics among its swine population, including the highly infectious African Swine Fever (ASF) and Classical Swine Fever (CSF).⁵¹ Though neither poses a risk to human health, their high level of contagiousness can necessitate rapid emergency slaughtering of large swine populations, lowering both capital productivity and food availability. In 2010 and 2011, outbreaks on Russian farms already required the slaughter of tens of thousands of animals.⁵² In early 2012, First

crackdown.” *Xinhua*, August 29, 2011. “China sentences 113 in tainted pork scandal.” *The Guardian*, November 26, 2011).

⁴⁸During an investigation into the sale of recycled waste oil, for instance, authorities uncovered a complete industrial value chain devoted to the recovery, processing, and distribution of used cooking oil, encompassing organizations in 14 Chinese provinces (“Authorities struggle to eliminate ‘gutter oil’”, by He Tao. *Caijing*, September 26, 2011. <http://english.caijing.com.cn/2011-09-26/110874608.html> [accessed December 7, 2011]).

⁴⁹“*Ob itogakh raboty podvyedomstvyennogo Rossyelhoznadzoru FGBU 'Tsyentr ocenyki kachyestva zhyerna' za iyul 2011 goda* [Work report by the Rosselkhoz nadzor subordinate FGBU ‘Center for Grain Quality Control’ for July 2011].” Federal Service for Veterinary and Phytosanitary Surveillance, Russian Federation. <http://www.fsvps.ru/fsvps-docs/ru/news/files/3454/grain.pdf> (accessed December 9, 2011).

⁵⁰Fish, dairy products, eggs and meat were found to contain different traces of chlorinated pesticides, with estimated human intake levels significantly exceeding those of neighboring countries (Polder et al. 2010).

⁵¹The two diseases, though micro-biologically distinct, produce similar symptoms, including high temperature and internal bleeding (Dixon et al. 2008). Both are typically lethal, and highly virulent strains may kill pigs before they display any clinical signs of illness (USDA 2006). The U.S. Code, as part of the *Swine Health Protection Act*, refers to ASF as “potentially the most dangerous and destructive of all communicable swine diseases” (7 USC Sec. 3801). Both forms of swine fever are caused by tick bites and by feeding pigs inadequately treated waste and garbage (USDA 2006).

⁵²Recently, a single large-scale outbreak on a commercial farm in Russia’s Krasnodar region led to the slaughter of over 30,000 pigs (“Farm Kills All 30,736 of its Pigs Because of Swine Fever.” *Bloomberg*, January

Deputy Prime Minister Viktor Zubkov called ASF “a disease that has turned into an economic threat”, after earlier forecasts by *Rosselkhoz nadzor* had predicted that ASF would cause 14.7 billion rubles (nearly \$500 million) in direct and indirect near-term losses, and require the killing of over 200,000 pigs (USDA Foreign Agricultural Service 2011b).⁵³ Investigations revealed that many farms had been in violation of basic safety requirements, prompting the government to adopt new regulations and tougher enforcement practices.⁵⁴

Ecology and environment

The natural environment, insofar as it is utilized in the production of food, has not remained unaffected by the set of institutional and organizational changes that comprise the transition to capitalism. In particular, growing agricultural pollution, excessive fertilizer application, and poor irrigation practices have severely depleted soil quality and contributed to erosion and desertification.

In China, the limited availability of arable land has necessitated methods of intensive agricultural cultivation in order to meet growing production needs. Between 1978 and 2009, the total area of agricultural land grew by only 25 percent, yet grain harvest yields rose by nearly 100 percent (World Bank 2012; see also Table 1.1 above). This differential increase is explained by the introduction of modern production techniques and mechanized equipment on farms across China, and by the pervasive usage of chemical fertilizer. Fertilizer residuals have been identified as a source of severe water and soil degradation.⁵⁵ Rapid growth in the number of hog farms and other livestock operators has furthered this trend, as animal waste is routinely discharged into rivers with minimal or no filtration (Gu et al. 2008). In addition, a recent study by the Chinese Academy of Sciences found that 10 percent of Chinese farmland

13, 2012.

⁵³“First Deputy Prime Minister Viktor Zubkov holds a teleconference on African swine fever and the measures being taken for its eradication.” Press Release, Federal Government of the Russian Federation, January 20, 2012. <http://government.ru/eng/docs/17827> (accessed January 22, 2012).

⁵⁴“Russia to tighten pig keeping rules, disease a concern.” *PigProgress.net*, January 17, 2011. <http://www.pigprogress.net/news/russia-to-tighten-pig-keeping-rules-dise> (accessed April 4, 2011).

⁵⁵“China’s agriculture causing environmental deterioration.” *Xinhua*, July 5, 2006.

has been severely contaminated by industrial pollutants, including lead, mercury, cadmium, and other heavy metals.⁵⁶ Pollution also constitutes a serious threat to China’s long-term water security — and, by extension, food production capabilities —, seeing as industrial and agricultural usage have already led to the widespread contamination of existing water resources (Xie et al. 2009).⁵⁷

In Russia, the contraction of grain and livestock output during the Yeltsin era brought with it a decline in absolute levels of fertilizer application and agricultural waste.⁵⁸ Following several years of agricultural output expansion, however, this trend has now been reversed. Recent studies report the presence of chemical pollutants in agricultural soil, and found toxic residuals of chemical fertilizer and agricultural sewage to be significant sources of water pollution, affecting the potable water supply of large Russian cities, including St. Petersburg (Salminen et al. 2005, 32; Kondratyev 2011; Motuzova 2011).

Moreover, both countries suffered from a series of natural disasters in recent years, which led to declines in output and required major acts of government intervention. Climate and weather can lower crop yields and disrupt agricultural production independent of a country’s economic system. In a market economy, however, shortages necessitate a government response far beyond the provision of temporary food relief for affected areas: They require inflation management and financial subsidies, lest national economic growth be negatively affected. In China, for instance, a severe drought in the western and central agricultural provinces — the worst in over 200 years, according to official precipitation records⁵⁹ — caused water shortages for millions of farmers, prompting official statements with ancillary acknowledgment of the human implications but detailed predictions about near-term inflationary pressures and long-term economic costs.⁶⁰

⁵⁶“Heavy metals pollute a tenth of China’s farmland.” *Reuters*, November 6, 2011.

⁵⁷In January 2012, China’s largest freshwater lake, Poyang Lake in Jiangxi province, was reported to have dried up entirely as result of drought and human diversion of tributary waterways (“China’s largest freshwater lake dries up”, by Harold Thibault. *Guardian Weekly*, January 31, 2012).

⁵⁸In hindsight, this decline also reflects the high agricultural pollution levels and inadequate environmental management practices of the Soviet Union (Komarov 1981; Pryde 1991).

⁵⁹“East China wheat basket braces for worst drought in 200 years.” *Xinhua*, February 8, 2011.

⁶⁰“Yangtze drought affects 5% of China’s farmland, may damp economic growth.” *Xinhua*, May 30, 2011.

In Russia, a drought and wildfires in 2010 affected over a third of Russia's cultivable area, and significantly lowered agricultural output (USDA Foreign Agricultural Service 2010a). Among the population, the crisis created widespread frustration and heightened social tensions.⁶¹ Shortages in the supply of buckwheat, a popular staple grain, led to the re-emergence of what the *New York Times* termed "Soviet habits" — panic-buying and hoarding of supplies; the government's reaction was limited to financial assistance for farmers and appeals insisting that consumers cease the Soviet behavior.⁶² The far more significant policy event of the summer was trade-related and consisted of a presidential ban on wheat exports, creating economic disruptions for domestic producers and foreign trade partners alike.⁶³

Long-term food security

Even as Russia and China have become global players in agricultural markets and do not face any acute food supply constraints, questions of long-term food security remain on the agenda of political leaders in both countries. Chinese food safety concerns are first and foremost driven by demographic considerations. Even with the one-child policy in place, China's population is predicted to increase further, prompting researchers to ask questions such as "Can China feed itself?" (Heilig, Fischer, and van Velthuisen 2000, 153). The widely cited *Who will feed China?* by environmental analyst Lester Brown (1995a) falls on the alarmist end of a spectrum of academic studies evaluating food output projections in light of demographic trends and a series of potential threats (see also Riskin 1987b; Mei et al. 1991; Paarlberg 1997; *inter alii*). In 1996, the Chinese government devoted its 'No. 1 Document' — an annual white paper on rural and agricultural policy — to the challenge of meeting the country's long-term grain consumption needs. Questions of food security arise in the context of China's limited arable land, which is already subject to heavy fertilizer use in order to

"Drought, food security and markets", by Fan Shenggen. *China Daily*, June 8, 2011.

⁶¹"Drought Fuels Social Tensions", by Boris Kagarlitsky. *Moscow Times*, July 22, 2010.

⁶²"In Russia, a Shortage Triggers Soviet Habits." *New York Times*, September 7, 2010, p. A4.

⁶³"Vladimir Putin bans grain exports as drought and wildfires ravage crops", by Tom Parfitt. *The Guardian*, August 5, 2010.

sustain productivity increases (McBeath and McBeath 2010). Widespread conversion of (sometimes illegally appropriated) agricultural land into urban and industrial developments exacerbates existing land constraints, and recent rises in the price of potash fertilizer (much of which is imported) have emerged as an additional constraint on productivity gains and long-term production capacity.⁶⁴ Finally, the rapid depletion of existing surface and groundwater reservoirs constitutes another fundamental threat to China’s food security (Xie et al. 2009; see also Khan, Hanjra, and Mu 2009).

In Russia, as Wegren (2005c, 174) points out, food security also constitutes a prominent political issue:

Concerns [over food security] have remained salient even after Russian agriculture began to rebound. Food security has entered the national vocabulary and remains politically important, making it difficult for politicians and policymakers to ignore.

In a later study, Wegren (2011a, 153) concluded that “[f]ood security is now a central tenet of Russia’s agricultural domestic and foreign policy”, adding that the country’s food security debates partially consist of political rhetoric, seeing as even following the 2010 drought the national food supply was not fundamentally threatened (ibid.). Indeed, Russian food security policy has focused primarily on strengthening the domestic farm and processing sectors in order to reduce import dependency, as opposed to addressing potential long-term constraints in the absolute supply of food. The strong political desire to have Russian products instead of foreign imports dominate the market for consumer foods most recently manifested itself in a new Food Security Doctrine, which was signed by the Russian president in January 2010 and is geared toward achieving self-sufficiency in all major food categories (USDA Foreign Agricultural Service 2010b).

⁶⁴“Urbanization ‘threatens food security’”, by Chen Xin. *China Daily*, March 28, 2011. “Fertilizer costs threaten China’s food security”, by Cai Muyuan. *China Daily*, July 25, 2011

1.4 Research problem and empirical strategy

What are the causes of expensive and unsafe food being produced under unsafe conditions, with serious negative consequences for both human beings and the natural environment? As the above review demonstrates, food-related concerns in Russia and China are both serious and warrant further investigation. Their persistence suggests that these are not temporary side effects of capitalist development but necessary consequences of it. The phenomena comprising this food crisis affect the lives of millions of Russians and Chinese, and are increasingly viewed as major social problems. A recent survey by the Chinese Academy of Social Sciences, for example, found that both high prices and food safety concerns ranked among the “Top 10 Problems in China in 2011”.⁶⁵

Existing theories provide no satisfactory explanation of these phenomena. Even as clear and persistent ‘losers’ have emerged from the reform process, this fact presently remains understudied, and the few existing studies provide, at best, partial views. Social scientists and policy-makers alike tend to treat problems such as hunger, inflation, and environmental degradation as manifestations of distorted or unbalanced economic growth, which can be addressed, if not eliminated altogether, through reforms and fine-tuning of the regulatory system. In the context of China’s rural-urban cleavages, for instance, the expression *sannong* (“three rurals”) signifies a set of government policy objectives in the areas of rural and agricultural development, which Waldron (2010, 1) describes as “new opportunities and challenges” brought about by “rapid economic development”, the “meeting” of which “requires new and increasingly refined strategies that must be underpinned by detailed and pragmatic forms of analysis.” A similar tendency to redefine disturbing social phenomena as policy challenges can be found in the literature on Russia’s agricultural transition. Commenting on a period when poverty and insufficient availability in stores had forced many people to rely on food grown in communal orchards and backyards, the EBRD’s 2002 edition of the *Transition*

⁶⁵“Qī chéng jūmín rènwéi wùjià shàngzhǎng yālì dà [70 percent feel pressure of rising commodity prices].” *Beijing News*, December 20, 2011, p. A22.

Report (in a review chapter devoted to agriculture) speculates about why expected gains and improvements did not materialize, yet nonetheless manages to draw an affirmative conclusion concerning the overall reform process:

Difficult policy choices — in particular, regarding land ownership and control rights — have been slow in being implemented and . . . have held back improvements in output and productivity. Consequently, the reform agenda remains wide open, with substantial areas — including market infrastructure and financing — to be adequately addressed. . . . [P]olicies favouring liberalisation and privatisation of the economy as a whole have had positive consequences for the agricultural sector. However, such changes can also bring about temporary and adverse consequences for agriculture, principally through changes in relative prices or the agricultural terms of trade” (EBRD 2002, 86).

The intellectual premise of this dissertation is that the negative consequences of market-based development are not *problems* that need to be *solved*, but *phenomena* that have to be *understood*. It is only after interrogating the political-economic processes which give rise to observed ‘adverse consequences’ that it is possible to formulate an adequate policy stance — or, when and where applicable, an appropriate critique. Engaging with this issue scientifically requires the development of a comprehensive understanding of the institutional parameters governing economic activity, including the patterns of industrial organization and behavior to which they give rise. Based on these insights, it will then be possible to draw inferences concerning the implications of market reforms for farmers, food producers, and consumers.

In order to determine the institutional characteristics of Russian and Chinese capitalism and their welfare consequences, this dissertation investigates changes in the political economy of food production. As part of the capitalist transition, the state relegated the crucial responsibility of supplying food to the population to private farms and enterprises that grow, process, and sell food in competition for the acquisition of profits. The objective of this dissertation is to empirically and theoretically appraise the political economy of food production that emerged as a result of this shift, and to chart its implications for human welfare. Specifically, I seek to answer the following two research questions:

1. What are the institutional principles governing the production of food in Russia and

China today, and how has the political economy of food production evolved as a result of market reforms?

2. Which consequences emerge from this form of political economy for the availability, accessibility, and nutritional adequacy of food for consumers in these countries?

The empirical research conducted to investigate these questions followed the methodological precepts of the Varieties of Capitalism (VoC) paradigm. This school of thought distinguishes different types of capitalist economies based on their respective solutions to a common set of coordination problems (Hall and Soskice 2001). The particular nature of these problems varies, depending on the coordination requirements of specific markets or economic sectors. Based on this conceptualization, the VoC approach permits a classification of different capitalist countries according to the institutional arrangements they adopt in mediating these demands.

As the food economies of Russia and China have become organized according to principles of profit-oriented governance, a new need for economic coordination has arisen. The state now needs to strike a balance between the competing demands of market-based growth on one hand, and adequate food provision for the population on the other hand. As Huang (1998, 1) distills this challenge from the standpoint of the Chinese state: “[W]hat is the best strategy for achieving domestic food security as well as sustaining rapid economic growth?” This dissertation traces the different solutions that the governments of Russia and China have provided for this problem over time by investigating the *institutional objectives* that constitute the organizing principles of the new legislative and regulatory frameworks, and by analyzing the interests and organizational practices which these new incentive structures have created among economic actors.

Applying this analytical framework to the cases of Russia and China, my dissertation empirically examines the tension between economic growth and nutritional provision. In doing so, I adopt a *sector-based* approach to studying the agro-food economies of Russia and China. Studying the sphere of food production through this multi-sector lens offers three distinct

advantages. First, covering all aspects of the food production chain permits a nuanced view of government policies, which manifest themselves in divergent and, at times, antithetical ways across economic sectors. Second, this research design allows for multiple comparisons both within and across countries. For each country, it is possible to document changes in individual sectors and in the political economy of food production at large. Between the two countries, the design permits a multi-sector cross-comparison, in which different industries can each be compared across cases and as coherent fields of economic activity. This approach makes it possible to account for varying patterns of ownership, industrial organization, and state-economy relations in all sectors. At the same time, the object of economic activity — food — is held constant, making a comparison between broadly coherent sectors within each country more reasonable than, say, a comparison of agriculture, garment manufacturing, and the oil industry. Third, given that this approach takes into account both primary production (agriculture) and secondary processing of food, the proposed analysis will cover a wide spectrum of economic activity and should thus yield representative insights.

In the agriculture and food processing sectors, there exists significant variation across different product categories in terms of production methods, the organization of production, industrial policy, and distribution patterns. I have therefore limited my analysis to the wheat and pork sectors. Studying one crop and one meat ensures that the analysis covers two of the major primary production techniques: farming and livestock breeding. In terms of consumption, wheat is a basic staple grain, whereas pork (like other meats) is associated with higher income levels and living standards, making this combination a useful gauge of changing nutritional patterns. Based on this analysis, this dissertation presents a systematic comparison of the national food economies of Russia and China, linking the institutional parameters set by the state to the structure and organization of the food production and distribution sectors, and assessing the implications for popular nutrition and human welfare.

1.5 Synopsis and structure of the argument

In brief, to preview the central thesis of this dissertation, I argue that the transformation of food into a commodity and the resultant subordination of edible goods to criteria of competitive exchange signify a change in the *institutional objectives* governing the production and distribution of food in Russia and China. Under socialism, ensuring a stable food supply for the (urban) population preventing hunger among those who could not afford food were fundamental objectives of the political leadership. The outcomes, as is well known, were shaped by contradictions in the socialist mode of economic planning and were exacerbated by politically driven mass campaigns (especially in China). With the introduction of market reforms, the food economies of Russia and China were transformed into commercial spheres whose key metric of success is the rate of capital productivity, overshadowing questions of whether the resulting food products adequately satisfy human consumption needs.

This dissertation is structured to follow the logic of this argument. After a brief chapter on methodological considerations and data sources, the first empirical chapter traces the evolution of state objectives and institutional policy, as reformers in both countries adopted programs to modernize socialist food production by introducing market elements. The second empirical chapter examines the introduction of commodity relations to the agro-food economies of Russia and China and places particular emphasis on the sequencing and political-economic content of reforms, as well as their implications for farmers and food producers.⁶⁶ Together, the above analyses form the background for the third empirical chapter, which investigates the implications of profit-oriented governance for the organization of food production using an in-depth comparison of the institutional and developmental trajectories of the Russian and Chinese wheat and pork sectors. The concluding chapter offers a summary of the findings, distills their theoretical implications, and highlights contributions to existing scholarly debates.

⁶⁶The analysis in this chapter focuses on the initial stage of institutional reform in both countries, which lasted from 1978 to 1992 in China and from 1986 to about 1993 in the Soviet Union and Russia.

Chapter 2

Analytical framework and research design

As post-socialist societies, Russia and China share two essential common characteristics. First, they both had, at different points in the twentieth century, abolished capitalism and replaced it with an economic system based on state ownership and central planning. Second, due to dissatisfaction on part of the political leadership, they both implemented a regime of private property and markets, entering the process of what is conventionally known as ‘the transition’. Moreover, as in other post-socialist countries, the transition involved an explicit promise of greater prosperity for the majority of the population, seeing as the numerous advantages of life in a market economy — or, in the case of China, a socialist market economy (with special characteristics) — formed the principal content of both official justifications and popular expectations of the reform process.¹

This particularity constitutes a logical starting point for social scientific inquiry. It is sensible to assess whether the popular and political hopes regarding an overall improvement in human welfare and quality of life did indeed materialize. Yet researchers who hope to arrive at a straightforward summary judgment of the transition face an analytical challenge:

¹See Hua (2006) for a comparative review of the political discourse used to legitimate early economic reforms under Deng and Gorbachev.

Russia and China, despite both implementing market reforms, have not simply created the same model of capitalism. To the contrary, the two countries exhibit significant institutional variation in areas ranging from state-economy relations, to property ownership, to organizational behavior. As Eyal and his co-authors observe,

[a]lthough market economies are everywhere defined by private property and integrated by price-regulated markets, it is increasingly obvious that there are differences in institutional arrangements and class relations across capitalist societies that are deeply consequential for those who inhabit them (Eyal, Szelényi, and Townsley 1998, 1125).

This raises the question of how the political economy of post-socialist societies, such as Russia and China, can be appropriately analyzed: Both countries have been following directionally similar reform paths, yet their economic systems exhibit meaningful variation in terms of institutional organization and social conditions. The solution is to take concrete institutional circumstances and their consequences seriously, while locating them within their historical and conceptual context. In the words of Leon Trotsky (1942, 108), one has to study “[n]ot capitalism in general, but a given capitalism at a given stage of development.”

Carrying out this type of analysis involves *empirical* as well as *theoretical* work. Empirical work requires the development of strategies and techniques for the acquisition of data and evidence, whereas theoretical work consists in making sense of this information. In other words, a researcher needs to decide how to collect the requisite empirical evidence, how to make conceptual sense of the findings, and how to effectively present the results in a scholarly narrative. This chapter elucidates the conceptual and methodological choices underlying the present investigation into the political economy of food production, addresses the analytical framework and empirical methodology employed, and discusses the evidence and sources consulted.

2.1 Analytical Framework

The task of formulating an analytical framework consists in developing a set of theoretical concepts which is sufficiently abstract to capture the essential, non-arbitrary properties of an object of inquiry, yet is sufficiently specific to account for its empirical particularities. Both the focus of my dissertation research — the economic organization of food production in two post-socialist societies —, as well as its analytical objectives — the documentation of (necessary) causal relationships between institutional factors and social outcomes — require an investigative approach that is grounded in political economy. Strict disciplinary orthodoxy is ruled out, seeing as any partial investigative angle, such as a sole focus on markets (economics) or policy (political science), would inevitably provide a limited, if not an inaccurate, view of the institutional organization of Russia's and China's food economies. Similar constraints would arise from an exclusive reliance on particular research traditions or schools of thought.

Political economy seeks to avoid these analytical distortions by developing an *objective conceptual understanding* of the phenomena and the laws of motion comprising a particular economic system or institutional sphere. As Leontyev (1968, 17) puts it:

Political economy has the task of revealing the economic laws of social development. Any science studying some sphere of nature or social life has the aim of disclosing the laws operating in that sphere. Scientifically interpreted, the term 'law' implies the internal connection of phenomena, their essence. The internal connection of phenomena exists whether we like it or not. In other words, natural and social laws are of an objective nature, they do not depend on the will and consciousness of people. But people can discover these laws.

Political economy is the science of the laws governing the production and exchange of the material means of subsistence in human society at the various stages of its development. It studies the social structure of production (ibid., 7).

Within the existing field of political economy, there unfortunately exists no single pre-specified method or analytical approach which will yield straightforward insights about an observed empirical phenomenon. Quite to the contrary, existing frameworks frequently offer

divergent or even antithetical conceptualizations of identical social realities. Take the example of the state: although it arguably constitutes the basic institutional foundation of any modern society, social scientists have been unable to agree on a common definition — let alone a consistent theoretical appraisal — of its activities and aims, as a cursory selection of scholarly perspectives from the past two and a half centuries demonstrates:

The first and chief design of every system of government is to maintain justice; to prevent the members of a society from incroaching [sic] on one anothers [sic] property, or siezing [sic] what is not their own. The design here is to give each one the secure and peaceable possession of his own property (Smith 1982 [1762], 1).

[T]he state is the form in which the individuals of a ruling class assert their common interests, and in which the entire civil society of an epoch is subsumed. . . . [A]ll public institutions are mediated by the state and take on a political form (Marx and Engels 1969 [1845], 62; author's translation).

The state is a strategically selective terrain which can never be neutral among all social forces and political projects; but any bias is always tendential and can be undermined or reinforced by appropriate strategies. For, within the strategically selective limits established by state structures and operating procedures, the outcome of state power also depends on the changing balance of forces engaged in political action both within and beyond the state (Jessop 1990, 353).

A state is any set of relatively differentiated organizations that claims sovereignty and coercive control over a territory and its population, defending and perhaps extending that claim in competition with other states. The core organizations that make up a state include the administrative, judicial, and policing organizations that collect revenues, enforce the constitutive rules of the state and society, and maintain some modicum of domestic order, especially to protect the state's own claims and activities (Skocpol 1995, 43).

Partial overlap notwithstanding, these four definitions differ considerably in terms of analytical content and conceptual focus. Smith here offers a *functionalist* definition of the state, postulating that social order can only emerge in the presence of secure property rights. The Marx-Engels conceptualization, though also property-based, differs from Smith's insofar as it emphasizes the *social purpose* of government rule as advancing the interests of a ruling class. Jessop's *relational* view, on the other hand, situates the state in a broader context of institutional actors and social forces, which can both empower and constrain political action.

Finally, Skocpol presents an *organizational* perspective, grounded in the Weberian notion that a state is first and foremost characterized by its administrative control over an existing territory and population.

Similar discrepancies exist between entire schools of thought within political economy, thus giving rise to a situation in which scholars in the same field of study cannot agree on the basic properties of an objective institutional reality.² For this reason, the study of existing models and theories in political economy is useful for a researcher only insofar as it might equip him with a basic conceptual understanding of phenomena like money, labor, or markets, and the economic interests and politically defined parameters which govern them.

Beyond such an abstract theoretical toolkit, however, political economy offers no methodological blueprint on how to proceed in developing a comprehensive analytical account of a concrete empirical phenomenon (e.g., the prevalence of harmful food products in Russia and China). For the purpose of designing a case-specific research project, such as the present dissertation, pre-existing models and methods are therefore of limited use, because even to the extent they are applicable, this would only emerge in hindsight once the actual empirical analysis has already been carried out.

Based on these considerations, my dissertation research followed a regime of strict theoretical and methodological eclecticism.³ Pertinent theoretical arguments and concepts taken from existing models of political economy will be discussed at appropriate points throughout the text. Since my intention is neither to convey a sense of scholarly literacy, nor to legitimate

²This state of affairs is by no means a recent development. Already in nineteenth century, the English economist and priest Thomas Malthus (1827, iii) noted that “[t]he differences of opinion among political economists have of late been a frequent subject of complaint.” Nowadays, perhaps the most obvious indicator of scholarly discord is provided by review volumes in political economy. Brown’s (1995b) *Models in Political Economy*, for instance, describes no fewer than ten commonly used approaches, and, if sheer quantity of information is an indicator, the *The Oxford Handbook of Political Economy* — which aims to provide “overviews that can serve as building blocks for further research” (Weingast and Wittman 2008, 23) — has 1093 pages, thus barely exceeding the length of the King James version of the Bible (Penguin Books pocket edition, available at <http://www.walmart.com/ip/438656>).

³My dissertation supervisor, in a conversation that informed the writing of this chapter, referred to this stance (favorably) as ‘analytical opportunism’ — the selection of frameworks and methodologies based on criteria of analytical expedience, rather than dogmatic adherence to a particular approach or research tradition.

my own ideas by associating them with existing work, I do *not* provide literature reviews or summaries of current theoretical debates.⁴ It bears pointing out that this approach does not amount to ‘cherry-picking’ arguments. Rather, I rely on existing existing theories insofar as they provide arguments that are useful to my analytical objectives.

In practice, this approach requires that one assess arguments objectively and without regard to methodological or ideological predispositions. But what are the standards of scientific validity in political economy? That is, how does one assesses the correctness of an existing theory and, more importantly, how does one generate one’s own arguments? The purpose of political economy research is to provide conclusive analytical accounts of institutional principles governing non-arbitrary social processes.

Conceptually, this task consists of identifying and demonstrating the existence of *necessities* or *necessary connections* in observed social life. As Hegel (Hegel 1906 [1830], §147) writes,

Necessity has been correctly defined as the unity of possibility and actuality, yet taken by itself this expression only offers a superficial and therefore incomprehensible account of necessity. The concept of necessity is very difficult because it is *the concept itself*. . . . When something is said to be necessary, the first question that arises is: Why? Necessity is thus conceived as something mediated, that is, a result of certain antecedent conditions. An analysis that is limited to merely identifying these antecedents, however, has not captured the necessity of a phenomenon. Conceptualized as a mere derivative of prior conditions, it is what it is not by virtue of its own essential properties but because of something else, hence reducing its existence to pure contingency. Necessity, in contrast, demands that something be what it is through itself, and thus, despite its mediated nature, preserve the conditions of its own mediation within itself. We accordingly say of the necessary: it is — and therefore it holds as a simple relation to itself, in which all external contingency is removed (author’s translation; emphasis added).

It is common for researchers in the field of sociology to formulate theories and to subsequently assess their validity on the basis of evidence describing the particular aspect of social reality under investigation. Yet this characterization does not fully capture sociolog-

⁴Overviews of this kind tend to undermine both the parsimony and flow of an argument. This is the case even if they are relegated to the footnote level. To the extent that legitimate ancillary questions arise throughout the text, however, I do provide references to concise treatments in the existing literature.

ical methods of inquiry. In the vast majority of sociological studies, the logical relation of evidence to theory is one of unexplained fact to conclusive explanation. While it is true that the majority of sociological studies involve the ‘testing’ of pre-specified ‘hypotheses’ using previously collected empirical evidence, facts and data cannot explain or prove anything on their own. Rather, *they* need to be explained — and thus cannot be used to assess the validity of a theory whose very objective is the explanation of these same facts and data (i.e., an observed empirical phenomenon). Despite existing academic conventions concerning epistemology, methods, and analysis, the accuracy of theories thus cannot be simply be ‘tested’ with evidence.

And, importantly, testing with evidence is not what leads researchers to *generate* theories. In practice, scholars formulate theories (i.e., coherent analytical accounts) through an iterative process of observation, reflection, and the logical structuring of thoughts. Proceeding in this way is in fact the rational, appropriate approach to explaining phenomena in the social world. The mere juxtaposition of data with hypotheses cannot accomplish this task. In other words, whether a theory or argument seeking to explain the social world is correct or not can only be determined by assessing its substantive content and its internal logical coherence.

Applied to my research topic, this means identifying differences in the institutional composition of the Russian and Chinese food economies, and determining whether these differences are fundamental in nature or merely constitute alternative manifestations of the same institutional principles. Indeed, the notion that capitalism comes in different varieties logically presupposes the existence of certain common properties across cases, seeing as these cases are only varieties of the same phenomenon. It would be false, however, to use this observation as a starting point for debating the relative importance of national peculiarities and the overarching ‘logic’ of capitalism. Rather, it is the objective of comparative analysis to discern differences in the relationship between underlying institutional principles and their manifestations in each case, and to explain them.

2.2 Research design

This dissertation is empirically grounded in a historical comparison of the capitalist transformation of the Russian and Chinese food economies. For practical reasons, such an endeavor cannot operate exclusively on the level of national political economies, since it is implausible to assume that national institutions and state policies have a uniform impact on all parts of the food economy. In formulating my empirical strategy, I therefore relied on a combination of comparative historical and sector analysis. Seeing as these are both widely-used and accepted investigative approaches, I limit myself to a brief discussion of their respective advantages and limitations.

2.2.1 Comparative methods

The objective of comparative sociologists has historically been to emulate the methods of quantitative researchers in order to establish causal relationships between macroscopic factors, such as class structure and state power. Specifically, scholars like Moore (1966), Brenner (1976), or Skocpol (1979) employed the logic of Mill’s methods of difference and agreement to artificially “control” for competing explanatory factors. (Moore’s *Social Origins of Dictatorship and Democracy*, for instance, compares six alternative configurations of class and state structure.) Skocpol and her co-author summarize the rationale of the approach as follows: “The logic involved in the use of comparative history for Macro-causal analysis resembles that of statistical analysis, which manipulates groups of cases to control sources of variation in order to make causal inferences . . . a kind of multivariate analysis” (Skocpol and Somers 1980, 182).

In a seminal article, Lieberman (1991) interrogated this methodology, demonstrating that the assumptions made in small-N macro-comparative studies are indefensible and hence unsuitable for deriving general theoretical propositions.⁵ Lieberman and other critics were

⁵Lieberman’s critique coincided with the narrative turn in historical sociology, which entailed a shift of focus from macro-level comparisons to the sequencing of historical events (e.g., Roy 1987; Mahoney 1999;

correct in pointing out the methodological shortcomings of macro-level comparative studies, but they were too hasty in entirely dismissing this line of inquiry. While the strength of comparative historical research does not consist of mimicking the logic of quantitative analysis in order to derive abstract laws and general propositions, macroscopic comparisons nonetheless hold significant analytical promise. Specifically, they permit a sophisticated theoretical analysis of institutional processes, by using detailed — or, in the language of Clifford Geertz, ‘thick’ — historical data to differentiate between general principles and particular features of different cases. The analytical effectiveness of such comparisons, however, depends greatly on the choice of cases and temporal windows.

The question of whether a given comparison was justified is, in principle, only knowable after the fact, as two objects can be compared only after the features of each have been comprehended individually. But seeing as it is impossible to deduce the appropriate cases for a particular research problem *a priori*, how are comparative researchers to select their cases? In practice, they are forced to rely on existing knowledge of potential cases to construct a plausible argument as to why their proposed comparison might be interesting or promising. What constitutes an interesting case, however, is to a large extent contingent on the substantive topic under investigation. As a result, there is little merit in attempting to ponder the generic properties of such cases, for doing so would require abstracting from the very content that makes them useful for the particular researcher in the first place.⁶ Still, one might ask why this dissertation should consist of a comparison of Russia and China, and not, say, Viet-

Sewell 1996, 2005; Diehl and McFarland 2010). The analytical vacuum left by the decline in significance of Moore, Skocpol & Co. has, however, not been filled, and the field of historical sociology today is characterized by a lack of theoretical commitments, and no clear areas of substantive concern. Instead, scholars in the field have engaged in debates over questions of methodology and the epistemological foundations of historical analysis (Clemens 2007).

⁶When comparing the political economy of two countries, a researcher analytically distinguishes common principles and case-specific features in order to arrive at a conceptually accurate understanding of the two economic systems. Consider an example: today, markets constitute the dominant mode of economic coordination in both Russia and China, which is equivalent to saying that profit-oriented governance and competitive exchange are the institutional principles according to which economic activity takes place. When comparing the two countries, however, a researcher would find that these common principles manifest themselves differently based on case-specific factors, including economic conditions, government objectives, and a series of factors that are sometimes referred to as “initial conditions” (i.e., a country’s geographic, demographic, political, geopolitical, and general social circumstances).

nam and Kazakhstan. As I argued in the introductory chapter (section 2), the former two cases make for a particularly relevant comparison, given that their governments employed highly divergent transition strategies, even as they pursued similar underlying objectives.

In selecting the temporal focus for a comparative study, researchers are faced with the principal choice of studying either a specific time period (e.g., 1990–2010) or a particular developmental stage (e.g., transition from socialism).⁷ Both options naturally have advantages and disadvantages. A focus on a single time period ensures that environmental factors, such as the global economic situation, are held constant; at the same time, the developmental trajectories of different countries rarely map neatly onto one time period, thus risking the omission of relevant historical events. A comparison of developmental stages ensures that similar objectives and challenges exist for all cases under consideration (e.g., privatization of state property, creation of market institutions, etc.); on the downside, the further the specific historical time periods are apart, the more imprecise the comparison will be.

Ultimately, there are no objective guidelines for making this choice. Instead, researchers must justify their temporal focus relative to the particular object of inquiry. In my comparison of Russia and China, it makes sense to focus on the transition to capitalism as a developmental stage. The onset of their respective reform periods was less than a decade apart, thus limiting variation due to different historical circumstances. This is not to say that differences can be neglected in the case of Russia and China, but even to the extent that some variation exists, comparing the post-socialist transitions of the two countries (start date within ten years) is far more obvious than, say, comparing the Russian and Chinese revolutions (over thirty years apart).

My temporal focus for each country spans the period from the beginning of market reforms (or initial experimentation with markets, in the case of the USSR) to the present.

⁷The term “developmental stage” is not supposed to invoke the theoretical assumptions of modernization theory, which holds that the economic development of different countries proceeds in definite consecutive stages. Rather, my use of the term implies that under certain historical circumstances, states find themselves facing analogous objectives and challenges, based on similar (domestic) political choices, or shared structural constraints resulting from a comparable position in the global economy.

Given that the historical roots of market transition are found in the late socialist period, I include background information on the pre-reform eras in both countries as needed (based on secondary sources). For analytical purposes, I sub-differentiate the reform periods of both countries into ‘generations’ of reforms (Table 2.1). In doing so, I focus on the dominant policy objectives of a given period, which naturally correspond to different generations of political leadership. This categorization of reform stages serves as the temporal framework for my analysis of food production, and links the dominant institutional features of a policy ‘generation’ to resultant welfare outcomes.

Table 2.1: Generations of economic reform

<i>Period</i>	<i>Leadership</i>	<i>Dominant policy features</i>
Russia		
1986–1991	Gorbachev	Experimentation with reform socialism and economic modernization (<i>perestroika</i> and <i>glasnost</i>).
1991–1999	Yeltsin	Rapid transition reforms (‘shock therapy’), followed by a severe recession and Russia’s sovereign default.
1999–2008	Putin	Reassertion and consolidation of state authority; greater state guidance in industrial development and economic management.
2008–2012	Medvedev	Attempt to shift from reliance on raw material exports to modern, diversified economy; renewed emphasis on attracting foreign capital and technology.
China		
1978–1989	Deng	Initial emphasis on rural reforms (1978–1984), leading to greater autonomy for direct producers; after 1984, urban industrial reforms paired with an effort to minimize economic disruption (e.g., dual-track pricing), creating a “system of half-anarchy, half-planning.” ¹
1989–1991	Deng	Conservative bloc of the CPC attempts to reimpose socialist orthodoxy in economic management (and fails).
1991–2002	Deng, later Jiang/Zhu	Deng’s Southern Tour initiates a period state-guided infrastructure investment and industrial modernization; restructuring of state enterprises begins during the second half of the decade but resistance to liberalization of key sectors.
2003–2007	Hu/Wen	Ongoing economic restructuring coupled with an attempt to build a “Harmonious Society”; net transfer of funds to the countryside and other pro-rural policies.
2008–2012	Hu/Wen	Increased government investment in response to global recession with emphasis on state enterprises; tension between stimulating domestic demand (higher wages) and international competitiveness.

¹ Naughton (1995)

2.2.2 Sector analysis

A central part of my dissertation research consists of differentiating the Russian and Chinese food economies into functional sectors in order to analyze changes in the mode of economic organization in the context of relevant sub-fields. It is sensible to differentiate the food

economy into two basic functional areas, namely, production (agriculture and food processing) and distribution (food retail).⁸ The empirical focus of the present investigation is on food production. To permit a more detailed examination of economic organization in this sphere, my third chapter moreover adopts a sub-sectoral focus by examining the wheat and pig production industries.

Sector-based approaches have an established track record as effective tools of institutional analysis in fields such as development economics, organizational sociology, and post-communist studies (e.g., Frieden 1988; Shafer 1994; Emigh 2003; Drahokoupil 2008). Although many existing sector studies employ analytical techniques derived from industrial organization research (e.g., Scherer and Ross 1990; Brock and Adams 2004), the only feature they really have in common is their use of sectors as the principal unit of analysis. I have adopted this approach precisely in order to derive analytical leverage from studying fields of economic organization that are directly relevant to both the national economy and to people's welfare (as explained in the introduction).

Studying the agro-food economy through a multi-sectoral lens offers two principal advantages. First, by covering all aspects of the food production chain, it permits a differentiated view of government policies, which may manifest themselves in divergent and, at times, antithetical ways across economic sectors. The decision to remove price controls on agricultural inputs, for instance, allows producers of fertilizer, machinery, and seeds to charge higher prices for their goods. At the same time, the farmers who buy these goods face higher costs and, as a result, greater competitive pressures.

Second, the research design allows for multiple comparisons both within and across countries. Within each country, it will be possible to document changes in individual sectors, as

⁸Agriculture and food production are large and strategically important areas of Russia's and China's national economies. In 2007, agriculture alone accounted for 11 percent of China's gross domestic product and 40 percent of total employment (NBS 2009). Food processing and manufacturing — which the Chinese statistical system differentiates into separate areas, such as primary food processing, food manufacturing, and beverage manufacturing, constituted 7.5 percent of total industrial output (*ibid.*). In Russia, agriculture made up only about 5 percent of GDP but accounted for over 10 percent of total employment (Rosstat 2009). The share of food processing and manufacturing (including tobacco) in total industrial output was between 16-17 percent, which constitutes the largest share after the fuel and metals production industries (*ibid.*).

well as in the political economy of food production at large. Between the two countries, the design permits a multi-sector cross-comparison, in which the three sectors can be compared individually across cases, and as coherent fields of economic activity. This approach makes it possible, for instance, to account for varying patterns of ownership, industrial organization, and state-capital relations across the three sectors. At the same time, the object of economic activity — food — would be ‘held constant’, making a comparison between three broadly coherent sectors within each country more reasonable than, say, a comparison of agriculture, textile manufacturing, and the oil industry.

As noted above, my research on food production focuses on two product categories: wheat and pork. Studying one crop and one meat ensures that the analysis covers two of the major primary production techniques: farming and livestock breeding. In terms of consumption, wheat is considered a basic staple grain, whereas pork (like other meats) is associated with higher income levels and living standards, making this combination a useful gauge of changing nutritional patterns. The respective sectors in Russia and China are moreover characterized by variation on a series of dimensions that makes a comparison both within and across countries analytically compelling. Within each country, a comparison of two different sectors permits insight into the effects of domestic institutional variation (e.g., government price interventions for wheat vs. free market prices for pork). Across countries, a comparison of sectors of the same type captures the effects of different national institutions (e.g., small-scale household producers vs. large-scale corporate farms).

A comparison of wheat production in Russia and China is analytically interesting because the two countries, both of which rank among the world’s leading producers, began their transitions from socialism on starkly different reform platforms but have recently converged in their policy regimes. In studying the Russian and Chinese pork sectors, my objective is to compare the world’s top producer of pork (China) with a minor but rapidly growing producer (Russia). As in the case of wheat, the two countries initially followed different reform and performance trajectories, but have recently converged in terms of both policy

and development patterns.

2.2.3 A note on statistical methods

Even though this dissertation makes extensive use of quantitative information, these data were not analyzed using statistical techniques. This methodological choice follows from my analytical objective of determining the *institutional causes* of phenomena like malnutrition or food safety violations, as opposed to calculating coefficients predicting their *probable occurrence* in a large sample of cases. It is not possible to identify (institutional) causes using statistical methods, as the latter attempt to explain the relationship between consecutive events on the basis of their frequency or temporal clustering. Such an examination will yield knowledge about the *probability* of any event B occurring after an event A has already taken place, but it cannot account for the *content* of the relationship between events A and B. This implies that statistical techniques cannot be used for the purpose of demonstrating necessities, and therefore would yield no knowledge about the (necessary) relations between the institutional organization of the Russian and Chinese food economies and nutritional outcomes in those countries.

2.3 Data and evidence

The logical starting point of an empirical investigation of the political economy of food production is the state. In both Russia and China, the reform process was initiated as an act of government, and its subsequent content and direction were decisively shaped by political considerations. Moreover, in regulating the present-day market economy, the state defines the institutional environment in which economic activity takes place. The concrete content of this environment, however, does not simply follow from certain immutable principles of capitalist organization. Rather, the institutional parameters governing economic behavior in different spheres of production are a reflection of specific government objectives that can only

be determined through empirical investigation. Hence, it is sensible to begin an investigation into the political economy of food production with an analysis of changing state incentives and regulatory structures during the transition. Based on this analytical foundation, one can then systematically assess the behavior of economic actors within this pre-defined institutional environment, for instance, by observing how the new criteria of institutional governance affect such factors as producers' choices concerning production quantities and methods, or sellers' decisions regarding target markets and consumer prices.

Applying these considerations to the agro-food sectors of Russia and China, the objective of my empirical research has been to trace the tension between market-oriented reforms and nutritional provision in three key institutional spheres.

2.3.1 Institutional environment and state-economy relations

My research in this area consisted of two central components: first, an assessment of the fundamental criteria used by the Russian and Chinese governments in balancing the competing objectives of promoting economic development and securing a stable food supply for the population; second, an examination of specific reforms and policies pursued by the two governments in the market transformation and institutional support of their national food economies.

In order to discern the institutional principles according to which the governments of Russia and China regulate the food economy, I examined the legal and institutional environment which emerged from the transition, focusing on major laws and regulatory policies enacted by the state.⁹ This required research in the areas of land law, agricultural law, and laws governing the production and processing of food. The sources consulted for laws and legal documents include the *iSinolaw* database, the *Kodeks Russian Law Database* (EastView), and the *Garant Database* (Lexis). Additional information on the regulatory environment

⁹Critics might object to this approach by pointing to the sometimes considerable discrepancies between the substance of a law and the effectiveness of its implementation. Yet even to the extent that 'laws on the books' differ from 'laws in action', their content nonetheless provides an objective account of how the state would *ideally* like its economy and society to operate.

was obtained from the official websites of various government ministries and agencies.

I also examined the specific content of government programs and policies, focusing on the areas of investment, subsidies, taxation, price policy, property and land usage, technology, food provision and reserve systems, and trade policy. In doing so, a central objective consisted of identifying stages of government reform, and creating a systematic catalog of policy measures in different areas, which were adopted by the governments of Russia and China in shaping and promoting the development of their agro-food economies. I also collected data on the major infrastructure and modernization projects pertaining to the agro-food sectors of Russia and China,¹⁰ and charted the principal responsibilities of and functional relationships between key administrative bodies and agencies involved in the regulation of the agro-food economy (covering the areas of policy formulation, market intervention, and food reserve management). Data and evidence pertaining to these topics were obtained from a variety of sources, including official government yearbooks and development reports, the Foreign Broadcast and Information Service (FBIS), the websites of administrative bodies and agencies, and a limited number of reliable secondary resources.¹¹

2.3.2 Economic organization of food production

My research in this area consisted of collecting data on the characteristics of dominant production and processing establishments in the different sectors under consideration. Specific organizations include wheat farms, hog breeding farms, processors of wheat and pig meat, and different types of secondary distributors. For each segment, I focused on the follow-

¹⁰Examples include national agricultural modernization programs, such as Russia's 'National Priority Project for Development of the Agro-Industrial Complex' (adopted in 2006), as well as industry-specific programs, such as the 'Twelfth Five-Year Plan for the Chinese Meat and Livestock Sector' (2011–2016).

¹¹These resources include reports on agricultural production and policies from the Global Agriculture Information Network (GAIN), a database operated by the USDA Foreign Agricultural Service. The USDA also maintains an on-line China Briefing Room with research, analysis, and information on agricultural policy, production, and trade. A Russia Briefing Room was discontinued in 2007 but remains available in archive form. I moreover relied on information published in the annual *Agricultural Policies in Emerging Economies* series of the OECD, and selected publications by the World Bank and the European Bank for Reconstruction and Development. (Interestingly, some of the most detailed information on Chinese food production under socialism and during the early reform years is provided in publications by World Bank analysts.)

ing organizational aspects: size, location, ownership, production and processing capabilities, and degree of integration into the production chain. Data sources include relevant national and international statistical databases, publicly available information from the websites of companies and government agencies, and information from industry associations and trade federations. I also relied extensively on existing secondary literature for historical and other background information.

For each sector, I collected data on market structure and market shares, patterns of competition and consolidation, major players, and linkages among firms. In doing so, I examined the evolution of sectors over time, as well as regional and other variations within sectors. I also collected data on a wide range of sectoral performance measures, including production quantities and values, trade, sales, profits, assets, and investments. In terms of data sources, I drew on a series of statistical databases, including FAOSTAT, the USDA Production, Supply and Distribution (PSD) database, the USDA China Agricultural and Economic Data series (national and provincial), the Euromonitor Global Market Information Database (GMID), and agricultural census data for both countries. I furthermore relied on existing market studies published for foreign investors with data on incomes, sales, consumption, market growth, and other factors (e.g., reports published by the EBRD).

To supplement statistical information gathered from these databases, I also compiled an extensive archive of media sources covering of various aspects of the food industry.¹² This database is comprised of more than 600 items and includes a series of different categories, including inflation and prices, investment, food safety, food security, policy developments, ecology and environment, government price policy, and nutrition and diet. A second section of the archive contains industry reports and company news, and has been used to compile information on production methods and on major producers within each industry.¹³ Because of space limitations, I have been able to present and analyze only a fraction of this material

¹²Though not strictly limited to any time period, the majority of the materials focus on the period between 2005 and 2012.

¹³I collected many articles and items from leading Chinese and Russian newspapers, for which translations were provided by the Foreign Broadcast Information Service (FBIS) and comparable news digests.

in the empirical chapters of this dissertation. Nonetheless, the information in the archive formed a crucial component of my research, and has informed the arguments and analysis presented here.

Finally, I conducted research on dominant production and processing methods (e.g., growing techniques, type of land use, processing technologies) in the sectors under considerations, and charted investment and industrial upgrading patterns. I noted in particular when new production techniques were introduced, how this process was shaped by the government, and what the implications are for productivity and absolute food output. Data sources include those for dominant organizations and sector structure (see above), plus the annual *Agricultural Policies in Emerging Economies* series published by the OECD.

2.3.3 Food availability and nutrition outcomes

The final component of my empirical research documented historical trends in food availability and nutrition, in an effort to link them to changes in government policy and the organization of the agro-food economy. Today, access to food and quality of nutrition in Russia and China are determined primarily by two factors: actual availability of food and level of income. My empirical focus was therefore on documenting resulting relative and absolute nutritional inequalities (between different regions, socioeconomic groups, etc.). My data collection included quantitative and qualitative aspects of nutrition, including food consumption (e.g., daily caloric intake), qualitative composition of diet (e.g., ratio of vegetables to meat), and access to basic nutrients and minerals. To assess changes in the ability to purchase food, I collected data on income levels and the share of income spent on food (including specific food groups). Finally, I gathered historical data on producer and consumer prices for the specific food categories under consideration (wheat, live hogs, pork products). Data sources for this research include statistics on nutrition outcomes, incomes, and food prices published by national statistical services of Russia and China (Rosstat, NBS), the FAOSTAT database, the USDA Production, Supply and Distribution (PSD) database, and

FAO PriceSTAT database. In addition, I relied on secondary sources published by the International Food Policy Research Institute (IFPRI), the World Food Programme (WFP), the FAO, and the USDA Economic Research Service.

2.3.4 Data quality

There are many reasons why macroscopic statistics (especially those aggregated to represent national and regional outcomes) are to be regarded with skepticism. If the goal is to arrive at an accurate description of the social or economic circumstances in some geographic area or political entity, the use of statistics offers many pitfalls. Possible problems in the data collection and aggregation process include such factors as measurement errors, calculation errors, and limited over-time validity. As far as possible, I always indicate the exact source of the data presented in this thesis, and discuss any problems or difficulties as required. The reader is further encouraged to peruse the original data as a reference on his own.

The statistics from Russia's and China's socialist era present particular problems.¹⁴ In particular, government officials and company managers frequently inflated (and sometimes deflated) production figures deliberately in order to advance their careers. Moreover, the central governments of both countries wanted to convey to their citizens the notion that they were 'catching up with' and even 'overtaking' Western nations in a variety of ways and measures. Even to the extent that these biases exist, however, socialist statistics are insightful because they represent composite measures of how the political leadership wanted to represent *itself* (that is, its performance) in different areas. In addition, such biases can often be identified through sensible triangulation with other pieces of information.¹⁵

¹⁴For an overview of issues, see Colby et al. (1992) and Hansen et al. (2002) for China, and Dronin and Bellinger (2005, 15-30) for the Soviet Union.

¹⁵Dronin and Bellinger (2005), for example, questioned the reliability of Soviet food consumption statistics after having discovered a discrepancy between the increases in per capita consumption reported in official government data, and the widespread mentioning of food shortages and rationing by the local Soviet press.

2.4 Presentation of argument

In conducting the empirical research underlying this dissertation, my initial objective was to compile separate historical case studies of the food economies of Russia and China, seeing as an independent understanding of each case is a necessary precondition for carrying out a comparison. My findings, however, are presented in the form of an *analytical historical narrative*, which structures facts and events according to their political-economic logic, as opposed to their chronological sequence.¹⁶ To put it in Marx's (1921 [1867], 24-25) terms,

The [method of inquiry] has to appropriate the material in detail, to analyse its different forms of development, to trace out their inner connexion. Only after this work is done, can the actual movement be adequately described.¹⁷

Following this rationale, I have structured my empirical chapters into different analytical sections, each of which consists of a self-contained historical narrative based on primary sources, such as policy documents, government reports, and industrial yearbooks. This approach permits me to distill the political-economic content of different transition phenomena, while still locating them within their case-specific historical context.

¹⁶In a historical comparison, there are two principal methods of presenting one's empirical findings: by case or by theme. Which approach is to be preferred depends on the objective of the researcher. Because the political economy focus of my research question necessitates a high degree of analytical clarity, I opted for a thematic mode of presentation, even as doing so sacrifices the appeal of a continuous historical narrative.

¹⁷Marx (1904 [1859], 304) further underscores the importance of differentiating between the mode of inquiry and the mode of presentation when conducting a historical investigation:

It would . . . be impractical and wrong to arrange the economic categories in the order in which they were the determining factors in the course of history. Their order of sequence is rather determined by the relation which they bear to one another in modern bourgeois society . . . What we are interested in is not the place which economic relations occupy in the historical succession of different forms of society [but rather] their organic connection within modern bourgeois society.

Chapter 3

State objectives and economic institutions

The intention of Soviet and Chinese leaders to modernize their countries' food economies was articulated at a time when the soon-to-be reformers in both states had already become skeptical of the long-term economic potential of socialism and its viability as a foundation for state power (Held 1992b; Dillmann 2009). Statements made by Deng and Gorbachev on the eve of their countries' respective transition periods are indicative of this sense of fundamental disillusionment:

In the past decade we have failed to rid the economy of the serious imbalances which have made it impossible to achieve a steady and reliable high rate of growth. It appears that in the general process of advance, our economy — that is, our agriculture, industry, capital construction, transport services, domestic and foreign trade, and banking and finance — needs a period of readjustment (Deng 1992d [1979], 169).

At the same time, we failed to use to the full potential of socialism to meet the growing requirements in housing, in quality and sometimes quantity of foodstuffs, in the proper organization of the work of transport, in health services, in education and in tackling other problems which, naturally, arose in the course of society's development (Gorbachev 1988c [1987], 7).

It is a common misconception, however, that socialism simply disintegrated because of internal contradictions in the economic system — a view widely held by social scientists

(especially economists) that can be summarized as “socialism did not work” (Chow 1994, 137; *inter alii*).¹ As Szelenyi, Beckett, and King (1994) point out, economic difficulties under socialism had existed for years, yet the conclusion that the system itself was unsustainable did not emerge until political regime change was on the horizon.² Indeed, from both a theoretical and practical standpoint, economic reforms in transition economies had to be a matter of political choice. Theoretically, the starting point, state socialism, was characterized by the organizational identity of state and economy. Their separation was the objective of the transition, and the only actor that could practically induce this process in China and the Soviet Union was the state itself.

The actual reform approaches of the two countries differed considerably, both in terms of policy content and sequencing. This variation was, in part, due to differences in institutional and economic conditions, which constrained the options available to reformers. In addition, their transition strategies were shaped by domestic social and political circumstances. In China, the initial impetus for reform came ‘from below’ in the form of peasant demands for decentralized production, which members of the socialist elite regarded with ambivalence. In the Soviet Union, the Gorbachev administration encountered a different form of pressure

¹In the context of food production, Moskoff’s (1990, x) review of Soviet agricultural performance is representative of this perspective which assesses socialist economic organization through the hindsight lens of market efficiency:

The root cause of all these [previously listed] problems is the economic system that has dominated Soviet agriculture in almost unchanging form for the sixty years since collectivization was instituted. In summary, that system is marked by a hierarchical command system in which farmers have been told what to produce and how to produce it. Moreover, the prices at which they have sold their output to the state never reflected underlying market conditions. . . . As a consequence, there was little incentive for farmers to maximize production.

One of many similar assessments for China is offered by Tang and Stone (1980, 13):

Much of the relatively slowness of [China’s] agricultural development can be attributed to development policies that . . . allocated key economic resources administratively rather than by prices and markets. These policies have tended to weaken the incentives of workers and producers, discourage cost-reducing innovations, distort economic signals, and reduce willingness to accept risks. Bureaucratic control has encouraged irresponsiveness, rigidity, and delays.

²For a comprehensive review of factors that contributed to the ‘breakdown’ of socialism, see Szelenyi and Szelenyi (1994).

‘from below’, as regional political elites questioned whether market reforms should occur under the aegis of the (existing) Soviet state. Various federative socialist republics, including Russia, which constituted by far the largest FSR and produced most of the Soviet Union’s economic output, demanded exclusive control over their respective economic territories.

These pressures and constraints notwithstanding, the countries’ specific policy trajectories were to a significant extent the outcome of intra-elite power struggles which preceded the transition (King and Szelényi 2005). As Zeitlin (1984, 6) observes, the content of specific state policies during periods of socioeconomic transformation is contingent on the interests of dominant political factions:

[T]he matter of who holds state power and even of who staffs [the state] directly, can be crucial if not decisive in those determinant but contingent transitions when unwonted forms of social productions emerge; it can effectively determine the extent and nature of their development and consolidation.

This logic of elite power also applies to the cases of Russia and China, as the transition in both countries was initiated by reformist factions within the existing political establishment, implying a temporal and logical primacy of these state-induced reforms over the transformation of the economy. In evaluating the precise course of reforms in the agro-food economy, it is therefore crucial to first examine the motivations of key political actors. For this reason the core objective of this chapter is to explore the specific conclusions and objectives that reformers derived from their critical reassessment of socialist production methods.

For the purpose of my analysis, it is imperative to have a precise understanding of the institutional and regulatory framework in which food production takes place. This chapter therefore begins with a brief discussion of the general relationship between food production and the state, which demonstrates that all governments, irrespective of their organizational form or political orientation, subscribe to a set of core objectives regarding the organization of food production on their territory. Beyond these basic shared objectives, however, the food policy regimes of different countries are characterized by considerable variation in terms of both content and efficacy, making case-specific empirical study a necessary part of

any comparative investigation of food production systems. Case-specific inquiry is especially crucial for analyses of institutional transformations, such as the transition to capitalism, which must be able to systematically account for patterns of continuity and change. The remainder of this chapter accordingly charts the evolution of state objectives during the transition to capitalism in Russia and China, proceeding in two steps. First, I describe the organization of food production during the late socialist period in China and in the Soviet Union, thereby identifying the institutional point of departure of the transition. Second, I examine the reevaluation of socialist production methods carried out under Deng Xiaoping and Mikhail Gorbachev, distilling the reformers' diagnosis of existing economic difficulties, as well as the central objectives of their respective modernization programs. Together with the next chapter — which examines the content, sequencing, and political-economic implications of the reforms that were actually enacted —, the current chapter forms the analytical background for the subsequent in-depth comparison of the wheat and pig sectors.

3.1 Food production and the state

Food security in the modern world has long ceased to be a problem of insufficient global availability of food.³ As the World Bank (1986a, 1) observed in a seminal policy study on poverty and hunger in developing countries,

The world has ample food. The growth of global food production has been faster than the unprecedented population growth of the past forty years. . . . Enough food is available so that countries that do not produce all the food they want can import it if they can afford to. Yet many poor countries and hundreds of millions of poor people do not share in this abundance. They suffer from a lack of food security, caused mainly by a lack of purchasing power.

³A widely used definition of food security advanced by the World Bank (1986a, 1) characterizes it as “access by all people at all times to enough food for an active, healthy life. Its essential elements are the availability of food and the ability to acquire it. Food insecurity, in turn, is the lack of access to enough food.” For a critical discussion of the concept, as well as alternative formulations, see Maxwell (1990, 2-3) and Ellis (1992, 310-311).

More recently, the FAO calculated that all agricultural production combined yielded 17 percent more calories per person in 2000 than it did in 1970, despite a concurrent 70 percent increase in the world's population; this caloric yield would be sufficient to provide everyone in the world with at least 2,720 kcal pppd (FAO 2002b, 9).⁴ In Western industrialized economies, as well as in a growing number of middle-income countries, the question of 'Do the people have enough to eat?' thus rarely ever arises anymore. When it does, it immediately conjures up a follow-up question, namely, 'Does the government pursue the appropriate economic policies?' When the global recession and resulting mass unemployment caused the number of food-insecure households in the United States to spike by more than one third — from 12.6 million in 2006 (10.9 percent of households) to 17.4 million in 2009 (14.7 percent of households) (Coleman-Jensen et al. 2011, Table 1A) —, there were widespread calls for the federal government to intervene.⁵ As demonstrated by the demands of local populations and the policy advice of international development agencies, food security in developing countries is also considered a government responsibility (Ellis 1992; for examples, see World Bank 1986b, and FAO 2004). During the current global food crisis, criticism and policy recommendations are directed at governments or supra-national organizations, irrespective of whether the spike in food prices is caused by financial speculators, ethanol subsidies, or trade restrictions (Timmer 2010; FAO 2010; see also Alinovi, Hemrich, and Russo 2008). In summary, the organization of modern food production is principally shaped by the state and its administrative agencies.

⁴The expression *kcal pppd* denotes kilo-calories per person per day. According to the criteria of the FAO, inadequate food provision occurs at an intake of less than 1,800 kcal pppd (FAO 1996, Appendix 3). The average pppd caloric intake in the United States is 2,673; due to significant spoilage and waste, this value is about 1,200 kcal lower than the technically available amount of 3,900 (USDA 2010).

⁵An editorial published by the *New York Times* in November 2009 is emblematic of these demands, arguing that "Congress should make a priority of expanding federal nutrition programs that are aimed at helping millions of struggling families feed their children" ("Hunger in the United States", *New York Times*, November 18, 2009, p. A34). Government funding for the 15 food and nutrition assistance programs of the USDA was increased by 27 percent in 2009. Average monthly participation in the Supplemental Nutrition Assistance Program (historically known as the Federal Food Stamps Program) rose from 12.7 million households in 2008 to 15.2 in 2009 (Andrews 2010, 4). See Berg (2011) for a comprehensive overview of hunger and domestic food policy in the United States.

While this development is not without historical precedent — China’s emperors, for example, attempted to prevent famines by creating favorable conditions for food production —, it is institutionally specific to the organization of the capitalist world economy. Food production in and of itself does not require the presence of a government. In an agricultural subsistence economy, for example, the necessity for a central coordination and regulation apparatus does not arise, as individual production units (e.g., farm households) plan and execute production only to satisfy their own immediate and long-term consumption needs. To the extent that coordinated planning takes place, it occurs within localized collectives (e.g., villages).⁶ A modern agro-food economy, however, in which producers are organized through a nationally regulated division of labor, presumes the existence of a central state authority that considers food security within its territory to be a fundamental institutional priority.⁷

National governments across the world, irrespective of specific political aims or ideological convictions, share a common interest regarding the development of their agro-food economies: they are invested in the reproduction of a functional population consisting of productive economic subjects and potential soldiers. Food security is an essential precondition for achieving this objective. As the World Bank (1986a, v) put it, “[a]ttempting to ensure food security can be seen as an investment in human capital that will make for a more productive society. A properly fed, healthy, active, and alert population contributes more effectively to economic development than one which is physically and mentally weakened by inadequate diet and poor health.”

⁶In the feudal economies of the Middle Ages, too, economic coordination was largely limited to the local (manorial) level. Peasant communities owed a share of their annual harvest (or labor) to their feudal masters and otherwise aimed to be locally self-sufficient. Coordination above the local level was rare and typically limited to times of crises like droughts or military conflicts. For a detailed account of the organizational and economic evolution of the agricultural economy in the late Middle Ages, see Max Weber’s seminal treatment in *General Economic History*, in particular, the discussion of “Agricultural Constitutions and the Problem of Agrarian Communism” (1923, 23-39 [Ch. I., §1]).

⁷I employ the classical Weberian definition of the state, which has been summarized by Rueschemeyer and Evans (1985, 46-47) as “a set of organizations invested with the authority to make binding decisions for people and organizations juridically located in a particular territory and to implement these decisions using, if necessary, force.” (see also Weber 1978 [1922], 904; 1984, 123)

Not only is food security a necessary precondition for economic development, but it is also central to enhancing (or undermining) state authority (Hopkins 1991; see also Hopkins 1988). In extreme circumstances, a disruption of the food supply can pose a serious threat to social stability. Sudden increases in global food prices, for example, are routinely accompanied by warnings from international agencies about the politically destabilizing effects of hunger.⁸ To ensure a stable food supply within their territory, governments act as both facilitators and regulators of agro-food development, sometimes expending considerable organizational and financial resources. For example, states might fund infrastructure and irrigation projects, promote technological innovation, encourage the adoption of new production techniques, subsidize agricultural inputs, or restrict foreign trade (Ellis 1992). The cardinal necessity of feeding the people is perhaps most apparent in the case of nascent states: when the Bolshevik revolutionaries were faced with severe food supply constraints during the winter of 1918–1919, Lenin immediately diverted resources from other areas of the economy to food production and transportation logistics.⁹

While all states need to ensure food security to sustain and expand their power, the specific policies they adopt vary greatly across time and space, as both government objectives and the power to realize them are historically contingent. In the advanced industrial economies of Western Europe and North America, there has been a profound shift in the qualitative and quantitative contribution of agriculture to the national economy over the past two centuries, and state preferences and policy goals have been transformed accordingly. In the nascent nation-states of modern Europe, the prospect of feeding a large and growing population of urban dwellers still constituted a fundamental challenge. As Brown (1995b, 198) writes, “[a]n industrial revolution presupposes an agricultural revolution. Not only do new industrial workers in the towns require to be fed from a surplus off the land, but where

⁸In January 2001, Abdolreza Abbassian, senior grains economist at the FAO, warned that global food prices were entering “danger territory”, while Robert Zoellick, president of the World Bank, called the development “a threat to global growth and social stability” (“One poor harvest away from chaos.” *The Telegraph*, January 7, 2011).

⁹See “Everybody On Food And Transport Work!” (Lenin 1972 [1919]).

the population is overwhelmingly agricultural the surplus for investment for the future must come from the land.”

Indeed, one precondition of the industrial revolution was a profound transformation of social relations in the countryside, including the separation of peasants from the land and the “liquidation of pre-capitalist (i.e., non-economic) forms of agrarian dependency” (Hobsbawm 1975, 183; see also Polanyi 2001 [1944]; Brenner 1986; Wood 2002; for North America, see Post 1982). Here, the objective of states was not to regulate economic activity in an already existing national division of labor, but rather to assert state authority vis-à-vis direct producers in order to establish such a division of labor (Hobsbawm 1975; Tilly 1975; Wallerstein 2011). Subsequently, the evolution of nation-states and the expansion of the European and North American state system remained closely linked to the development of agriculture, even as technological innovation and capitalist production methods permitted a decoupling of food output from the historical and seasonal uncertainties of production (Tilly 1975, 380-455; Tracy 1982; Magdoff, Foster, and Buttel 2000). Economically powerful countries such as the United States were able to utilize food exports and emerging domestic agro-industrial sectors as further sources of national power and economic prosperity (Friedmann and McMichael 1989).¹⁰

Since the second half of the twentieth century, states in Europe and North America have increasingly been forced to rely on subsidies to ensure that domestic farms can stay in business. Whereas historically, the agricultural economy had served as an important source of tax revenue, economic reproduction in the contemporary countryside requires a net transfer of resources into rural areas (Lindert 1991).¹¹ Today, popular food demand in the advanced industrialized economies is met through a globally integrated food economy, causing government food policy to be focused mostly on matters of international trade and

¹⁰In the United States, the government achieved this objective by systematically shaping the organization of the agro-food economy, for instance, by offering subsidies for large-scale agriculture, while deprioritizing small-scale (i.e., family-based) farming (Perelman 1977, 84).

¹¹In particular, for “late developing” states, such as Russia and Prussia in the nineteenth century, agricultural taxation used to be a key means for financing economic modernization (Gerschenkron 1962; Moore 1966).

investment (McMichael 2000). Domestic agriculture, at the same time, is increasingly viewed as a burden to the national economy.¹²

While wealthy states no longer face basic food security concerns, there are significant disparities in terms of what other states can accomplish in the area of food security, as they lack what Mann (1986, 170) calls the “infrastructural power” to actually implement their policy objectives. Developing nations, in particular, encounter further obstacles in this regard due to their peripheral status in the world economy and the resulting position of relative dependency in global markets (Wallerstein 1984; 1979; Arrighi 1994; Chang 1998). Consequently, these countries face a completely different set of policy objectives and constraints regarding agricultural development and food security than the advanced industrial economies.¹³ Following the advice of international development agencies, and in the absence of other sources of national income, many third-world countries attempt to rely on agricultural exports as a development strategy (Eicher and Staatz 1990; Valdès 1991).¹⁴ Some states remain unable to

¹²In the United States, representatives of both political parties are presently advocating a significant reduction in federal farm subsidies, which signifies a substantial shift in the government’s attitude toward agriculture, as these programs had long been considered off limits for budget cuts (“Farm Subsidies Become Target Amid Spending Cuts”, by Steinhauer, Jennifer. *New York Times*, May 7, 2011, p. A13). Even from a workers’ standpoint, agricultural jobs are no longer considered desirable, due to persistently low wages and the unappealing nature of agricultural work. This is illustrated by the recent failure of the ‘Work Alabama’ initiative to connect unemployed job-seekers with farm jobs. As one analyst commented, “Americans have progressively abandoned agriculture jobs over the last century. ... The recession is highly unlikely to reverse it. Ultimately, these are not desirable jobs. The work is difficult. ... It would take a much bigger hit to persuade people that agriculture jobs offer good economic opportunities for them or for their children” (“Alabama Tries to Connect Jobless Residents With Farm Jobs, Finds Few Employers Willing to Hire”, by Clark, Stephen. *Fox News*, Oct. 27, 2011).

¹³The World Bank’s 2008 *World Development Report*, in an issue devoted entirely to agricultural development, distinguishes between three types of developing countries based on the respective food policy challenges they face (adapted from p. 227 of the report):

1. *Agriculture-based countries*, which are characterized by widespread poverty and food insecurity, and where agriculture accounts for the majority of total economic production (e.g., Sub-Saharan Africa);
2. *Transforming countries*, which no longer rely on agriculture as a major source of economic growth, and where poverty remains overwhelmingly rural (e.g., South Asia);
3. *Urbanized countries*, where the contribution of agriculture to the national economy is minimal, and where poverty is predominantly urban (e.g., Latin America).

¹⁴In practice, the promise of ‘agriculture-led development’ often amounts to little more than resource extraction from agriculture to finance urban and industrial modernization (Hopkins 1991; see also Schiff and Valdès 1998). For an overall appraisal of the World Bank’s agricultural policy advice, see Oya (2011).

attain even basic food security, and, when poor harvests occur or global food prices rise, are forced to rely on external aid. In the worst case, their populations face mass famine. This dynamic is illustrated by the ongoing food crisis in the Horn of Africa, which presently threatens 750,000 people with acute starvation (FAO Media Centre 2011FAO 2011).¹⁵ Thus, countries like Somalia, which are considered ‘failed states’ in modern political rhetoric, depend entirely on international agencies to mitigate the disastrous effects of famine, and have no sovereign food policy objectives beyond securing the elementary survival of their population.

A division even more fundamental than the one between first-world and third-world countries emerged between the socialist and capitalist blocs during the twentieth century. In Russia, the Bolshevik revolutionaries under Lenin rejected a future of democratic free enterprise in favor of socialism, which they hoped would put an end to mass unemployment, poverty, and economic mayhem (Hosking 2001). Lenin’s (1999 [1917], 70-71) critique of the existing socioeconomic circumstances crucially hinged on the question of agricultural modernization benefiting the masses, which, he argued, could not be accomplished under capitalism:

It goes without saying that if capitalism could develop agriculture, . . . if it could raise the living standards of the masses, who in spite of the amazing technical progress are everywhere still half-starved and poverty-stricken, there could be no question of a surplus of capital. This ‘argument’ is very often advanced by the petty-bourgeois critics of capitalism. But if capitalism did these things it would not be capitalism; for both uneven development and a semi-starvation level of existence of the masses are fundamental and inevitable conditions and constitute premises of this mode of production. As long as capitalism remains what it is, surplus capital will be utilised not for the purpose of raising the standard of living of the masses in a given country, for this would mean a decline in profits for the capitalists.

Following the Russian Civil War, during which mandatory grain requisitioning had been imposed, Lenin’s New Economic Policy (NEP) offered a forced compromise to the peasants,

¹⁵The crucial importance of food aid for the people’s survival in the world’s least-developed nations was evident, for instance, when a 2009 announcement by the United States government to cut food aid to Somalia for political and budgetary reasons immediately conjured up fears of mass starvation (“U.S. Delays Somalia Aid, Fearing It Is Feeding Terrorists.” *New York Times*, October 1, 2009).

by permitting limited commercial agriculture in the countryside in order to secure stable production and delivery of food to the cities. Despite an initial revival of agricultural output, the implementation of the NEP ultimately did not lead to the emergence of a domestic food economy that could sustain the growing urban population (Medvedev and Medvedev 2006).¹⁶ These unsatisfactory outcomes provided Stalin with a justification for decreeing the full-scale collectivization of agriculture in 1929, resulting in the elimination of the traditional Russian family farm and its replacement by larger administrative units that were expected to realize economies of scale and scope (based on mechanization and the use of advanced cultivation methods).¹⁷ The Chinese communists under Mao pursued similar objectives following Liberation in 1949, including land reform and the subsequent collectivization of agriculture in hopes of constructing a more rational economic system.¹⁸ While the stated egalitarian aims of socialism were in many ways not realized in practice — both the Soviet and the Chinese model were characterized by a bias toward heavy industry and urban development —, they represent a set of institutional objectives that fundamentally differed from those of capitalist nations.¹⁹

¹⁶Any increases in production were limited to livestock and crops for industrial use, while grain production actually declined to pre-revolutionary levels (Medvedev and Medvedev 2006).

¹⁷See Lewin (1975) and Viola (1989) for detailed historical studies of Soviet collectivization, its political and economic objectives, and the tremendous human toll associated with the collectivization campaigns.

¹⁸Mao described the objectives of collectivization in his speech *On the Question of Agricultural Co-operation*:

We are now carrying out a revolution not only in the social system, the change from private to public ownership, but also in technology, the change from handicraft to large-scale modern machine production, and the two revolutions are interconnected. In agriculture, with conditions as they are in our country co-operation must precede the use of big machinery (in capitalist countries agriculture develops in a capitalist way). Therefore we must on no account regard industry and agriculture, socialist industrialization and the socialist transformation of agriculture as two separate and isolated things, and on no account must we emphasize the one and play down the other (1955, 26-27).

¹⁹In analyzing the economic organization of socialism, it is helpful to distinguish between *institutional* and *political* objectives (of the state). The former refer to the substantive redistributive aims which were implemented through the design of basic economic institutions. The latter denote the specific political and geopolitical aspirations of different leadership generations. This distinction is especially relevant in the context of the food economy, given that China and the Soviet Union — like most socialist societies at one point in time — relied on agriculture as a means of generating resources for industrial development (Tang and Stone 1980; Szelényi 1998). Despite its salience, however, this political emphasis on urban

Summary

This brief discussion of the relationship between food production and the state permits several interim conclusions which are relevant for the subsequent investigation. To sum up,

1. When a food economy is *nationally* organized, state policy is central to determining questions of food availability and accessibility. This means that the institutions which govern the economic organization of food production are a reflection of government objectives.
2. All states share a fundamental interest in achieving food security within their territory in order to ensure the reproduction of their populations. Beyond this, state objectives exhibit great variation, ranging from differences in development policy to competing visions of how a national economy ought to be organized.
3. In addition to variation in their institutional objectives, states also differ in their capacity to realize these objectives.

For these reasons, food production must be analyzed through the examination of actual empirical cases and their historical specificities. The need for detailed empirical investigation is especially important in the context of the post-socialist transition. From a sociological perspective, the transition constitutes a shift in the fundamental objectives of political, social and economic organization — in other words, a change in the mode of production. In assessing the implications of this transformation for food security and availability, it is therefore necessary to examine the content of specific reforms and policies and thus document the changing (institutional) objectives of states.

development and heavy industry was (analytically speaking) exogenous to the food economy, as it did not directly affect institutional and organizational design. Instead, the socialist food economy was governed by a set of immanent distributive principles, such as a preference for egalitarian resource distribution and — at least during the late socialist period in both countries — for greater political stability and more consumer-friendly policies. Political objectives, such the desire to expedite industrialization and to ‘catch up’ with Western nations, acted as external and, for the most part, contradictory constraints on these immanent objectives.

3.2 Food production and the state under socialism

What then *was* the institutional point of departure of the transition? The economic organization of socialism followed the explicit political purpose of avoiding the undesirable consequences of market competition and private capital accumulation for the working population.²⁰ The key institutional innovation of socialism therefore consisted in abolishing the private control over societal wealth and mitigating the exclusionary properties of money:

Under capitalism, those who have things to sell set prices as a means of doing business, thereby restricting the availability of these things to those who *produce* the wealth. The socialist state will not allow such a market that stands between the masses and their vital necessities. It is an *enemy of the private power of money* which characterises the world of private property (Held and Hill 1989, 28; emphases in original).

This institutional objective fundamentally distinguished socialist societies from their capitalist counterparts, irrespective of whether it was ever achieved in practice or even effectively pursued. As Szelényi and his co-authors observe:

[T]heir critics are correct in pointing out that [actually existing socialist systems] did not live up to some of the key ideals of socialism ... Still these countries made a serious effort to implement some of the key economic proposals of socialism. Private property was outlawed, the means of production became publicly owned, and the ‘expropriators were expropriated.’ The effort was made to implement a system in which production targets were determined by the substantive rationality of the Party and its economic planners rather than by the logic of the market and the pursuit of profit (Szelényi et al. 1994, 235).

²⁰The objective of this section is to characterize the organizational and institutional context in which economic reforms were enacted. In doing so, I adopt a narrow analytical focus, limiting the discussion to a characterization of the core principles which governed food production and distribution during the *late socialist era*. In the case of the Soviet Union, a somewhat stable equilibrium between economic institutions and state policy existed from the beginning of the Brezhnev era until the early Gorbachev years. In China, a period of relative institutional and political stability began around 1962 and lasted until the beginning of reforms in 1978.

This discussion is not meant to serve as a basis for a comparison of socialism and capitalism or as an evaluation of their respective merits. To the extent that the two systems are contrasted, it is purely for analytical purposes, that is, in order to systematically appraise institutional change and continuity during the reform era. To this end, it is important to gain an understanding of the defining institutional characteristics of socialism — its “*differentia specifica*” (Marx 1968a [1867], 647).

The key institutional features of the socialist economic system, as it existed in the Soviet Union for 70 years and in China for 30 years, were public or collective ownership, centralized planning, and the distribution of societal resources to administratively rational criteria (ibid.). Economic coordination in these countries, however, did not take the (perhaps intuitively logical) form of issuing production and distribution directives on the basis of (previously ascertained) societal needs. Instead, central planners relied on *money* as an instrument of planning and coordination, assigning every conceivably available good and service an economic value in the form of a price.

Economic organizations ranging from collective farms to state-owned factories were therefore subject to dual accounting standards, recording not only the unit quantity but also the monetary value of economic transactions. Central planners relied on profit targets as the central administrative means of coordinating the production and allocation of societal resources (between different factories, cities, or regions).²¹ Unlike its capitalist counterpart, socialist profit was not measured as the net return on a prior financial investment, but took the form of an explicit “allowance for profit in the final price of products” (Robinson 1974, 50).²² In other words, because they operated in a non-market environment, state-owned enterprises “realise[d] a money surplus only when the relation between the state-decreed purchase and sales prices allows for it. They [were] not free to employ the techniques of competition vis-à-vis sellers and buyers” (Held and Hill 1989, 31).

From a political economy standpoint, socialist profit was thus an “artificial interest” (ibid., 12) insofar as it did not serve the accumulation needs of any particular social class (cf. Djilas 1957).²³ Because Soviet and Chinese economic doctrine stipulated that basic necessities, such

²¹As discussed below, the Chinese state suspended price-based economic management during the Great Leap Forward (1958–1960) and the Cultural Revolution (1966–1977), replacing it with a system of “direct planning . . . of total farm output in quantity terms” (Lardy 1983, 19).

²²As two economists from the Chinese Academy of Social Sciences elucidate, “costs, prices and other terms of value were only tools of calculation in the units owned by the people as a whole and were not objective economic mechanisms; among enterprises there was only the relationship of allocating goods, not that of buying and selling commodities” (Zhao and Xiang 1982, 950).

²³See King and Szelenyi (2004, 45–65) for a comprehensive review of the theoretical literature on the class status of political and technocratic elites under socialism.

as food and housing, should not be the object of private enrichment, consumer prices for these goods were set at permanently low levels. This effort to neutralize the exclusionary effects of money was to be achieved by simulating the function of a hypothetical market economy without private owners. In other words, the socialist state

did not object to the rule of money over society's production but *merely* to the effects it considered unfair. It expropriated capitalist private property and thus actually abolished the capitalist laws of the circulation of money, intending to put these very laws back into force *without* private property and *without* unfair effects (Held and Hill 1989, 10; emphases in original).

In practice, socialist planners faced the impossible task of determining a ratio of relative prices between *all* available goods and services, which would then give rise to an optimal societal division of labor (Dillmann 2009; see also Held 1992a). A group of pro-reform economists from the Soviet Academy of Sciences described the practical impossibility of this absurd endeavor in a 1987 article:

We maintain with utmost emphasis that neither the USSR State Committee for Prices nor any other organ can cope with this task [of setting prices]. A simple calculation bears this out. The Committee approves around 200,000 prices annually. If you divide this number by the number of its staffers, you will see that each one of them approves 3-4 prices daily. In other words, he has to work out in a spell of 2 hours or so what constitutes the novelty of a given article, whether expenditure has been correctly taken into account, whether the quotas for the expenditures of materials are not exaggerated, and whether the returns have been accurately calculated. Furthermore, it would help if he knew whether the consumer has a need for the full range of the article's new qualities and whether he will benefit from all the advantages promised by the manufacturer. It is obvious why the committee takes months to approve proposed prices (Petrakov, Volkonskiy, and Vavilov 1987, S1).

Farm and enterprise managers were instructed to dispose over resources, labor, and technology *as if* their objective was to realize an economic profit, even though they had neither the structural incentives nor the administrative authority to behave like a capitalist manager. At any given point, the existing system of price ratios meant that some enterprises

were poised to achieve their mandated profit targets, while others invariably incurred a loss. The resulting organizational dynamic was described by Robinson (1974, 49):

The management of an enterprise has been allotted a certain number of workers, technicians and cadres and receives the appropriate wage funds. Prices of materials and products are all given in the plan. Prices include a proportion of profits. *Good management, economy and high output per head increase the total profit.* Total profit is handed over to the state (that is, to the city or province) without distinction between planned and super-planned profit. A failure to achieve planned profit, unless for some acceptable reason, is not good for a manager's reputation, but it does not directly affect anyone's personal income (emphasis added).

Socialist managers were encouraged to be cost- and revenue-conscious, yet at the same time did not possess the organizational flexibility either to lower their own production and procurement costs, or to raise their sales prices. As a result, optimization took the form of economizing on inputs and resources while simultaneously maximizing labor intensity, thus giving rise to many shortcomings typically associated with socialism, including poor product quality, obsolete machinery, and long working hours (Held and Hill 1989; see also Dillmann 2009). Central planners responded to these shortcomings with a repertoire of compensatory measures, ranging from *ad hoc* production directives and price adjustments to mass campaigns and large-scale development programs. In addition, various forms of post-plan coordination took place on the organizational level.²⁴

These basic institutional features of socialism also manifested themselves in the organization of the food economy, with farms, processing enterprises, and food stores owned and operated by the state or by local collectives. In both Russia and China, “agricultural production was dominated by the Stalinist system of compulsory farm deliveries with the

²⁴In the Soviet Union, organizational actors adapted to unrealistic central planning objectives by engaging in what (Bauer 1983) termed the ‘plan bargain’ — a system of organizational arrangements in which deliberate information asymmetries were used to conceal performance inadequacies and secure continued access to resources (see also Kornai 1980; 1992). China, which had initially replicated Soviet principles of central planning and industrial organization, departed from this orthodoxy following the political split with the USSR and adopted a model of (relatively) greater administrative decentralization. Discrepancies between planning and production parameters were increasingly addressed through direct coordination with firms; as Robinson (1974, 50) writes, “the prices of all outputs and inputs [were] given to the enterprise; its plan of production [was] worked out in consultation with higher authorities”.

agricultural collectives serving as its organizational vehicle. This system remained intact from 1928 onward in the Soviet Union and after 1953 in China” (Kueh 1995, 17). The operational practices and medium-term planning objectives of these organizations were specified by their superordinate industrial ministries in the form of production targets, *ad hoc* directives, and material incentives. In addition, all prices — input, output, producer, and consumer — were determined and periodically readjusted by the government’s central planning agencies, permitting the state to control the entire food production chain via these administrative tools. Organizational similarities notwithstanding, disparate levels of economic development and diverging state policy objectives played a decisive role in shaping the agro-food systems of the Soviet Union and China according to nationally specific institutional criteria.²⁵

3.2.1 USSR

The Soviet agro-food economy was organized collectively, with nearly all agricultural land cultivated by state farms (*sovkhozy*) and collective farms (*kolkhozy*). Despite differences in formal legal status, the two organizational types were “nearly indistinguishable” in practice, seeing as both were “large-scale, state-owned enterprises with appointed managers reporting to the state administrative bodies and hiring significant numbers of personnel” (Serova 2000b, 82).²⁶ Over time, as Table 3.1 shows, the ratio of *sovkhozy* to *kolkhozy* gradually shifted in favor of the former, as state farms were thought to be more productive and financially stable than their collectively-owned counterparts (Medvedev 1987).

Within farms of both types, the basic unit of organization was the *production brigade*, whose function in the agricultural division of labor is summarized by van Atta (1990b, 130):

²⁵For reasons of parsimony, I cannot provide a complete historical overview of the Soviet and Chinese agricultural economies, but readers are advised to refer to some of the excellent existing accounts (e.g., Medvedev 1987 for the Soviet Union, and Lardy 1983 for China).

²⁶*Sovkhozy* were effectively state-owned corporate farms and managed according to the same criteria as industrial enterprises, insofar as they employed agricultural workers on a wage basis and operated according to state-designated financial planning objectives (Johnson and Brooks 1983; Medvedev 1987). *Kolkhozy* had the legal status of producer cooperatives, whose members were technically entitled to a share of farm profits and a locally elected management; in practice, collective farms possessed only limited authority to make autonomous production decisions, and had to deliver a substantial share of their output to state procurement agencies (Johnson and Brooks 1983).

Table 3.1: Structure of the Soviet agricultural economy (1960–1989)

		1960	1970	1980	1985	1987	1989
Number of units	Total	52,319	48,555	46,957	48,887	49,948	51,200
	State farms (% of total)	14.1	30.9	44.8	46.4	46.7	45.5
Area under cultivation (million ha)	Total	482.9	516.6	533.1	532.9	533.7	533.4
	State farms (% of total)	40.0	60.4	67.9	68.5	68.3	68.2
Average farm size (1000 ha)	State farms	26.20	20.80	17.20	16.10	15.61	15.62
	Collective farms	6.45	6.10	6.60	6.40	6.36	6.08

Note: Percentages are author’s calculations.

Source: Shend (1993, Table 17)

“Brigades, often including 50 to 100 people, allow relatively few managerial cadres to monitor the work of many laborers. Brigade members carry out discrete tasks according to the short-term, usually daily, work orders (*nariady*) under the close supervision of a ‘brigadier’.”

All production decisions were issued by the central planning authorities and implemented by farm managers (Medvedev 1987). This required an “enormous agricultural control apparatus” consisting of a “hierarchical management system, leading from the central bureaucracy to the individual brigadier” (van Atta 1990b, 132). At the same time, the state was also the sole buyer of food, as farms were required to make deliveries to state procurement agencies at predetermined prices (Johnson and Brooks 1983).

As Western observers have noted on many occasions, the Soviet food economy “was not a competitive system” (Wegren 2005c, 48). Put simply, “[i]nstead of the market playing the key role in determining prices allocating resources, state planning authorities at central and regional levels made these decisions” (OECD 1998, 105). Since the government used this system of planned prices to control the entire production chain from farm to consumer, “virtually every economic parameter was distorted in some way” (von Braun et al. 1996, 1), and it was therefore impossible to assess the “actual performance” (ibid., 2) of farms and enterprises. Unsurprisingly, because competitive markets did not exist, “profit played no role in the decisions of . . . state farms”, and “[p]rices, the main market signals, had no apparent effect on production” (Serova 2000b, 82). Finally, due to the state farm sector’s “inefficiently

produced” (Hosking 2001, 544) food output, “*if sold at a market price* it . . . would have been beyond the means of most workers” (ibid.; emphasis added).

Judging by the criteria of an efficient capitalist economy, the Soviet food economy was thus indeed inadequate. From the standpoint of socialist central planners, however, this state of affairs was regarded not as an institutional deficit but instead constituted an explicit policy choice. In other words, the socialist economy was deliberately organized to avoid the negative social consequences associated with private property and market competition. Instead, “*the overall purpose of Soviet-era farm policy was to ensure a guaranteed supply of foodstuffs to the population*, especially in the cities, at relatively low and stable prices” (OECD 1998, 105; emphasis added). Throughout the Soviet era, the provision of a reliable food supply remained central to the preservation of social stability (Wegren and O’Brien 2002). Beginning with the Brezhnev administration, food policy grew increasingly consumer-friendly, and “[t]he inexpensiveness of bulk foodstuffs for the Soviet populace [became] one of the main slogans of the Soviet regime” (Serova 2000b, 82). In order to improve both the quantity and variety of available food products, the government reversed the existing policy of net taxation of agriculture and ushered in an era of net positive resource flows into the countryside that lasted 25 years (Brooks and Gardner 2004, 572). Between 1965 and the fall of the Soviet Union, total state investment in agriculture increased by a factor of six (Ioffe et al. 2006, 26).²⁷

Within the countryside, the Soviet state pursued a policy of egalitarian redistribution. In order to prevent the emergence of inequalities across farms, occupations, and regions, the state utilized a system of “policy, financial, and economic levers” (Wegren 1998, 19). Price-setting was the principal mechanism by which this system was operated. In particular, the central planning commission implemented geographically specific price regimes in order to ensure the equal profitability of farms across different regions (OECD 1998; Serova 2000b).²⁸

²⁷A significant share of these resources was devoted to upgrading rural infrastructure and production methods, including the introduction of improved fertilizers, agricultural machinery, and irrigation systems (Hosking 2001).

²⁸Regional price differentiation was first introduced in 1964. The number of regional price zones increased

As a result, the economic geography of Soviet agriculture emphasized regional self-sufficiency over specialization according to local comparative advantages (von Braun et al. 1996, 2).



Source: Shend (1993, Tables 84, 171)

Although rural economic conditions improved somewhat as a result of increased government investment, Soviet agro-food policy had a decidedly urban emphasis (Wegren 2005c). The countryside continued to lag behind urban areas and remained — in the words of Hosking (2001, 545) — a “depressing place” throughout the Soviet era.²⁹ Urban residents, on the other hand, enjoyed nearly three decades of inexpensive food, and — at least according to official statistics — saw their per capita consumption levels of major foodstuffs approach the

significantly over time, so that by 1990 there were on average 15 different price zones for every major agricultural product (OECD 1998, 107).

²⁹Johnson and Brooks (Johnson and Brooks 1983), for instance, describe the inadequate state of rural infrastructure, housing, and welfare systems. Lacking educational and occupational opportunities made rural flight — especially among young men and women — increasingly prevalent (Hosking 2001).

levels of the leading industrial nations (Serova 1995).³⁰ Overall, however, the performance of the Soviet food economy remained plagued by problems. As Figure 3.1 indicates, the production of foodstuffs (especially meat) increased between 1965 and 1985, yet grain yields barely improved after 1970, despite considerable investments in agricultural modernization (Table 3.2).

Table 3.2: Productivity of Soviet agriculture (1965–1985)

	1965	1970	1975	1980	1985
Farm machines, total inventory (1,000 units)	1,613	1,977	2,334	2,562	2,775
Area harvested per combine (ha)	–	178	176	165	128
Fertilizer application (kg/ha)	27	45	76	83	109
Grain yield (tons/ha)	0.90	1.49	1.03	1.39	1.51

Source: Shend (1993, Tables 49, 83); Cochran (1989, Tables 20, 22).

Contrary to conventional wisdom, poor agricultural performance was not simply a result of state ownership in the food economy. As Johnson and Brooks (1983, 3) elucidate, “the socialized nature of Soviet agriculture [were] not the major source of difficulties. Many other aspects of Soviet planning, management systems, and pricing [were] far more important in limiting agriculture’s performance than its socialized character.” Some observers have argued that the “rigid administrative system” was to blame in particular, because it “failed to provide the necessary incentives to trigger the increase in agricultural production that have been the main goal of Soviet agro-food policy” (OECD 1998, 105). More precisely, the productivity shortfalls were not caused by missing inducements *per se* but resulted from the incentive structures provided by the Soviet system of price-based economic planning. On the farm level, the relative cheapness of agricultural inputs and machinery encouraged inefficient resource use, given that the profits of *kolkhozy* and *sovkhhozy* were essentially predetermined, and that wasteful behavior carried few negative consequences (von Braun et al. 1996).³¹

³⁰Both foreign observers and the Soviet press repeatedly noted the discrepancies between official production statistics and actual availability of food in stores. In 1988, at the height of *perestroika*, it was revealed that Soviet authorities had been inflating meat consumption statistics; it moreover transpired that there existed considerable inequalities in meat consumption, with the intake of the poorest socioeconomic strata actually declining by over 30 percent since 1970 (Dronin and Bellinger 2005).

³¹In addition to simply correcting production quotas and profit targets after the fact, the Soviet state

An even more fundamental contradiction emerged from the incentivization of agricultural workers through money. Importantly, farm employees were “paid according to the number of work orders they fulfill[ed], not according to the volume of their output at the end of the harvest season” (van Atta 1990b, 130), thus creating a situation in which workers’ “rewards [were] not meaningfully related to final results” (Nove 1990, 264).³²

Central planners responded to these endemic problems with a series of compensatory measures. The resulting policy dynamic is summarized by Macey (1990, 4) as follows: “In the aftermath of World War II, new efforts were begun to address the still unresolved issues of agricultural efficiency and productivity. It was at this time that Soviet agrarian policy began its seemingly endless oscillations between juggling investment priorities and administrative reorganizations in search for solutions.”

Over time, central planners adopted various forms of modified financial incentives for farms, focusing in particular on reforms of the agricultural wage system, such as the introduction of a “minimum wage” for members of collective farms during the Brezhnev era (van Atta 1990b, 131). These measures did not yield the expected improvements in worker motivation, considering that the government was simultaneously concerned with eliminating existing wage differentials between differently skilled workers (and also across farms and regions). In practice, this egalitarian orientation meant that the incomes of low-skilled workers were increasing significantly faster than those of skilled employees and farm managers (Wegren 1998). Given the limited efficacy of material incentives, the state supplemented them through periodic mobilization campaigns, generally during the sowing or harvesting season (van Atta 1990b, 132). In addition, the government responded to acute shortfalls in production and procurement with so-called “discipline campaigns” (Wegren 2005c, 30), in which farm managers were reprimanded for not achieving mandated profit or output targets.

disposed over a series of designated funds which could be used to make financial adjustments between better- and worse-performing farms (Serova 2000a).

³²In many situations, the incentive structure of the Soviet agricultural wage system explicitly encouraged poor work performance, as in the case of “tractor drivers who are paid per hectare of ploughed land and find it ‘profitable’ to plough too shallow” (Nove 1990, 264).

3.2.2 China

China's socialist revolution in agriculture began in earnest in 1955, after Mao had grown impatient with the speed of the socialist transformation of agriculture, and ordered the full-scale collectivization of the peasant farm economy (Veeck 2000).³³ As the economist Xue Muqiao (1981, 35) puts it,

The socialist transformation of China's agriculture was completed at a high speed. After the completion of agrarian reform, the Party Central committee decided to 'strike while the iron is hot' by following it up with a mutual aid and co-operation (collectivization) movement in agriculture. . . . The Party Central committee had planned to complete agricultural co-operation in 15 years, but things came to a head in 1955.

Collectivization progressed rapidly, and unlike the earlier expropriation of landlords, it was accomplished largely without bloodshed (Meisner 1999; see also Shue 1980). By 1956, the Chinese state had created a nationwide network of approximately 485,000 large-scale collective farms, transforming some 100,000,000 peasant households — nearly the entire Chinese countryside (*ibid.*) — into a “great rural proletariat” (Veeck 2000, 336). As in the Soviet Union, the prices for all major agricultural products were controlled by the state (Ge et al. 1992). Through a system of “indirect planning” (Lardy 1983, 18), in which state procurement prices served as the main policy instrument, the government was able to “influence the growth and composition of farm output as well as deliveries to state procurement agencies” (*ibid.*, 19).³⁴ By the middle of the decade, the state had obtained effective control over the entire food production chain — ranging from sown area to production to distribution — and established a monopoly on grain procurement as well as on storage, processing, distribution of grain (Wang and Davis 2000).

³³For a detailed chronological overview of China's rural institutional and policy trajectory between 1949 and 1977, see Kueh (1995, 19-22).

³⁴Due to the political turmoil created by the Great Leap Forward and the Cultural Revolution, China's model of agricultural planning was subject to considerable volatility. Price-based planning served as the dominant instrument of economic coordination from 1949 to 1957, briefly re-emerged between 1960-61 and 1965, and was adopted again following the end of the Cultural Revolution (Lardy 1983, 19).

In 1958, Mao ordered the establishment of People’s Communes. As Schiller (Schiller 1962, 350) observes, the introduction of communes did not signify “a radical change in the structure and managerial organization of Chinese agriculture” as much as it transformed the “individual’s place in the common enterprise”. Indeed, a core principle of the Commune movement was the near-total emphasis on the community, as the CPC placed restrictions on all aspects of peasants’ individual and economic freedoms. Yet the administrative reforms of 1958 and 1959 implied a significant transformation from the standpoint of agricultural organization, as nearly 750,000 cooperatives were combined into 26,000 People’s Communes, thus implying a nearly 30-fold increase in scale (World Bank 1981, 24). The resulting organizational form, which Kueh (1995, 20) describes as “a giant planning and accounting unit”, implied an “extreme centralization of power at the commune level” (Lardy 1983, 41), placing all production decisions (down to the peasants’ cropping patterns) into the hands of bureaucrats and party cadres, who had little knowledge of sensible agricultural practices.³⁵

Between 1949 and 1958, Chinese food production had increased considerably (Figure 3.2). This progress was effectively erased with the beginning of the Great Leap Forward (1958–1961). During this period, mandatory farm procurement quotas were set too high relative to actual production levels, which (combined with adverse weather conditions) caused food shortages in the cities and severe famine the countryside (Johnson 1990; Thaxton 2008).³⁶

Responding to the drop in production and the erosion of peasant morale as millions starved

³⁵Due to space limitations, my discussion of communes is limited to a review of their core institutional features. For a comprehensive overview of China’s agricultural organization under socialism, including an overview of the commune system, see Perkins and Yusuf (Yusuf and Perkins 1984, 75-104). A detailed study of the structure and administration of communes is provided by Jan (2004, 33-49 and 51-81).

³⁶The historians Liu and Wu (1986, 244) describe the dynamic of compulsory grain deliveries and exaggerated harvest estimates that created the conditions for the Great Leap famine:

Overestimation of the per-hectare yield of crops at that time inevitably led to an increase in the amount of grain to be delivered to the state. In 1958 the delivery of grain ... by the farmers and the state’s purchases of surplus grain increased by 22.3 percent over the year before while actual grain output increased by only 2.5 percent. The amount of grain delivered by the farmers ... rose from 24.6 percent of the actual output of 1957 to 29.4 percent in 1958. At the same time, the practice of providing food free of charge by the public canteens had almost depleted the villages of grain.

to death, the government relaxed its strict administrative control; individual peasant plots were tolerated, draft animals could be owned for personal use, and peasants were permitted to sell surplus products within the communes at market prices (Veeck 2000). The average size of a commune was significantly reduced, and decision-making authority in production and accounting matters was restored to the level of production teams (Yusuf and Perkins 1984; Lardy 1983, 44). By 1962, as Whyte (2010, 19) puts it, “communes had essentially become the old [agricultural producers’ cooperatives], but with one additional management level added on top” (see also Whyte 1986). Grain production recovered but did not reach its pre-1958 peak again until the middle of the decade.

Figure 3.2: Chinese grain and meat production under socialism (1949–1978)



Source: USDA Economic Research Service (1999)

With the beginning of the Cultural Revolution in 1966, the Communist Party’s preferences for egalitarian social engineering once again dominated the economic organization of communes, as the government placed new restrictions on the personal activities of peasants. Instead of realizing Mao’s “vision of a cohesive classless rural China” (Veeck 2000, 337), however, the policies of the Cultural Revolution led to a near-breakdown of central government control over the economy. As Brown (1995b, 229) has argued, this devolution of political authority actually afforded the communes “a certain immunity from the endless struggles at the centre”, which led to the emergence of “a strongly decentralized model of political economy within a centralized command system of resource allocation by price-fixing and overall investment policy” (ibid., 231).

Table 3.3: Structure of the Chinese agricultural economy (1958–1979)

	1958	1966	1975	1979
People’s communes	23,630	74,755	52,615	53,348
Production brigades (10,000)	–	64.8	67.7	69.9
Production teams (10,000)	–	541.2	482.6	515.4
Production brigades per commune (average)	–	8.7	12.9	13.1
Production teams per brigade (average)	–	8.3	7.1	7.4
Persons per production team (average)	–	109	161	157

Source: Xue (1982a, 965)

By the early nineteen-seventies, there still existed considerable regional differences between communes in terms of their size and level of modernization, yet the range of institutional variation had become extremely limited (Nolan 1988). The number of communes was reduced by nearly 30 percent between 1966 and 1975, as 75,000 existing organizations were amalgamated into 50,000 larger units (Table 3.3). By the middle of the decade, the commune functioned as “an administrative center with a market and small processing facilities” (Louis Kraar 1974, 69-70) for sub-village production teams, whose members cultivated collectively owned land in addition to small privately operated plots.³⁷ Qi (1979, 87) describes the communes’ internal system of economic organization:

³⁷By the mid-seventies, rural food consumption needs were partially met through individual peasant plots, whereas the communal mess halls of earlier years had disappeared entirely (Louis Kraar 1974).

In its present state of development, the people's communes have a three-level system of ownership, namely, the commune, the production brigade and the production team, with the production team as the basic accounting unit. The proceeds from enterprises run by a commune or a brigade belong to the respective commune or production brigade. The production team's land, its draught animals, farm machinery and other major means of production as well as manpower are at the disposal of the team and under its management.

Between 1966 and 1977, the Chinese state emphasized the direct planning of farm output, relying on "the imposition of detailed sown area and output targets and specific cropping patterns by higher level authorities" (Lardy 1983, 10). During this period, the government continued to mandate quota sales of grain at fixed prices, although production teams and brigades were given limited leeway in negotiating production plans to ensure that each team retained a sufficient part of the output to feed its members (Robinson 1974, 56; see also Robinson 1973). Workers were compensated and farms financed via a point-based system in which communes were given payment for inputs and services (e.g., fertilizer, grain processing, use of machinery, electricity) and teams earned an income, the bulk of which was distributed to households according to their accumulated work points.³⁸ Under the point system,

workers were accredited with work points for the jobs that they performed every day. At the end of a year the net team income, after deductions for state taxes, public welfare fund, and so on, was distributed according to the work points that each one accumulated during the year. . . . [W]ork points were supposed to reflect the quality and quantity of work provided by each worker. However, due to the nature of agricultural production, it is extremely difficult to supervise agricultural work. A peasant, in general, received fixed work points for a day's work regardless of the quality or quantity of his work. Egalitarian income distribution was the result of such a compensation scheme (Lin, 1988, S200).

Similar to their Soviet counterparts, the Chinese communists also pursued a policy of regional egalitarianism, where "[r]ich communes [were] selling a large proportion of their output and the poorest [were] selling little, or even receiving subsidies" (Robinson 1974, 57; see also Lardy 1983, 48-54). As Robinson explains,

³⁸Various types of work-point systems were in use in Chinese communes, with compensation typically based on time- or task-specific rates (Whyte and Parish 1984; Lin 1988). In communes where the *Dazhai* model was attempted, work points were assigned to production team members based on peer assessment of performance, diligence, and political attitude (Robinson 1974; Whyte and Parish 1984).

[t]he transfer of agricultural produce to the rest of the economy [was] organized by a system of quotas for deliveries, paid for at fixed prices, which [was] designed to skim off the excess of production over local needs. Communes which enjoy[ed] the most favourable natural conditions [had] the largest quotas and the highest money incomes. Their members [could] enjoy a better standard of life than those of poorer Communes, while at the same time carrying out more investment to increase their differential advantage in the future. A problem thus [emerged] for the authorities of how to check the growth of inequality without interfering with the growth of productivity (Robinson 1979, 59).

Mao encouraged regional self-sufficiency rather than specialization according to local conditions, emphasizing self-reliance on the regional and provincial levels.³⁹ Communes were integrated into local and regional divisions of labor and equipped with agricultural inputs and machinery according to the central government’s planning priorities (Tang and Stone 1980).

Following the disaster of the Great Leap Forward, the government decided to focus on technological upgrading and modern production methods as a strategy for solving China’s food problems. Although there were limited successes — the introduction of high-yielding seed varieties, a two-thirds increase in total irrigated land, and the emergence of a domestic chemical fertilizer industry (World Bank 1986c, 104) —, modern production techniques were in practice not adopted uniformly, since insufficient state investment meant that most communes lacked the material and financial resources to implement the government’s agricultural modernization drive (Tam 1985). Within communes, the implementation of agricultural modernization was further obstructed by the political emphasis on egalitarian redistribution, which greatly limited the incentive of individual households and production teams to raise productivity (Brown 1995b). Thus, despite efforts to modernize production methods, agricultural productivity barely increased (Table 3.4). In practice, the Communist leadership therefore continued to rely on the principles of the *Dazhai* model — named after a production brigade in Shanxi province, whose productivity was alleged to be legendary —, emphasizing “large-scale labor mobilization” (Kueh 1995, 21) and “intensive bureaucratic physical control”

³⁹The doctrine of self-sufficiency was initially articulated in 1958, and remained a permanent feature of Chinese agro-food policy until 1978 (Lardy 1983).

(ibid., 54).

Table 3.4: Productivity of Chinese agriculture (1952–1977)

	1952	1957	1961	1965	1970	1975	1977
Farm machinery, total inventory (1,000 units)	1.9	20.5	65.7	90.4	149.1	396.7	542.6
Fertilizer application (kg/ha)	0.7	3.3	4.3	18.7	34.7	53.8	65.3
Grain yield (tons/ha)	–	–	1.2	1.8	2.1	2.5	2.5

Note: Farm machinery includes medium and large tractors, harvesting combines, and trucks for agricultural use.

Source: USDA Economic Research Service (1999); FAO (2012).

During the period of the Fourth Five-Year Plan (1971–1975), the government’s overall economic strategy shifted toward an emphasis on heavy industry — and thus, implicitly, urban development —, widening the already existing gap between cities and the countryside (Tang and Stone 1980; Johnson 1990). The construction of China’s industrial base was to a large extent realized through the extraction of resources from the countryside. A central mechanism for accomplishing this resource transfer was the government’s pricing policy, which combined low state procurement prices for grain with (relatively) higher prices for agricultural inputs, thus imposing “a significant direct burden on the farm sector” (Lardy 1983, 144; see also Ash 2006). The government’s decision to promote heavy industry (and the resulting policy of transferring resources from the countryside into the cities) also manifested itself in comparatively lower incomes for members of collective farms.⁴⁰ In terms of the actual availability of food, however, urban residents enjoyed surprisingly few advantages over their rural counterparts. As Veeck (2000, 337) summarizes the legacy of the Mao system, “China’s food system under the commune era was characterized by a limited diet ... and regular shortages in both rural and urban China.”

⁴⁰Unlike the employees of a state enterprise, who enjoyed fixed wages (along with various other fringe benefits), agricultural workers received their income according to a system of work points, whose value fluctuated based on state procurement prices and amount of grain harvested (Whyte and Parish 1984).

Summary

As the preceding discussion has revealed, the agro-food sectors of the Soviet Union and China, despite both being socialist, were characterized by differences in economic organization and government policy. These differences were in part the result of differing initial conditions. At the beginning of the Mao era, China was a predominantly agricultural society, with nearly 85 percent of the population living and working in the countryside (*NBS 1988, 127*). Even by 1978, 70.7 percent of the population remained employed in the farm sector (total rural population: 80 percent), and agriculture accounted for 35.4 percent of national income (down from 68.4 percent in 1952) (*ibid.*). Following the disaster of the Great Leap Forward, Chinese food policy focused on grain security and regional self-sufficiency, while neglecting livestock breeding and diversification of production. As a result, the integration of agriculture and industry remained limited to the provision of basic inputs (in both directions).⁴¹ The Soviet Union, by comparison, had undergone several waves of industrialization, thus progressively lowering the relative share of workers employed in the agricultural sector. In 1965, at the beginning of the Brezhnev era, the agricultural labor force had accounted for less than a third of total employment, and this figure declined to under 20 percent by 1989 (Shend 1993, Table 33).⁴² During this period, Soviet food policy focused on expanding and diversifying the range of available foodstuffs, in particular meat products. While the Chinese state only developed basic functional linkages between agriculture and industry, the Soviet government actively facilitated the emergence of an agro-industrial complex under the aegis of its central planning apparatus.

Despite these differences in their initial development, the food economies of Russia and China were characterized by a set of shared institutional features. As (Mead 1986, 29) concludes in a comparison of Soviet and Chinese agricultural systems:

⁴¹These policy priorities were reflected in China's economic geography. Aside from heavy industry, which was predominantly located in urban areas, light industry, including food manufacturing, was integrated into communes in the form of local processing facilities.

⁴²In the Russian Federation, agricultural employment only accounted for approximately 15 percent of total employment in 1989 (Shend 1993, Table 33).

Although the histories are quite different, the nature and structure of the systems [was] quite similar. Because the Chinese originally adopted the Soviet model, much of the two systems [were] the same. In both nations, the Communist Party [established] goals that [were] then formulated into a plan by a central agency. Both countries [had] a central statistical agency responsible for procuring information. And both . . . used a system of compensation for collective workers based upon the total amount of work provided by the collective labor force, the amount of the collective's profit, and the amount of work provided by each individual worker.

Even the Chinese commune, which had at one point been referred to as a “manifestation of Sino-Soviet differences” (Meissner 1962, 122), increasingly resembled Soviet models of agricultural organization. Given that both countries had effectively eliminated the practices and customs of traditional agriculture, thereby transforming former peasants into “labor forces of . . . large-scale farms” (Schiller 1962, 350), they also faced similar challenges in the organization of agricultural production: “Despite obvious historical differences, unequal levels of development, and different cropping patterns and cultivating techniques, the problems surrounding agricultural labor organization and incentives [were] quite similar in the USSR and the PRC” (van Atta 1990b, 133).

Finally, and most significantly, the two systems shared a set of substantive redistributive objectives which, irrespective of actual accomplishments, were reflected in the institutional and organizational design of their agro-food economies. These objectives included above all the provision of affordable (basic) foodstuffs to the population, and an egalitarian distribution of economic resources (at least *within* rural and urban localities). As the preceding case analyses have revealed, neither country actually accomplished these objectives in any meaningful way. Though partially the result of national policy choices and other case-specific factors, these shortcomings were principally caused by contradictory institutional arrangements under socialism, in particular, the system of value-based economic planning. The incentive structure created by this system demanded that farms and agricultural enterprises simultaneously improve productivity, lower costs, make economical use of resources, produce output of higher quality, and meet (or exceed) their assigned profit targets. Inevitably, or-

ganizations failed to consistently satisfy all of these criteria, necessitating ex-post planning adjustments and various types of compensation policies.

3.3 Problem diagnosis and reform objectives

Besides an institutionally similar mode of economic organization, the agro-food economies of China and the Soviet Union shared another commonality: their performance was a source of persistent dissatisfaction among socialist central planners and political elites. Moderate production gains notwithstanding, socialist leaders were especially concerned with the inadequate growth of agricultural productivity. Indeed, as Ellmann noted in a 1981 comparative assessment, “overtaking the advanced capitalist countries in agricultural productivity is still in the distant future” (988). In China, acute concerns over the stagnation of the rural economy were articulated by Deng Xiaoping as early as 1975: “Agriculture appears to be doing comparatively well, but the per-capita grain yield is only 304.5 kilogrammes, grain reserves are small and the income of the peasants is pretty low” (Deng 1992e [1975], 14).

In the Soviet Union, reformers were similarly alarmed about the lack of acceleration in food production, as indicated by the following assessment at a March 1989 Central Committee plenary session devoted to agriculture: “We continue to trail behind developed countries large and small in labor productivity, in crop yields from fields, in livestock productivity and in the variety and quality of foodstuffs. The gap is not getting smaller, it is growing” (1989a, 3).

As the following case discussions illuminate, the reformers’ emphasis on *productivity growth* — as opposed to an increase in absolute output and net availability of food — had significant implications for the countries’ subsequent reform trajectories. Most importantly, it caused the modernization programs formulated under Deng and Gorbachev to be principally focused on reforming the economic incentives for farms, enterprises, and the individuals within these organizations through the introduction of market elements.

3.3.1 China

By 1978, China was no longer self-sufficient in grain; as a result of inadequate domestic production, the government had to import 40 percent of the grain needed to supply its urban population with food (World Bank 1986c, 104). Crucially, this import dependence arose despite the successful introduction of improved agricultural inputs, irrigation infrastructure, and cultivation techniques (Lardy 1986). Besides stagnating production levels, the Mao era was characterized by what Johnson (1990, 2) termed a “pervasive” urban bias in the areas of investment, expenditure on consumption goods, and housing. Resulting low peasant incomes, along with inadequate food provision and hunger in some provinces, produced growing disillusionment among rural residents. Regional inequalities in the administration of grain distribution led to food shortages in several regions (Lardy 1982), and near-starvation conditions in some areas, such as Anhui province (Vogel 2011). As the Chinese economist Xue Muqiao (1981, 176) notes, “[b]etween 1957 and 1977, living standards almost remained the same. The average wage was not raised, the peasants’ food grain was not increased, and about one in every three peasants led a hard life.”

The overall situation gave rise to a “climate of cynical mistrust” toward the government among peasants (Chan, Madsen, and Unger 1992, 266). Following the arrest of the Gang of Four and the political marginalization of the remaining socialist hardliners, the reformers under Deng Xiaoping carried out a fundamental revision of the existing socialist economic management system. The famous Communiqué of the Third Plenary Session of the 11th Central Committee of the CPC in December 1978 reached the following conclusion:

[A]griculture, the foundation of the national economy, has been seriously damaged in recent years and remains very weak on the whole. The rapid development of the national economy as a whole and the steady improvement in the living standards of the people of the whole country depends on the vigorous restoration and speeding up of farm production (CCCPC 1978, 6).

The short-term objectives of rural reform included the alleviation of food shortages in affected provinces and the preservation of general social stability (Sun and Li 2003 [1997]). Af-

ter initial measures were successfully implemented, reformers became increasingly concerned with the further ‘speeding up’ of production, rather than its mere ‘vigorous restoration’ — in other words, the policy focus shifted toward efficiency improvements. While land productivity had grown by over 60 percent between 1957 and 1975 (largely due to the introduction of improved seeds, fertilizers, and irrigation methods), China’s leaders were dissatisfied with labor productivity in the communes and agricultural enterprises. An assessment by two economists, published in 1980, illustrates the rationale behind this assessment:

Labour productivity in China’s agriculture is too low. In 1978 the net value created by a Chinese peasant or farm worker, calculated at the current price level, averaged only 364.3 yuan, while that created by an industrial worker amounted to 2,809.2 yuan, or 7.7 times greater. [While] labour productivity worked out in terms of monetary value may not be accurate because of the price factor, the figures on grain output show that in 1978, while each producer in China reaped 1,036 kilograms, his counterpart in the United States brought in more than 50,000. . . . Agricultural labour productivity remains at roughly the same level as during the First Five-Year Plan period (1953-57) (Yang and Li 1980, 186-187; emphasis added).⁴³

Chinese reformers believed that the reason for slow productivity growth was the inadequate incentivization of individuals (and organizations) in the socialist economy. Specifically, as Du Runsheng, one of the principal architects of China’s reform strategy, explained at a 1983 conference on rural reform, the root of the problem was to be found in the lack of performance-based rewards:

The egalitarian distribution system practiced in the people’s commune period benefited those who were lazy and compromised the diligent; it was obviously a failure. To calculate remuneration according to a labor norm was feasible theoretically, but in fact there were a lot of thorny problems involved in the process, from establishing the norm to its calculation and checking. . . . As a matter of fact, what was generally practiced was the method of evaluating work and allotting workpoints. Workpoints were set for different persons and remuneration calculated according to workpoints. *Those who did more work did not receive more pay, and those who received more pay did not do more work.* Thus it was impossible

⁴³The stagnation in agricultural labor productivity was largely the result of a simultaneous decline in arable land (from 112 million ha in 1957 to 100 million ha in 1975) and a massive increase in the agricultural labor force (from 193 million in 1957 to 195 million in 1975) (Nolan 1988, 64).

to remove the fundamental drawback of egalitarianism (Du 1984 [1983], 35-36; emphases added).⁴⁴

Accordingly, in the language of two pro-reform economists, the primary objective of economic restructuring was to “eliminate the old error of over-concentration of power or ‘everybody sharing food from the same big pot’ and handle relationships of material interest among the state, the collective and the individual correctly” (Li and Zhang 1984, 68). In formulating a strategy for the modernization of the country’s agrarian sector, the reformers thus concluded that an effective agricultural development policy required

releasing the socialist enthusiasm of our country’s several hundred million peasants, paying full attention to their material well-being economically . . . [T]he economic organizations at various levels of the people’s commune must conscientiously implement the socialist principle of ‘to each according to his work’ work out payment in accordance with the amount and quality of work done, and overcome equalitarianism [sic]; small plots of land for private use by commune members, their domestic side-occupations, and village fairs are necessary adjuncts [!] of the socialist economy, and must not be interfered with (CCCPC 1978, 7).⁴⁵

A central ingredient of the Chinese reform and opening-up process was the reliance on foreign capital, technology, and expertise. Deng Xiaoping was convinced that “science and technology have no class nature”, meaning that “capitalists make them serve capitalism, and socialist countries make them serve socialism” (Deng 1984 [1978], 122). In order to overcome China’s relative economic and technological backwardness, he therefore proposed to “learn from the peoples of the capitalist countries” (Deng 1992d [1979], 175-176) by making use of

the science and technology they have developed and of those elements in their

⁴⁴A transcript of Du’s speech originally appeared in the *People’s Daily* on March 7, 1983 (p. 2).

⁴⁵As Deng (famously) explained, the Communist Party was very much aware that the proposed use of material incentives would undermine the existing egalitarian framework and give rise to social inequalities:

We stand for the principle, ‘to each according to his work’, and we favour public citations and material rewards for those individuals and organizations that have made outstanding contributions. *We are also in favour of allowing a part of the population or certain localities to become well-off first through hard work which earns them greater income. This is our firm position* (Deng 1992b [1980], 242-243; emphasis added).

accumulated knowledge and experience which can be adapted to our use. While we will import advanced technology and other things useful to us from the capitalist countries — selectively and according to plan — we will never learn from or import the capitalist system itself.⁴⁶

Yet unlike in most other sectors, where Chinese reformers expressed an explicit interest in borrowing from Western countries, the sensitive nature of food security required a more delicate approach. As Deng argued in December 1980, after the initial economic adjustments had yielded “good effects” (Deng 1992a [1980], 343), it was essential that “[i]n modernizing China’s agriculture we should not copy the Western countries or countries like the Soviet Union but should proceed along our own path, in keeping with the specific conditions in socialist China” (ibid.)

Although it is possible to argue that the emerging reform strategy had many distinct facets, its perhaps most defining feature was the central role that the state was to play in the restructuring process. China’s reformers realized that modifications to the socialist system of price-based economic planning had the potential to cause unexpected disruptions in food production, even as they might solve many existing imbalances. The notion that a modernization of China’s food economy would have to be pursued under the aegis and with the extensive support of the state was noted in the Communist Party’s “Decision on Some Questions Concerning the Acceleration of Agricultural Development”, which was adopted at the Fourth Plenary Session of the 11th Central Committee in September 1979: “Only when the state provides agriculture with more assistance will the peasants’ enthusiasm rise; and only when the peasants’ enthusiasm is fully aroused will assistance from the state yield better results. The two sides of the matter are complementary” (CCCPC 1982 [1979], 164).

During the early reform years, the Chinese state remained explicitly committed to mitigating the negative consequences of restructuring. Following the initial decision to raise

⁴⁶In fact, Deng remained committed to overtaking capitalist countries one day, arguing that “[i]n the future, we must — and certainly will — have abundant facts with which to demonstrate that the socialist system is superior to the capitalist system”, a superiority that would “manifest itself in many ways, but first and foremost it must be revealed in the rate of economic growth and in economic efficiency” (Deng 1992b [1980], 236).

agricultural procurement prices, for instance, reformers mandated that “urban workers must be guaranteed against a fall in their living standards” (CCCPC 1978, 7). Even by 1985, when reforms in the countryside had accelerated considerably, it was no question that “practical measures should be adopted to protect the benefits of the urban consumers” (CCCPC and State Council of the PRC 1985, 2). Likewise, state grain policy was formulated according to the principle of “paying attention to grain production while actively developing the diversified economy” (ibid., 3), which entailed active measures to ensure that the production of staple grains remained profitable for farmers, especially in light of more attractive opportunities in other product markets.

The key principles of China’s emergent agrarian reform strategy were summarized by He Kang, Minister of Agriculture of the People’s Republic, in a 1989 review article:

[P]roceeding from the rural actual conditions, we conducted a major adjustment and reform in the traditional economic structure which had no longer suited to . . . the further development of rural productive force, and built up, step by step, a new setup adapted to the operation of a planned market-oriented rural economy” (1989, 6).

The core feature of this new system of economic management was the introduction of the contract responsibility system, with its dual emphasis on “remuneration linked to output” and “the household as its managerial mainstay” (ibid.). The rationale of the new approach was to “[respect] the initiative of [the] masses . . . and choose a new form of production system, based on their own interests and initiative. . . . Under the new system, the farmers have more decision-making power and are able to earn more from more work, thus greatly boosting their enthusiasm in production” (ibid., 6-7). In the enterprise sector, including the food processing and manufacturing industries, the key objective of initial restructuring measures was “the separation of administrative power from enterprise management” in order to “make the enterprises relatively independent commodity producers” (Ma 1982, 317).

For several years, China’s modernization strategy remained explicitly limited to reforms within the existing socialist framework. The objective, according to two advocates, was to

build a “socialist commodity economy ... based on public ownership, different from the commodity economy under capitalism.” (Liu and Wang 1984, 105). In order to achieve the “full development” of such an economy, however, it would be “essential to combine regulation through planning with regulation through the market (ibid.).

The experimentation with market relations quickly elicited changes within the Communist Party’s official economic doctrine. A 1982 review of recent developments in Chinese economic theory describes this process, presenting the state-induced presence of commodity relations as an empirical discovery with urgent policy implications:

For a long time Chinese economists have discussed the nature of commodity production and the law of value under the socialist system. ... In the past, Chinese economists generally denied the existence of commodity relations within the economy owned by the people as a whole ... The discussions in the last few years, however, focused on the role of economic management in the entire socialist economy. Since the founding of the People’s Republic of China, the economic management system has been plagued by problems. ... [A]ll these problems are directly related to the view that exchanges among state enterprises are not commodity exchanges and to disregard the law of value. *Practical considerations demand that we explore and explain questions of why commodity relations exist among units owned by the people as a whole and how to use the market mechanism.* ... This theoretical breakthrough is of great significance in recognizing enterprises as relatively independent commodity producers, enlarging their decision-making power, overcoming the use of purely administrative means and adopting more economic means, and giving value-related economic levers (prices, credit, tax and wages) a role to play (Zhao and Xiang 1982, 950; emphasis added).⁴⁷

During the initial years of rural reform, the state had relied on a system of unified grain procurement prices in order to retain “an active role in ensuring supply and supporting

⁴⁷A similarly circular attempt to provide ideological consistency was made by the economist Ma Hong, then Vice President of the Chinese Academy of Social Sciences, who wrote in a 1982 policy monograph on “China’s New Strategy for Economic Development”:

The essence of the question is whether or not the state-owned enterprises are to be considered as relatively independent commodity producers. If this point is accepted, it must be acknowledged in principle that all state-owned enterprises must assume the responsibility for their profits and losses. ... If this principle is negated, the economic status of the enterprises is in fact negated. Because *in actual economic life*, the economic status of the enterprises is manifested in the form of assuming responsibility for their profits and losses (1982, 311; emphasis added).

[economic] construction” (CCCPC and State Council of the PRC 1985, 1). By 1985, however, China’s leaders were no longer satisfied with the state’s effective monopoly on purchase prices, arguing that the “malpractice [of the existing price system] has become obvious day by day, hindering the present development of the commodity production and the upgrade of the economic efficiency in the rural areas” (ibid.). Moreover, the reformers noted that “in the course of transforming the rural production [sphere] into a commodity economy, there still exist all kinds of incoordination . . . so that the circulation of commodities has been clogged” (ibid.).⁴⁸ It was therefore concluded that

after breaking ‘eating from the same big pot’ in the collective economy, we must further reform the managerial system of the rural economy, expand the role of market regulation under the guidance of the state planning, so as to make the agricultural production adapt to the market demand, promote the rationalization in rural industrial structure and further invigorate the rural economy (ibid., 1-2)

The shift toward expanded market regulation implied new roles for both farmers and the state. Peasants were expected to “transfer from carrying out production mainly according to the State’s plan . . . to considering the demand in the market of their products” (ibid., 8). At the same time, the state was to “change its planned management on agriculture from mainly relying on administrative leadership . . . to mainly relying on the economic means” (ibid.)

Although China’s reformers remained nominally committed to preserving the system of collective agriculture, by the second half of the decade, the Chinese government had convinced itself of the practical possibility of full market integration within the socialist economy, arguing that

[a] complete market system for farm produce is a powerful force to push forward the development of the rural economy from its original self-supporting or semi-self-supporting pattern to large-scale commodity economy and socialized mass production with detailed division of labor and coordination among different sectors (Wu 1987, 5).

⁴⁸In particular, the document lists factors like insufficient adaptation to consumer demand, low quality, and insufficient product variety.

Given the importance of stable grain production for “political stability, social stability and equality”, it was deemed “impossible to realize total commercialization at present” (ibid., 5), causing the Chinese state to rely on a system of mixed state and market procurement for some years to come.

3.3.2 USSR

In the Soviet Union, China’s reform and opening up process was initially regarded with considerable suspicion. In the late Brezhnev era, as well as during the short-lived Andropov and Chernenko administrations, the Kremlin emphasized economic and political orthodoxy, and state media outlets published only short descriptive accounts of China’s restructuring efforts, and refrained from publicizing an official Party stance (Hua 2006, 6).⁴⁹ Despite the conservative ideological climate, there was a growing dissatisfaction with the outcomes of the central planning mechanism and the country’s economic trajectory at large; a United States government publication, perhaps not without a certain hint of epicaricacy, synthesizes this sentiment:

In the 1980s, agriculture continued to frustrate the leaders of the Soviet Union. Despite immense land resources, extensive machinery and chemical support industries, a large rural work force, and two decades of massive investment in the agricultural sector, the Soviet Union continued to rely on large-scale grain and meat imports to feed its population. Persistent shortages of staples, the general unavailability of fresh meats, fruits, and vegetables in state stores, and a bland, carbohydrate-rich diet remained a fact of life for Soviet citizens and a perennial embarrassment to their government (Library of Congress 1991, 519).

The beginning of Soviet reforms in agriculture and food production is typically associated with Gorbachev’s appointment as General Secretary of the CPSU in March 1985. Two major agricultural policies, in fact, preceded Gorbachev’s appointment: the 1982 Food Program, and the 1984 Land Reclamation Program (Brooks 1990b). Because these programs were still implemented within the socialist economic framework, they did not constitute a step toward

⁴⁹For an example, see “On the Reform of the Economic System in China” (*Pravda*, October 25, 1984; reprint published in *Current Digest of the Russian Press* No. 43, Vol. 36 [November 21, 1984]: 9).

market reforms. The underlying concerns which were addressed by these programs, however, were quite similar to those later articulated by the Gorbachev regime, as the following report from 1982 demonstrates:

[O]ver the past 15 years, progress has been made in raising Soviet people's per capita food consumption toward recommended levels. But ... significant gaps remain between actual consumption and recommended levels for a number of types of food. Thus, annual per capita meat consumption is 35% below the recommended level, and fruit consumption is 66% below. ... Another [gap] is the irregularity of the supply of meat, dairy products, fruits and vegetables in many regions of the country, and seasonal fluctuations in the availability of various foods in the stores (Mozhin and Krylatykh 1982, 4)

Throughout the Soviet era, various and seemingly persistent problems had emerged to plague the country's food system. Government experts estimated that the elimination of waste and spoilage in the production, storage, and distribution of food could have increased the availability of grain by 25 percent, of fruits and vegetables by 40 percent, and of meat products by 15 percent (Library of Congress 1991). Moreover, as Gray (Gray 1990, 94) estimated, "only 60 percent of the protein in Soviet milk [was] consumed by humans, and the milk that [was] fed to animals or simply wasted [had] more protein than half the meat Soviet citizens [consumed]." Compounding these problems, severely adverse weather conditions between 1979 and 1981 necessitated major imports to meet the country's demand for feed grain (Dronin and Bellinger 2005, 330). As Gorbachev (1988c [1987], 7) later observed, "[a]n absurd situation was developing ... One of the biggest producers of grain for food, [the Soviet Union] nevertheless has to buy millions of tons of grain a year for fodder." During this period, authorities were repeatedly forced to resort to food rationing, and many reports from the local Soviet press about empty shelves in food stores at the time suggest that not even rationing quotas were being fulfilled (Dronin and Bellinger 2005).

By the middle of the decade, the Soviet leadership had become increasingly frustrated with the performance of the farm sector, causing Gorbachev to remark in 1985 that "the nonfulfillment of plans in the production and sale of grain crops evokes tensions in satisfying

the needs of the country; this consequently forces us to important grain crops and to spend considerable currency reserves for this purpose” (1985a, R6).

Meanwhile, the budgetary resources necessary to sustain the Soviet food economy were subject to even more intense scrutiny. Between 1962 and the late Gorbachev era, consumer retail prices for food were not altered, whereas producer prices of farm products were raised consistently, thus giving rise to an effective calculatory discrepancy in the state budget, which many observers have (incorrectly) interpreted as “subsidies” (Serova 2000b, 82; *inter alii*). These transfer payments were increased (over time) “without consideration of real production costs or efficiencies” (OECD 1998, 105). The widening gap between producer and consumer prices caused some analysts to detect a “hollow ring” (Brooks and Gardner 2004, 574) in socialist propaganda claims, such as Gorbachev’s much-quoted assertion that “an average person’s annual consumption of meat costs less than a pair of women’s boots in state stores” (ibid.), arguing that the low price of the former was merely the result of “substantial net subsidization” (ibid., 572; see also Johnson 1996, 225).

In fact, low consumer prices were all but an empty claim. Rather, they were a basic preference of the Soviet state and *therefore* became an economic reality. In other words, so-called subsidies — which, as Szelényi (1998, 2) points out, “cannot even be calculated” in practice — were a deliberate and permanent policy choice, not compensation for (unexpected) shortfalls in output or productivity. A truly curious facet of Soviet-style socialism is the pursuit of a stable food supply for the (urban) populace through a system of price-based economic planning, in which farms, enterprises, and even the state’s own budget operated on the basis of cost-revenue accounting. (Unlike their capitalist counterparts, these actors lacked an objective economic incentive to accumulate.) Within the context of this accounting system, the political preference for a stable (and ideally diverse) popular diet naturally manifested itself in permanently low consumer prices, as well as a corresponding cost position in the state’s budget.

During the late Soviet era, state subsidies to the food economy amounted to around 10 percent of national income, or 20 percent of the central government’s budget (World Bank 1992; Johnson 1996).⁵⁰ Reacting to this state of affairs, the reformers in the Kremlin resolved to lower agricultural production costs by adopting more efficient production methods. At the April 1985 plenary session of the CPSU Central Committee, Gorbachev officially announced *perestroika* — the “concept of accelerated socio-economic development for the USSR” (1988c [1987], 10). The reformers concluded that organizations and individuals in Soviet agriculture lacked proper economic incentives:

“[W]e have devoted and are continuing to devote enormous attention. Substantial amounts of capital investments are being channeled to the countryside, and the degree to which collective farms and state farms are equipped with machinery is rising. The increase in purchase prices has been conducive to the strengthening of their financial and economic situation. All this is producing certain results, but many farms are continuing to make inefficient use of land and of labor and material resources. In this connection, a further increase in efficiency in the work of collective farms and state farms and in the mutual responsibility of all segments of the agro-industrial complex, the improvement of planning and management and the fuller use of working time and of all daylight hours deserve serious attention” (Gorbachev 1985b, 3).

As Table 3.5 indicates, labor productivity in agriculture more than doubled between 1960 and 1970 but subsequently grew increasingly slowly. Moreover, the agricultural situation differed significantly across the 15 former Soviet republics, with labor productivity in the best-performing republic being 2.5 times that of the least productive republic (Lerman, Kislev, Biton, and Kriss 2003, 999).

Table 3.5: Labor productivity growth in Soviet agriculture (1960–1986)

	1960	1970	1980	1985	1986
Total	100	225	299	358	398
Collective farms	100	212	277	341	376
State farms	100	168	201	231	257

Source: Goskomstat (1987, 282)

⁵⁰In the RSFSR (Russia), consumer food subsidies accounted for one third of the budgetary expenditure, and the share of subsidies in consumer retail prices was 80 percent (Serova 2000b, 83).

At first, the scope of proposed reforms was limited to economic restructuring within the institutional framework of socialism (Laird and Laird 1990). The intention to reform socialism rather than abolish it was articulated by Gorbachev on many occasions. The following excerpt from a speech advocating agricultural decentralization and the introduction of contract farming is emblematic of this sentiment:

There is, in the CPSU and in the country as a whole, a unanimous understanding: We must seek the answers to the questions posed by life not beyond the boundaries of socialism but within the framework of our system, revealing the potential of the planned economy, socialist democracy, culture, and the human factor (*Gorbachev 1986a, R2*).

Gorbachev initially promoted the elimination of bureaucratic inefficiencies and the strengthening of direct producers through the use of “contracts and economic accountability” (1985b, 5). Soon afterward, however, Gorbachev began to propose radical changes to the institutional system of Soviet agriculture. At the 27th CPSU National Congress in February 1986 — which, according to van Atta (1990a, 81), was the congress at which “Soviet agricultural policy [was] transformed” — Gorbachev demanded that the introduction of “*genuine financial autonomy and the dependence of an enterprises’ income on its final results*” must become the norm for all links in the agroindustrial complex and, first and foremost, for kolkhozy and sovkhozy” (1986b, O14; emphasis added). The rationale behind this approach was to rely on improved financial incentives and competition among production teams to raise labor productivity, even though in practice the new agricultural incentive system failed to yield the expected results, and both the cost of domestic food production and of imported feed grain continued to increase (Brooks and Gardner 2004).

By the second half of the decade, Soviet reformers were analyzing complications in the food economy from an increasingly market-oriented angle. The following statement by Nikolay Ryzhkov, Soviet prime minister under Gorbachev, illustrates this shift:

[A] cooperative cannot develop normally while marketing output at a loss to itself; at the same time, neither will the consumer pay a price which does not

correspond to the commodity's consumer qualities and to his own income. In other words, the principle of supply and demand, which balances the interests of the consumers and the producers, is being included in the process of price formation. Life has shown that violation of this principle — voluntarism in price formation — causes a braking of production growth. As a result, shortages of individual goods develop and money circulation is disrupted (1988, 60).

Based on these considerations, Ryzhkov concluded that “[e]conomic competitiveness among commodity producers must become the essence of socialist market relations”, with markets serving “as the moving force and as an effective form for the development of public-sector production” (ibid., 62). Using a combination of “strictly fixed prices with freely set ones” (ibid., 60), similar to the dual-tracking policy used in China, this approach was expected to bring about “conditions of socialist competition” (ibid.), thus creating an impetus for agricultural producers to become more efficient.

The initial attempts at introducing market elements to the Soviet economy faced considerable resistance from both farmers and bureaucrats, hindering their implementation (Brooks 1990a). The persistent stagnation of farm output formed the principal topic of a March 1989 plenary session of the CPSU Central Committee devoted to agricultural reform. In his report to the plenum, Gorbachev underscored the severity of the problem, arguing that continued reliance on foreign food imports would create an unsustainable burden on the state budget. Moreover, he warned that persistent food shortages were “creating social tension and . . . giving rise not merely to criticism but also to discontent among people” (1989a, 3). Gorbachev therefore concluded that market reforms in the agricultural sector had to be accelerated:

The restructuring of the forms of property entails changes and economic relations between town and country and between different economic sectors on the basis of the continued spread of commodity-money relations. In general, comrades, we are for cost-accounting relations with leaseholders to be based on complete freedom to choose ways of marketing products. *We shall inevitably come to this sooner or later.* It is perfectly obvious that if collective and state farms and leaseholder teams have to pay their own way, this will make them produce more and better farm produce at less cost (1989b, 38; emphasis added)

By the end of the year 1990, Soviet reformers had conclusively decided to introduce a market economy, modeling their vision after the institutional systems of Western capitalist countries. Although Gorbachev still made an attempt to introduce capitalism within 500 days toward the end of his tenure, his reforms of the agro-food sector ultimately did not abolish the existing socialist system but merely introduced (limited) private interests into the collective economy. Gorbachev's project was completed by Yeltsin, however, who intended to reform Russia's agro-food economy entirely along the lines of market principles, thereby "[destroying] collective agriculture as the dominant sector of food production and as the primary form of farm organization" (Wegren and O'Brien 2002, 9).

Summary

As the case discussions have revealed, the performance of the food economy under socialism was unsatisfactory from the standpoint of political elites in China and the Soviet Union. In particular, reformers in both countries were exasperated by a persistent lack growth in productivity. In the Soviet Union, where the overall performance of the food economy during the Gorbachev era "revealed no obvious catastrophic situation" (von Braun et al. 1996, 1), productivity shortfalls occurred despite significant increases in government investment in agriculture, thus causing reformers to perceive the sector as a permanent drag on the national economy. In China, long-term food security concerns as well as acute shortages in some provinces prompted reformers to view the sluggish performance of the food economy not only as an obstacle to future economic development, but also as a potential source of social unrest.

Responding to perceived shortcomings in the efficiency of agricultural production — and, in the case of China, years of urban bias and relative neglect of the entire agrarian sector —, Soviet and Chinese reformers set out to modernize their agro-food economies by introducing a system of improved financial incentives and economic management practices within the institutional context of socialism. Reformers in both countries viewed commodity production

and market exchange as instruments for advancing their countries' economic development.

Over time, reformers' objectives evolved to an increasingly explicit reliance on market relations. In the Soviet Union the belief, that that markets could solve all (economic) problems became increasingly pervasive. The Chinese leadership, on the other hand, was more hesitant to implement drastic changes. Although market reforms were accelerated after earlier experiments had been deemed successful, the Deng administration remained initially committed to retaining certain socialist institutional elements. Even the term socialist market economy, which was later used to describe China's economy, did not appear until 1992.⁵¹

3.4 Conclusion

As the analysis in this chapter has shown, the two countries were characterized by important differences in terms of state objectives and developmental trajectories. First, the institutional point of departure — that is, the economic organization of food production during the pre-reform era — differed considerably, as was demonstrated by the comparison of the Soviet and Chinese food systems under socialism. It was therefore inevitable that their subsequent transition strategies would be influenced by these initial differences. Nove (1990, 270), for example, explored the extent to which Soviet reformers might be able to draw lessons from China's then-recent agricultural experiences, concluding with the following assessment:

Chinese agricultural production, which takes place mainly on small fields, uses

⁵¹China's gradual transition strategy is most noticeable in the changing language of the country's constitution, which suggests a remarkable shift in the attitude toward capitalism and private property. The constitution that was adopted by the National People's Congress in 1982 contained for the first time a reference to the "individual economy" as a "complement to the socialist public economy" (art. 11). In a 1988 constitutional amendment, the "private sector" was added as a further "complement" (art. 11). In 1999 the constitution was amended again, now referring to the individual, private and other non-public sectors as "major components of the socialist market economy" (art. 11). The most recent amendment, adopted in March 2004, stipulates that the state "protects the lawful rights and interests of the non-public sectors of the economy such as the individual and private sectors of the economy . . . [and] encourages, supports and guides [their] development" (art. 11). Even more momentous was the introduction of an article in which the private property of citizens is described as "inviolable" (art. 13). In agriculture, the state had recognized the *de facto* property rights of farmers — which they had been granted in the form of long-term usage rights — in the 1993 Agriculture Law, noting that "[t]he State shall protect the lawful properties of peasants or agricultural production and operation organizations from violation" (Art. 17).

relatively little power-driven equipment and few industrial inputs other than fertilizers. In addition, family cultivation is subject to few diseconomies of scale that counterbalance the obvious ‘incentive’ advantages of the household responsibility system. However, it would be impossible to ‘privatize’ the Soviet Union’s large *kolkhozy* and *sovkhozy*, though they could conceivably be divided into smaller units (emphases in original).

The conclusions which Soviet and Chinese reformers reached in their reassessment of socialist production methods in the food economy also exhibited a certain degree of divergence. In China, the Deng administration opted for a measured, state-guided approach to economic reform, whose objectives evolved over time. Whereas reformers had initially retained an explicit emphasis on constructing a *socialist* commodity economy, the following excerpt from a 1987 statement on rural policy indicates a predominantly market-oriented attitude, arguing that subsequent reforms

should rely on [the] market mechanism to regulate the production structure and stimulate the rational flow and optimum combination of production factors, including labour, land, funds and techniques so that the rural economy will get the momentum for further development. . . . [W]e should seek commercialization of products, realization of product value and economic results, and organize production according to market demand, thus leading to a new path from consumption to supply to production (Wu 1987, 5).

In the Soviet Union, reformers initially placed an even greater emphasis on retaining socialist production methods than their Chinese counterparts had. During the short years of Gorbachev’s *perestroika*, however, the initial goal of modernizing socialism evolved into its wholesale rejection. As early as 1985, Gorbachev asked a series of rhetorical questions in speeches on agrarian policy, to which the implicit answer increasingly seemed to be, ‘Because we don’t have a market economy’: “Why does it happen that an enterprise produces outdated output on a low technical level or consumer goods for which there is no demand, but lives normally and sometimes even prospers? Our economic mechanism allows such phenomena to occur” (1985b, 3).

A more explicit version of this diagnosis was offered by Ryzhkov in a 1988 speech on legal and organizational reform of the agrarian sector, in which he argued that economic

difficulties in Soviet food production “can be solved only through effective price regulation: on the one hand, by applying a well-considered and economically based taxation policy, and on the other, by giving the utmost support to healthy competition” (1988, 60). Significantly, the government’s existing economic planning apparatus was increasingly viewed as an obstacle to this endeavor, as low growth rates were blamed on the bureaucracy and political conservatism. This sentiment laid the foundation for a sustained period of “state withdrawal” (Wegren 2005c, 62), which characterized Russian agro-food policy during the post-Soviet era and lasted until the early years of the Putin presidency.

This directional trajectory of Russia’s post-socialist food policy regime was partially influenced by the threat of territorial disintegration, which emerged during the late Gorbachev era. Compared to China — where the rapid and measurable success of the initial rural reforms had galvanized considerable public support for further restructuring, thus affording reformers a relatively stable political climate —, the Soviet leadership was confronted with multiple challenges to its political legitimacy and territorial authority. These challenges chiefly emanated from the Soviet Union’s 15 federal republics, whose political elites in most cases⁵² desired exclusive national control over the economic output produced within their territory. Gorbachev, on the other hand, still envisioned a market transition under the aegis of the Soviet state.

The significance of these differences notwithstanding, the Soviet Union under Gorbachev and the People’s Republic under Deng shared one crucial commonality, namely, that reformers had decided to pursue the modernization of their countries’ socialist food economies through a program of price liberalization and — its logical corollary — the private utilization of public property and land. Until then, the institutional and regulatory framework had been grounded in the notion that consumers should not be prevented from accessing food by prohibitively high prices. As a result, food prices under socialism had been set at deliberately low levels, allowing at least urban residents to afford a stable diet of basic food

⁵²One notable exception is Kazakhstan, whose leaders would have arguably preferred their country to remain a Soviet Socialist Republic (Zhandossov 2011).

items. The very desire to prevent self-interested producers from using their exclusive control over the means of production to charge high prices and enrich themselves was now regarded as a fundamental institutional deficit by socialist market reformers.

Without simultaneous compensation measures, even a partial liberalization of food prices would inevitably trigger substantial inflation in all product categories whose consumer prices had previously been ‘subsidized’. Yet reformers and social scientists alike were convinced that a combination of market incentives and organizational reform would yield a solution to the economic and distributive problems which socialism had been unable to solve for years. As I demonstrate in the next chapter, the introduction of commodity production and competitive exchange had implications for the political economy of food production, which not only far exceeded the reformers’ initial objective of economic modernization within the socialist framework, but also implied a qualitative transformation of the criteria by which farms, enterprises, and the state assess the economic viability of food production. Together, this and the following chapter form the analytical foundation for the subsequent in-depth analysis of economic evolution and organizational behavior in the wheat and pig production sectors.

Chapter 4

The introduction of commodity relations

As the analysis in the preceding chapter has demonstrated, reformers in China and the Soviet Union initially intended to implement an economic modernization program within the socialist framework by introducing elements of commodity production and market exchange. Taking these intentions as a starting point for analysis, this chapter investigates the actual institutional changes that took place. According to observers at the time, the initial restructuring of the food economy was not particularly radical in either country. Lardy (1983, 221), for instance, described the political climate in China after four years of rural reform as one of “policy ambivalence”. The Soviet attempt to bring *perestroika* to agriculture was regarded with equal skepticism, with Brooks (1990a, 79) even questioning the viability of the entire endeavor: “The likelihood that this kind of sweeping change can be designed and implemented . . . now appears low.” In hindsight, this verdict seems to have been correct, considering that many of the subsequent policies had more far-reaching and visible implications than those adopted under Gorbachev and Deng. Yet even a decade later, studies continued to describe reforms in the food economy as a (tenuous) work in progress. Perusing this literature, the reader will become acquainted with a variety of synonyms for *incomplete*.

China's agricultural sector reforms are described as having an "unfinished agenda" (Lin 1996, 24), as being "at the crossroads" (Yang and Tian 2000, 18), and — even in 2004 — as being merely "partial" (Rozelle and Swinnen 2004, 434). Russia's transition, likewise, was thought thought to be "ongoing" (Brooks et al. 1996, xi), "inconsistent and incomplete" (Serova 2000a, 116), and according to some even at a "standstill" (Csáki 2000, 48). But, most importantly, social scientists conceived of the transition as a teleological *process* requiring "more reform" (Ding 2000, 29).

As Stark (1992) and others have observed, the notion of a transition logically entails an *endpoint*, thus giving rise to a teleological bias in the analysis of the reform process.¹ The majority of studies examining the economic restructuring of the food economy adopt the analytical vantage point of an archetypical market economy. This type of negative specification is bound to yield misleading results, given that the economic institutions in countries such as Russia and China differ substantially from those found in advanced industrial economies. When examined by means of comparison with an (imagined) endpoint or a free market ideal-type, observed institutional and economic conditions during the transition are inevitably understood as deviations from this endpoint or ideal. This is demonstrated by widespread policy recommendations to adopt the institutions found in 'modern' or 'advanced' (capitalist) food economies in order to move the transition toward its 'completion'.

Rather than engaging in speculation on a country's path along an undetermined trajectory, it is sensible to discard this teleological lens and to instead examine reforms in their relevant national and institutional context. This makes it possible to appraise those institutional changes that actually occurred. Contrary to received opinion, I argue in this chapter that the initial reforms adopted under Deng Xiaoping and Mikhail Gorbachev were defined by the introduction of *commodity relations* and constituted one of the decisive events of the transition. As the case discussions will demonstrate, the two countries' reform paths diverged considerably; in particular, the manner and sequence with which these reforms were

¹Burawoy (2001) proposed to address this issue linguistically by advocating the term *transformation* instead of *transition*.

introduced were of great significance for the subsequent institutional trajectories of Russia's and China's food economies.

Contrary to the reformers' seemingly firm beliefs, commodity production is not simply a means to an end (i.e., socialist modernization), but instead implies an entirely new economic purpose. As Marx observed, the transformation of a product into a commodity — the process known as commodification — gives rise to the differentiation of a commodity into use value and exchange value:

As use-value, a commodity satisfies a particular need and forms a particular element of material wealth. Its [exchange] value, on the other hand, measures the degree of its attraction of all other elements of material wealth, and thus measures the social wealth of its owner (Marx 1968a [1867], 147; author's translation).

According to Marx, an object can have use-value without being a carrier of exchange value. This is the case whenever the useful properties of something do not derive from human labor, as is the case for air or water as found in nature (ibid., 55). Likewise, a product of human labor is not necessarily a commodity, so long as it is produced exclusively for personal consumption and does not enter the sphere of marketplace exchange (ibid.). Still, if a product of human labor is to have exchange value, this requires the presence of useful properties; as Marx notes, “if [a product of human labor] is useless, then the labor contained in it is also useless, does not qualify as actual labor and thus does not create exchange value” (ibid.; author's translation). The production of a commodity thus requires that a product possess not merely use value for the producer, but “use-value for others — *socially necessary* use-value (ibid.; author's translation, emphasis added).

Significantly, the exchange value of a commodity “acquires an autonomous existence alongside the physical commodity itself” (Marx 1983 [1858], 98; author's translation). Thus, if one disregards the “natural particularities” of a commodity exchangeable with all other commodities, this commodity is given “the status of a general commodity” and “its exchangeability is expressed . . . as a definite sum of money” (ibid.; author's translation).

The introduction of commodity relations into the socialist economy thus fundamentally

altered the economic purpose of food production, since the inherent purpose of a (food) commodity is its exchange in the market. Indeed, in order to *realize* the exchange value of a commodity, a producer must sell it. In other words, the introduction of commodity relations into the socialist economy meant that food would be produced with the goal of exchanging it against money. The notion of commodity production is thus inextricably tied to the question of *ownership* — control over the disposal of the product, and over the proceeds resulting from its sale in the market.

As I will demonstrate in the following case discussions, the socialist modernization programs of Deng and Gorbachev created the institutional and organizational foundations of commodity production and market exchange in the food economy over the course of a few short years. During this period — which lasted from 1978 to 1992 in China and from 1986 to 1993 in the Soviet Union and Russia —, both states relinquished control over most aspects of economic management and resource allocation, thus effectively eliminating the organizational identity of state and economy. Specifically, the individual units of economic organization — that is, existing farms and enterprises or their sub-units — became financially autonomous actors that increasingly adopted the principles of cost-accounting. (This idea of economic self-reliance was also gradually applied to consumers.) By offering financial incentives to individuals and enterprises via private usage rights, the state thus created private interests concerning the *use* — though not necessarily the *de jure* ownership — of public property. These reforms, which amounted to the effective decollectivization of the agrarian economy, inevitably transformed the function of money in the food economy; no longer subject to the state's price-planning and budgetary allocations, the flow of money followed the profit-oriented behavior of economic actors in an increasingly decentralized division of labor.

Still, the introduction of commodity relations was not simply a matter of state edict. Rather, commodity production requires individuals and organizations behave like private owners and actually produce goods for sale in the market, as opposed to merely holding legal titles to productive assets. Commodity production by self-reliant economic actors moreover

requires a network of supporting institutions; the Chinese economist Ma Hong (1982, 311) lists these institutional prerequisites, almost as if they are ancillary requirements:

A number of reforms have to be made in planning, finance, taxation, pricing, banking, commerce, supply, foreign trade, labour and wages to supplement the restructuring of the economic management system.

Even as both countries carried out institutional reforms to turn producers into private economic actors and incentivize their market-oriented behavior, differences in initial conditions, reform strategies and sequencing, and geopolitical circumstances caused variation in the institutional design and economic performance of Russia's and China's agro-food systems.

4.1 China

In 1978, the paramount challenge facing China's reformers was the stagnation of the agricultural sector. In the short term, food shortages and acute starvation in several regions posed a threat to social stability, as peasants in several regions demanded the restoration of household agriculture (Yang 1998). As Gao Shanguan, vice minister of the State Council's Commission for Economic Restructuring (1985–1993), and his co-author observe in a 1997 review volume on rural economic reform, maintaining stability in the countryside has always been a matter of grave importance for China's leaders since “without stable rural areas there can be no stability for the country” (Chi and Gao 1997, 26). Moreover, China's reformers concluded that the existing socialist agricultural system constituted an inadequate foundation for the nation's long-term industrial development. The Central Committee's 1979 “Decision on some Questions Concerning the Acceleration of Agricultural Development” further explicates this viewpoint:

As agriculture is the foundation of the national economy, its rapid development provides the essential guarantee for the realization of modernization. Only by speeding up agricultural production and bringing about modernization in agriculture step-by-step can our peasants, who comprise 80% of the population, be-

come rich; and only then can the national economy as a whole prosper (CCCPC 1982 [1979], 161).

The conditions causing the malaise in agricultural production faced by reformers had “largely [been] created by their predecessors” (Powell 1992, 11). In other words, socialist policies had in many cases disregarded basic scientific knowledge of agricultural production methods, neglected the development of natural comparative advantages, and deprioritized investment in the agricultural sector. Moreover, as I have also argued in the preceding chapter, the administrative and regulatory system that governed food production during the Mao era created a contradictory incentive structure for agricultural organizations and their members and offered only abstract links between performance and rewards.

There is still no consensus in the literature on China’s economic transformation regarding the type of approach taken by the reformers. Labels chosen by different scholars to define the essence of the post-1978 rural reforms range from “initially tentative” (McMillan and Naughton 1996, 6) and “gradual” (Huang 1998, 162; *inter alii*) to “experimental” (Rozelle 1996, 198) and “radical” (Kueh 1995, 235). Despite these inconsistencies in formal categorization, social scientists agree that China’s reforms did not follow a coherent prescribed course. Indeed, as Johnson (1990, 15) observed in a study of the first decade of reforms, “as of 1978 or any later time a clear blueprint for the actual reforms undertaken apparently did not exist. They evolved over time. Nor did the reforms always move in a consistent direction toward well-articulated goals. *Nonetheless, the reform process has been one of the most far-reaching ever undertaken by any economy*” (emphasis added).

In assessing China’s rural reform process, social scientists typically divide the institutional changes into three initial stages. Various segmentations have been suggested by Western and Chinese scholars alike. The first stage is generally thought to have lasted from 1978 to 1984, the second stage from 1985 until about 1989, and the third stage from about 1989 to 1992 (e.g., Carter et al. 1996; Chi and Gao 1997; Huang 1998; Yu 2005). While it is indeed sensible to structure one’s investigation along the lines of significant changes in government policy,

there is a danger that such periodization leads to an understanding of early phases as merely transient, and as being later surpassed (if not replaced) by more extensive institutional reforms. Indeed, the literature has displayed a tendency to treat the initial years of reform as a period of timid experimentation, with subsequent stages referred to as “bolder” (Carter et al. 1996, 16). The second stage was, according to Huang (1996, 28) merely a “first attempt of [sic] market reform”, followed by a “readjusting and deepening stage” (Chi and Gao 1997, 13), and ultimately (after 1992) leading to a “third revolution” in the Chinese countryside — the establishment of “a relatively free national market for almost all farm products for the first time in the history of the People’s Republic” (Garnaut and Ma 1996, 2).²

In order to avoid the problem of hindsight bias, the following case analysis examines the functional coherence of reforms, as opposed to their mere chronological sequence. As the discussion will show, the reforms introduced during the first ten years of the Deng administration, far from being tentative or partial, constituted a decisive transformation in the political economy of food production. Carried out under the strict supervision of the state, the reforms resulted in the decollectivization of the agrarian sector by 1984, and implied an altered role for the government in economic decision-making: Instead of planning quotas and bureaucratic administration, the government now relied on indirect regulation to manage the economy.

4.1.1 Monetization and property reform

The first step toward rural reform in China offered peasants improved financial incentives, the lack of which — as documented by the preceding chapter — was deemed the principal institutional shortcoming of socialist agriculture. The reformers concluded that the most expedient course of action would be to reform the “irrational” (Walker and Ash 1998, 229) price system, which stipulated purchase prices that were too low in relation to costs, thus

²Despite the overlap in terminology, Garnaut and Ma’s ‘third revolution’ is different from the aforementioned ‘third stage’ and refers to the post-1992 attempt to introduce a full-scale market economy in agriculture. (The implications of these reforms are analyzed in the next chapter.)

causing “the production of many important items [to be] unprofitable” (ibid.). Therefore, beginning in 1979, the state raised producer prices for grain, meat, and various other agricultural products by 20 percent, while continuing to subsidize urban consumer prices (CCCPC 1982 [1979], 165). In addition, the government raised the above-quota price payable to peasants to 50 percent above the procurement level, and permitted the sale of excess grain at negotiated market prices (Duan 1985, 33).³

The significant increase in agricultural procurement prices, which was coupled with a reduction in net taxation of grain and livestock products, amounted to a significant transfer of resources into the countryside. During the five years from 1978 to 1983, the average increase in producer prices amounted to 47.4 percent, compared to a mere 41.8 percent increase between 1957 and 1978 (ibid.). As far as the improvement of financial incentives was concerned, “the rationale of the 1979 and subsequent price changes requires no comment” (Ash 1993, 21).⁴

A further innovation in agricultural policy consisted of permitting peasants to farm small plots of land and keep a limited number of livestock for personal use. The 1979 Central Committee directive, which explicitly sanctioned the establishment of “household side-line occupations and village fairs”, referred to these practices as “subordinate and supplemental to the socialist economy” (CCCPC 1982 [1979], 162), and made clear that “they definitely cannot be regarded as a form of capitalist economics and must not be repudiated and outlawed as such” (162-162). At this time, official policy still mandated that “[n]o land shall be redistributed for individual farming” (ibid., 165) and that “[t]he people’s communes must continue to adhere steadily to the three level system of ownership” (165).

Already in late 1977, however, peasants in Anhui province — one of China’s poorest areas, threatened by acute starvation at the time — had begun to experiment with the use

³In November 1979, the government increased urban consumer prices for meat products, fish and eggs in the cities and eliminated direct subsidies, replacing them with a “monthly food allowance” paid to employees of state enterprises (Duan 1985, 33).

⁴See Sicular (1993, 49-52) for a chronological overview of China’s price and procurement reforms.

of household plots (Vogel 2011).⁵ Conservative members of the political establishment were reluctant to sanction the practice on ideological grounds, yet the reformist faction around Deng Xiaoping quickly became dominant and proceeded to promote the policy on a national level (Zweig 1989).⁶ Initially, as Chi and Gao (1997, 2) explain, the adoption of agricultural reforms was geared toward “lightening the burden on peasants, mobilizing their initiative and freeing them from anxiety.” By 1982, however, the measures had produced fundamental changes in the organization of agricultural production, which “in many cases, resulted in the virtual disappearance of all but the most skeletal features of the collective economy” as previously collective fields had been “subdivided into strips of various sizes for farming by work groups or by individual households” (O’Leary and Watson 1982, 2).

Though implemented rapidly, China’s “second land reform” (Kueh 1985, 122) was not at all a disorderly process. One study of a village in the Baimapu Commune near Chengdu, Sichuan Province, describes the land redistribution process:

Brigade and team cadres prepared by numbering and measuring each parcel of land, wet paddy, and dry field alike, and assessing its quality on a scale of three grades. The actual reallocations were carried out, under the close scrutiny of village families. . . . Brigade leaders supervised the process, occasionally intervening in disputes over particular plots or over the boundaries within subdivided plots. . . . Land was redistributed on a per capita basis. The class labels of the Maoist era were not taken into consideration. (Ruf 1998, 127).

Another account describes decollectivization in a village in Guangdong Province in southern China, which did not amount to the *de jure* privatization of agricultural land but nonetheless significantly expanded the autonomy of peasants:

Lots were drawn in each of the production teams to determine which families

⁵Some scholars have argued that the use of household plots was initially the result of popular initiative, with peasants “secretly [dividing] communal land to be farmed by individual families . . . on a dark November night in 1978” (Gregory and Zhou 2009, 35; see also Zweig 1997; Yang 1998). Yet while it is true that household-based farming initially faced political opposition, Vogel (2011, 443) observes that “in fact many officials knew about the idea and some had been considering it ever since the beginning of collectivization.” Instead, “[i]t would be more accurate to say that when peasants were given a *choice* between collective or household farming, they overwhelmingly chose the household” (ibid.; emphasis added).

⁶See Zweig (1989, 169-176) for an overview of the evolution of agricultural politics and the ideological climate surrounding decentralized production methods.

would be allocated which pieces of land to cultivate. The distribution was to be on a strictly *per capita* basis, with a quarter of an acre of rice land allocated per family member. Since teams were still required to sell grain to the state, each of the households would be responsible for an annual rice-sales quota. But so long as the family handed in its quota, it would be free to plant and sell whatever it wanted to on its allotted fields. Thus, though the teams retained ownership, the Chen Village peasants were again small-scale cultivators, with all of the risks and opportunities for profits that independent entrepreneurship entailed (Chan, Madsen, and Unger 1992, 271).

The Deng administration quickly realized that a profound obstacle in further developing household agriculture lay in the existing system of ownership and administration, in particular, the “damaging effect of communes’ encroachment on production teams’ autonomy and their interference with production, management, and distribution” (Ash 1993, 20).⁷ Therefore, as Cai (1985, 14) observes, “the most important reform in China’s rural areas” following the redistribution of land was “none other than the carefully-planned and practised reform of the people’s communes — reducing them to mere rural production units without administrative powers.”

The planning of decollectivization was careful, and its implementation rapid. Between 1982 and 1984, “virtually all of China’s collectivized agriculture was dismantled” (Whyte 2010, 26), with less than 250 of the original 54,352 People’s Communes remaining in the entire country by the end of 1984 (Ash 1993, 20). Concurrent to the dismantling the communes and with similar speed, the government recognized private ownership over the agricultural means of production, which included machinery, processing technology, and (certain) infrastructural facilities (Kojima 1993).⁸ Finally, the reorganization was accompanied by a decentralization of economic planning (Walker and Ash 1998), placing not only financial rewards but also operational decision-making into the hands of direct producers. Certain basic economic management and service functions were still to be performed by the former organizational units (Du 1984, 38). Beyond that, however, the emphasis of reform was to be

⁷In 1979, party bureaucrats made various (localized) attempts at recentralization, thus obstructing the adoption of the new organizational practices (Ash 1993).

⁸Kojima (1993) notes that the privatization of commune property was formally sanctioned only after farmers had already begun to autonomously seize property from the production teams and brigades.

“on mobilizing the enthusiasm for *independent operations*” and allowing households “a free hand in developing production and getting rich by doing hard work” (ibid., 37; emphasis added).⁹

The reform measures implemented between 1978 and 1984 thus “effectively decollectivized the Chinese peasantry” (Nove 1990, 270) and created a class of financially self-reliant peasant households. As opposed to the socialist economy under Mao, in which profit had existed in the form of a *target* (for farms), it now took the form of an economic *interest* (for individuals). China’s early rural reforms thus accomplished what the price-planning system in the collective economy had failed to deliver for years: it gave “agents a stake in future profitability” (McMillan and Naughton 1996, 6).

Although the reforms left the management of the work process to the peasants, the government prohibited the exercise of certain ownership rights such as buying, selling, or mortgaging land, and limited the duration of lease contracts to a mere three years.¹⁰ Beginning in 1984, the government lifted some of these restrictions after it had observed that the short contract duration encouraged unsustainable farming practices that would lead to severe soil depletion if continued (Kojima 1993). The 1984 ‘No. 1 Document’ therefore stipulated that the lease duration for peasant households would be extended from three to 15 or more years (Yuan 1985, 43).¹¹ The rationale behind the extension was to incentivize farmers to behave more like private owners, who “[a]ssured of their long-term management of the land, . . . put more energy, fertilizer and skills into their farmland” (ibid., 43).

As the reformers had hoped, the introduction of household-based farming led to significant increases in both land and labor productivity, with privately tilled plots realizing twice the

⁹The Deng administration further expanded the freedom of peasants by easing restrictions of the *hukou* system, which had prohibited rural residence permit holders from leaving their villages. This policy change had significant implications: “No longer were people confined to their villages and collectivized farming for life, with little opportunity to augment the meager work point income that came from their production teams” (Whyte 2010, 27). Instead, they were free to pursue new economic opportunities as migrant workers in China’s coastal cities and in the burgeoning township and village enterprise (TVE) sector.

¹⁰There also existed uncertainty as to whether the government might reallocate land upon expiry of the first round of land contracts (Kojima 1993).

¹¹The duration of leases has since been extended to thirty years (Lohmar et al. 2009).

grain yield of collectively farmed land (Walker and Ash 1998, 232). Between 1978 and 1980, the government therefore increased the area of private plots by another 23 percent (ibid., 233). It soon emerged that in order to fully capitalize on the productivity advantages of private farming, it would be necessary to exploit economies of scale by further increasing the size of individual landholdings. As one policymaker put it, “[g]radual concentration of land in the hands of cultivation masters is an inevitable result of rural economic development and a positive step necessitated by the growing demand for a higher productivity per hectare” (Yuan 1985, 44). It was therefore concluded that “allowing some skilled farmers to take over more farmland” was “probably the main channel to bring about concentration of farmland” (ibid.). The reformers termed this rudimentary market for agricultural leaseholds rather innocently “negotiation between the farmers themselves” (ibid.), despite the fact that it amounted to “virtually unlimited transfers of leasehold rights” (Kueh 1985, 128).

4.1.2 Markets and economic management

Parallel to establishing the individual peasant household as the main unit of agricultural production, the government began to create a market infrastructure alongside the existing state-owned distribution channels (Walker and Ash 1998, 230). The first step toward creating a market for agricultural products was the introduction of agricultural production contracts which stipulated that specified amounts of products were to be sold to the state at pre-designated prices.

Different forms of contracting existed. In some areas, households still entered into contractual agreements with their superordinate production teams; under this system, which was known as ‘contracting production to the household’ (*baochan dao hu*), the team supplied inputs and tools and centrally distributed revenues after fulfillment of the contract (Walker and Ash 1998, 232). A more far-reaching variant was ‘contracting everything to the household’ (*baogan dao hu*), which meant delegating all investment and production decisions to farmers, who were entitled to retain both surplus products and income resulting from the

transaction (ibid.).¹² Ruf (1998, 128), in an ethnographic study of a village in rural Sichuan, describes the experience of farmers under the new contracting system:

Beyond the ‘duty’ of meeting their procurement quotas, and a state agricultural tax . . . , farmers were relatively free to cultivate whatever crops they desired. No longer did local cadres direct who labored where, when at what, with whom, and how well. Nor did they determine how farm labor would be remunerated. Such decisions were now made within individual families. . . . Moreover, with the restoration of rural markets, farmers were largely free to sell surplus produced anywhere they chose, and at negotiated prices.

In January 1980, 0.02 percent of production teams engaged in direct contracting with households; by October of the same year, the share had risen to 38 percent (Walker and Ash 1998, 231). The contract responsibility system had been endorsed on a nationwide scale and was being adopted rapidly and eagerly by peasants across China. By 1981, nearly all agricultural production units engaged in some form of contract farming (Riskin 1987a, 289). By the end of 1982, over two-thirds of production teams had adopted the most extensive contracting model, *baogan dao hu* (Walker and Ash 1998, 231). The following year, the government legalized the use of wage labor in farming, introduced the right to buy agricultural inputs and equipment, and permitted farmers to market their products regionally (Riskin 1987a); as part of the contract responsibility system, the government encouraged households to specialize in specific trades, such as livestock, produce, or vegetable production. By the end of 1984, approximately 15 percent of farmers were registered as belonging to specialized households, including those providing secondary services, such as farm produce processing or transportation (Cai 1985, 13).¹³

Between 1978 and 1984, the state also reformed the marketing and distribution system for food products, building what Duan (Duan 1985, 35) described as “a multi-channel,

¹²See Kueh (1985) for an overview of different types and variants of contract production during the earlier years of rural reforms.

¹³Specialization was encouraged via a system of targeted subsidies. In crop production, funds were allocated to support grain and cotton (CCCPC and State Council of the PRC 1985, 3). In animal husbandry, the state subsidized feed grain acquisition for households engaged in livestock production, thus creating a significantly lower barrier of entry (ibid.).

streamlined and open marketing system for farm and sideline products.” Beginning in 1979, state-operated food stores were permitted to buy and sell grains at market prices (ibid., 33). In 1981, the government decreed that grain and other farm and sideline production could be sold at negotiated market prices, assuming state procurement quotas had been fulfilled.¹⁴ Furthering the decentralization of food distribution, the 1983 Document No. 1 permitted “farmers [to] sell *all their surplus products*, except cotton, at negotiable prices on the market to any buyers” (ibid., 34; emphasis added).

Mandatory deliveries to state procurement agencies were gradually phased out, as the government reduced the number of items subject to compulsory quotas (ibid., 34). By 1985, the reformers had reached the conclusion that it was “high time to abolish the mandatory purchase system as a whole” (ibid., 35). The quota system, which had been in existence since 1953, was replaced by a multi-tier pricing system in which procurement agencies enter into direct legal contracts with farms and households:

Starting from this year (1985), except for some particular varieties, the State will no longer give any instructions for the peasants to fulfill the unified and fixed state purchase quotas for agro-products, but will purchase, according to different conditions, the agro-products through contracts or from the market (CCCPC and State Council of the PRC 1985, 2).

State purchase contracts offered preferential prices to farmers, while any excess products were allowed to be sold at market price. The government moreover guaranteed to compensate farmers if the market price fell below the former state procurement price, by purchasing “without limit at the former unified purchasing price in order to protect the benefit of the farmers” (ibid.).

In addition to entering production contracts with the government’s commercial agencies, farmers were encouraged to act autonomously in the acquisition of procurement and distribution partners by negotiating contracts directly with agro-product trading and processing

¹⁴Between 1978 and 1984, mandatory state purchased declined from 84.7 percent of total agricultural product sales to under 40 percent (Duan 1985, 35).

units (ibid., 2-3). The reformer Du Runsheng explains the rationale behind supporting the decentralized formation of inter-organizational linkages:

Following the development of [sic] commodity economy in the future, joint operations of an even higher level, such as an economic organization that combines farming, industry, and commerce, can be formed among the various basic cooperative units or cooperative units of a different nature (Du 1984, 38).

Henceforth, economic relationships were to be formed strictly on the basis of market criteria, with “[n]o institutions [being] allowed to issue production plans of mandatory nature to the peasants” (CCCPC and State Council of the PRC 1985, 2-3; emphasis added).

Parallel to reforming the state procurement system, the state encouraged the formation of local markets for agricultural produce, which greatly expanded the value and volume of competitively traded food products. The conditions according to which market exchange was permitted were to be defined by municipal authorities: “The time and procedure to open up a free market will be decided by the respective local places. After the free market is [opened] up, the state-owned commercial enterprises should carry out active management and take part in market regulation” (ibid., 2).

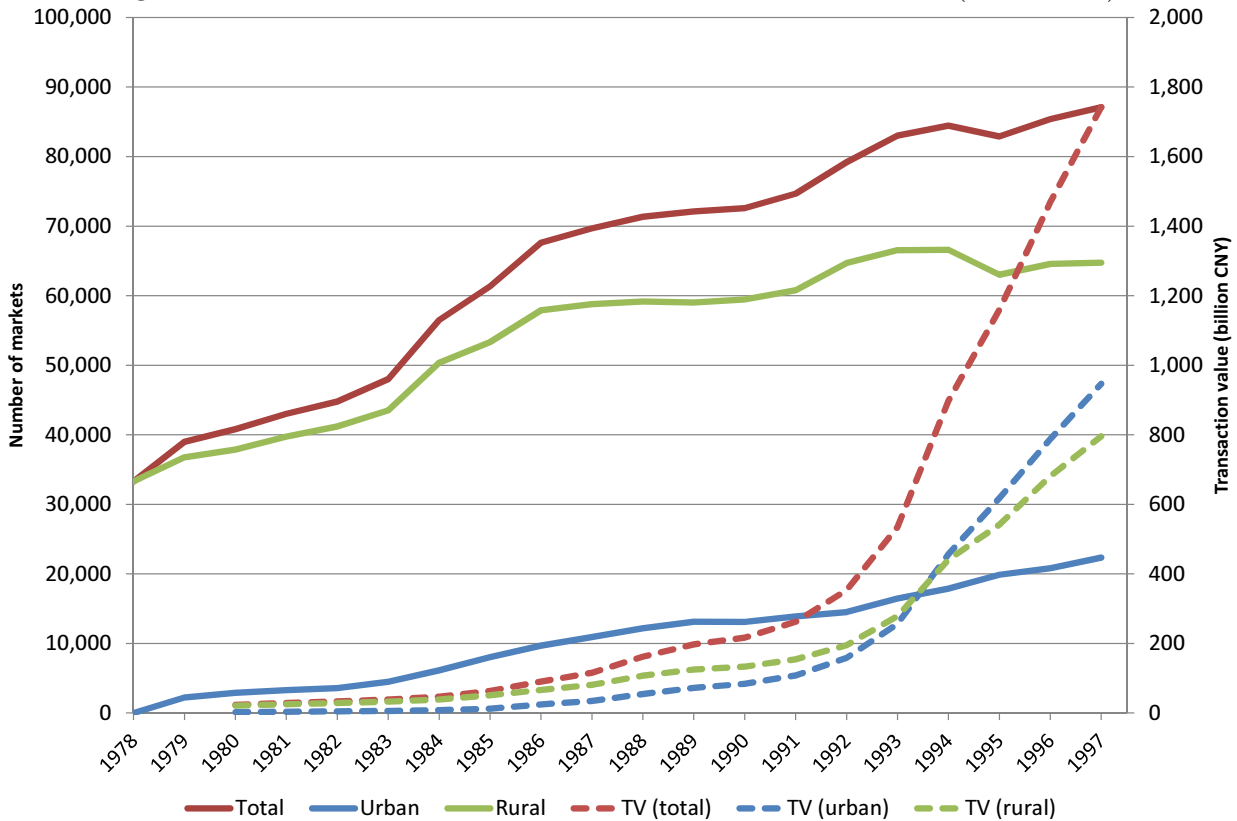
In addition to supporting the formation of local markets, the government promoted the establishment of agricultural wholesale markets and trading centers:

All large and medium-sized cities should set up wholesale markets for farm and sideline products in addition to the existing retail markets. Where possible, farm and sideline products trading centres should be set up to facilitate exchange of business information and future deals (Duan 1985, 34).

By creating a network of commercial exchanges, the government not only facilitated the formation of linkages between peasant producers and nearby processing enterprises, but also established a platform to channel the distribution of agricultural commodities on a regional level.

As Figure 4.1 shows, the number of free markets increased dramatically during the first decade of reforms, especially in the countryside but also in the cities. The chart also indicates

Figure 4.1: Free markets: total number and transaction value (1978–1997)



Source: USDA Economic Research Service (1999)

that transaction values on these markets — that is, the actual extent of market activity — increased only after a delay of several years. This lag is indicative of the Chinese government’s desire to minimize the potential for economic disruption and social dislocation, which led it to implement an institutional environment for market activity prior to fully liberalizing prices and extending the share of market-traded products.¹⁵ As the following assessment by two policymakers indicates, the sequential gradualism of China’s reform approach served as an instrument for creating a fully market-oriented rural economy:

The key to deepening the rural reform is to speed up market growth. The reform experiences over the past 10-odd years have verified that the semi-market and

¹⁵Rozelle and Swinnen (2004, 433), for instance, observe that there was only a “limited extent of changes in the marketing environment of China’s food economy before 1985” and, moreover, that the share of crops which “remained almost entirely under the planning authority of the government still accounted for more than 95 percent of sown area in 1984.”

semi-planned “double-track system” can be adopted as a means of transition, but it can not [sic] be regarded as a long-lasting fixed system. Deepening reform and expanding the market are imperative (Chi and Gao 1997, 22).

Following the establishment of free markets for certain agricultural products in 1985, the reformers moved to liberalize the marketing for most non-staple foods in 1988 (Huang 1998).¹⁶ Within a period of only ten years, the Deng administration had thus drastically transformed the role of the state in the production and distribution of food products. Chi and Gao summarize these developments in a review of market transition in the rural economy:

Government intervention in the development of market agriculture is different from the traditional planned management of agriculture. In the conditions of a market economy government intervention ... is mainly reflected in the setting up and perfection of the systems of information, storage, circulation, processing and support. It also reflects the necessity for government activity in the fields of financial and welfare policies and the legislation concerned in order to guarantee the continuous development of agriculture (Chi and Gao 1997, 181).

4.1.3 Institutional reform and policy support

The Chinese reformers realized that if their program of reform and opening up was to be successful, it would have to be accompanied by changes in the mode and structure of government administration. As the pro-reform economist Xue Muqiao explained in his famous monograph, *Current Economic Problems in China*,

Because our control was too restrictive in the past, it is therefore now necessary to enliven the national economy through institutional reform. ... If enterprises do not have autonomy but are like beads on an abacus which can only move passively to wherever directed, then control will be too restrictive. It does not matter whether the Center or localities are in control. ... What should be centralized must still be centralized. What should be decentralized must definitely be decentralized (1982b, 99-100).

After initial experiments in decentralized production were deemed successful, the Deng administration pushed for the reform of rural administrative structures, arguing that “[t]he

¹⁶The remaining restrictions on staple foods were removed in 1991 and 1992 (Huang 1998).

system of integrating government administration with commune management should be decentralized. Government setups at the basic level should be formed” (Du 1984, 38). As part of the de-collectivization process, the administrative responsibilities of People’s Communes were therefore handed over to township governments. By the end of 1984, 91,171 such townships had been created across China, operating as administrative units under the county-level governments (Cai 1985). Besides performing the civil functions formerly provided by the communes (e.g., public security, legal affairs, and education), townships were to “coordinate and supervise the local economy *without directly involving themselves in the economic activities*” (Cai 1985, 14).

By the middle of the decade, reformers realized that a further expansion of private production and market exchange in the food economy would require various forms of infrastructural modernization. As Zhang (1985, 26) explains in the 1985 edition of the *China Agriculture Yearbook*,

The development of commodity production has promoted the division of specialized labour in agriculture, as more and more means of production and products are being commercialized and fall into circulation. With circulation becoming an integral part in the whole production process, the law of value and the market information begin to act on rural economic activities directly. In order to upgrade management level and increase the competitiveness of their products, producers not only need to organize timely production forces in various forms, but also need to obtain timely socialized services such as bank loan, technology, transport and storage, processing and sales.

During the early reform era, the state therefore began to adapt its rural investment strategy to the needs of the emerging market economy. Whereas under socialism, state agricultural funding had been limited to measures such as “supporting rural collective projects in irrigation and water conservancy works and the grain production drive”, the state’s investment priorities in the reform era shifted toward supporting “[a] diversified economy and rural enterprise ... thus leading to a full-scale boom of the rural economy” (Ministry of Finance of the PRC, Agricultural Finance Department 1989, 51).

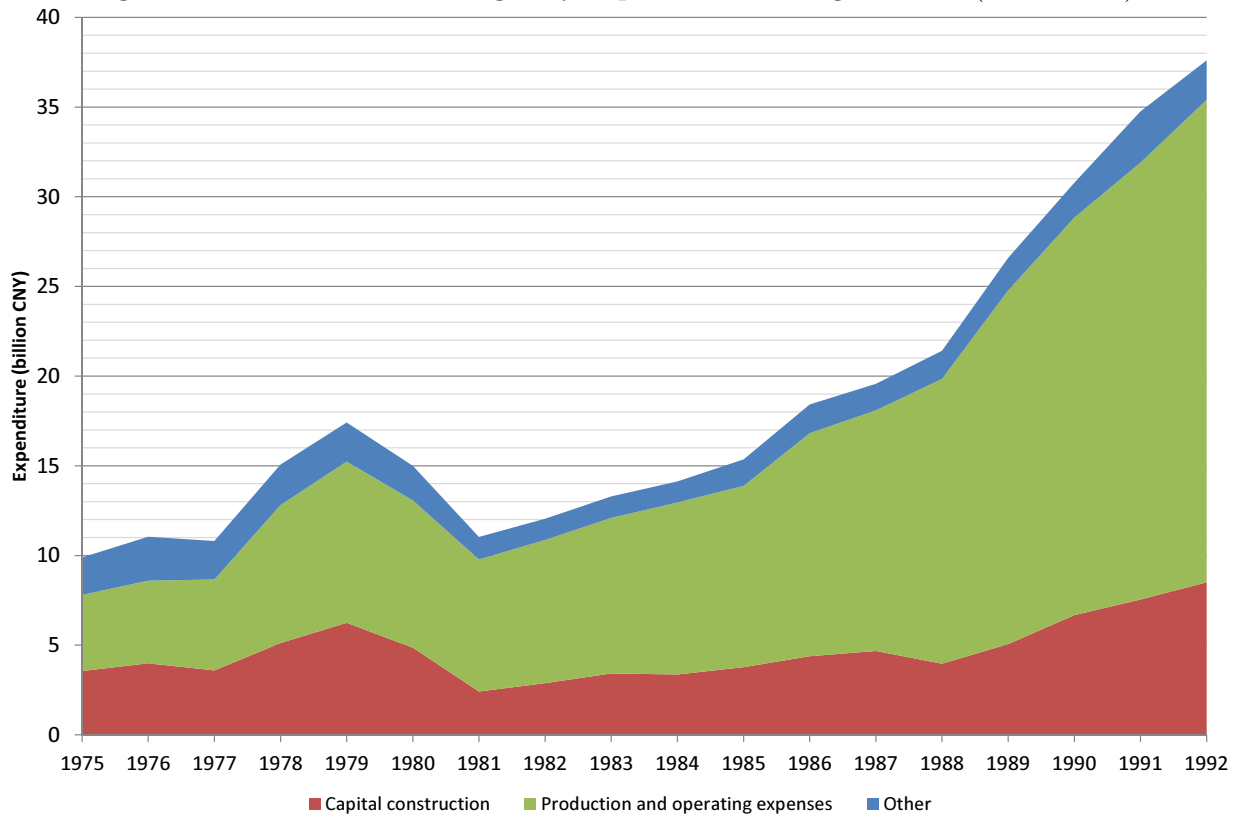
Following the decisions of the 1978 Third Plenum, the state significantly increased its investment in the agricultural sector, with total spending rising from CNY 15 billion to nearly 40 billion (Figure 4.2). In order to facilitate the emergence and flourishing of private business interests in the countryside, the state allocated funds to various financial incentive programs geared toward encouraging specialized production in both households and regions, in addition to developing an agro-product processing industry (Gao and Bi 1985, 47-48; Zhou and Song 1991, 31-32). Furthermore, the government initiated capital construction projects in a number of areas, including irrigation systems, transport and logistics, grain storage, and agricultural mechanization (Liu and Lei 1990, 73-75). Although many of these facilities were built and operated by households or peasant enterprises, the state agencies provided “guidance on fund-using and . . . supervision on projects” (Ministry of Finance of the PRC, Agricultural Finance Department 1989, 51), thus ensuring effective project implementation.

The Chinese state also adopted a series of measures to build a rural financial system in order to catalyze accumulation in the rural economy. This included the re-establishment of the Agricultural Bank of China (AboC) in 1979, and the reform of credit cooperatives in the countryside. The AboC, which was under the direct control of the State Council, henceforth served as a national development bank for the rural economy. As Yang (1984, 427) explains,

The functions of the Agricultural Bank are: to work out, in line with the Party’s policies and government plans, the country’s unified . . . policies and systems concerning banking in the rural areas. . . . The bank should firmly implement the government rural policies in handling rural credits for farming, industrial, and commercial purposes; and support the communes, production brigades and teams, and state farms in developing a commodity economy, and the commune members in developing household sideline occupation *so that the collectives and individuals can make financial gain as rapidly as possible* (emphasis added).

Rural credit cooperatives, which had been a part of the institutional system of collectivized agriculture since the nineteen-fifties, were subordinated to the administrative oversight of the AboC, and charged with facilitating accumulation in the rural economy (Yang

Figure 4.2: Chinese state budgetary expenditures on agriculture (1975–1992)



Note: Other expenditures include working capital for communes (phased out after 1983), technology trials and promotion promotion, and rural relief funds.

Source: USDA Economic Research Service (1999)

1984)¹⁷ Although they had the status of “collectively owned financial agencies”, the “cooperatives [did] independent business accounting and assume[d] sole responsibility for their profits or losses (ibid., 429). The specific functions of the cooperatives were “to handle rural banking business, to implement the country’s unified banking policy, to strive to support the ... development of agricultural production, ... and [to] speed up the modernization of agriculture” (ibid.). Reformers thus created the foundations of a rural credit system, from which producers could draw to finance their short-term production and long-term investment needs. Farmers were also encouraged to deposit their own financial earnings with the credit

¹⁷See Yang (1984, 427-430) for an overview of reforms in the administrative structure of China’s agricultural banking system.

cooperatives¹⁸ — in short, they were incentivized to behave like capitalists.

In order to ensure that farmers and agricultural organizations adopted a long-term orientation in their production and investment decisions, the government established a rural insurance system. Under the guidance of government authorities, different types of agricultural insurance organizations were founded, which engaged in direct transactions with peasant households. Insurance policies were offered to protect against an increasingly diverse range of eventualities in both grain and livestock production, including natural disasters, property theft, equipment damage, and non-fulfillment of contractual obligations by service and trade partners (Liu 1991a, 38-39).

Finally, the Chinese state devoted considerable resources to the development and adoption of modern production methods. Following the rationale that “[b]rain investment for raising competence of the peasants” constitutes “a powerful guarantee for bringing prosperity to the rural areas” (State education commission of the PRC 1986, 99), the government promoted specialized education through the expansion of specialized high schools, agro-technical colleges, and agricultural universities (*ibid.*). At the same time, the government provided funds for research into new technologies, production techniques, and product varieties, as well as the popularization and adoption of the resulting scientific advances (Ministry of Finance of the PRC, Agricultural Finance Department 1991, 45).

4.1.4 Summary

He Kang, Minister of Agriculture of the PRC, summarized the accomplishments of ten years of market transition in the rural economy in a 1989 review article:

In adapting to the need of the development of [a] commodity economy, the unitary system of public ownership in the rural economy was changed to a co-existence of various forms of economic sectors and managerial methods. ... Community cooperatives, specialized cooperatives, associations of agriculture, industry and

¹⁸Beginning in 1981, credit cooperatives offered households direct loans which were partially financed by private deposits (Kueh 1984).

commerce, [and] economic organizations of partnership . . . all emerged simultaneously in different types of contracted managerial businesses, shareholding and leased out operations, with public ownership as the mainstay” (He 1989, 7).

Although public *ownership* was still deemed the “mainstay” of the economy, in practice, the economy — including state-owned and cooperative actors — was effectively market-oriented.¹⁹ As He himself relates,

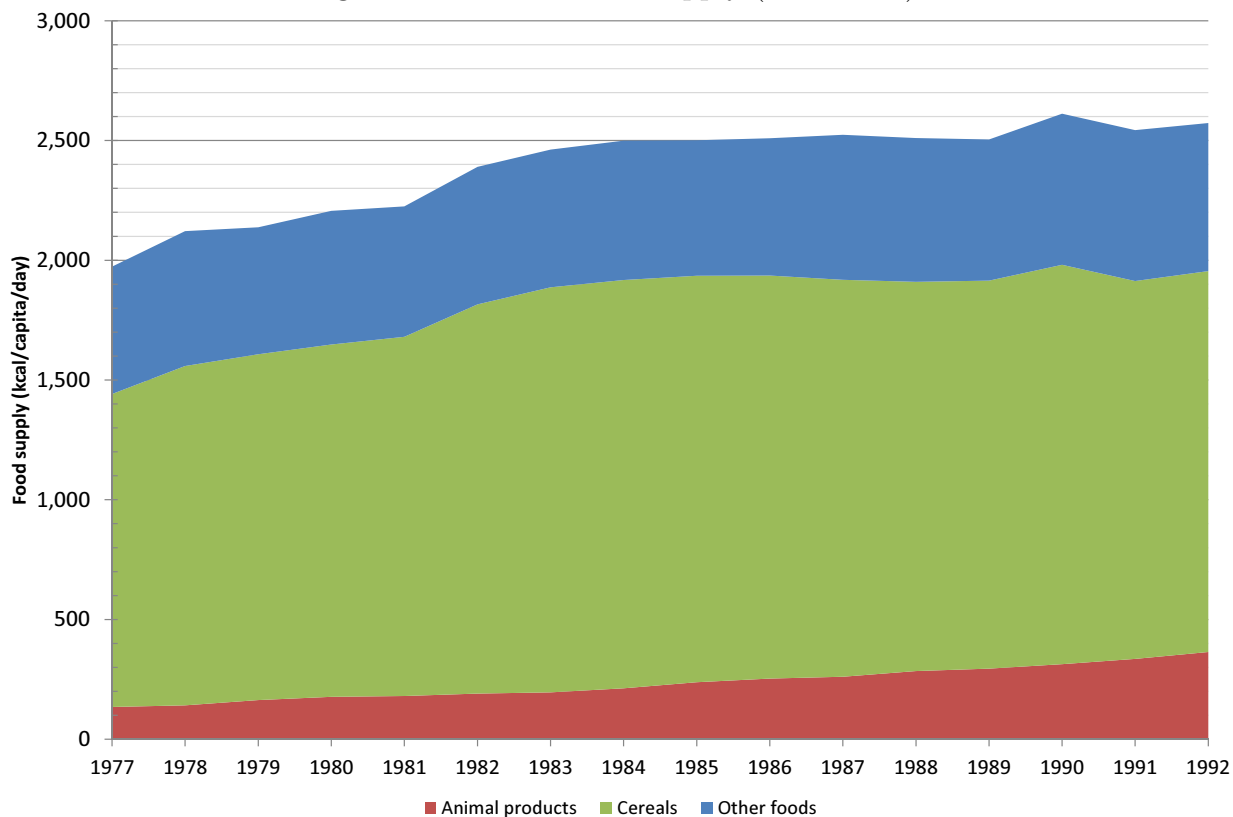
In the circulation of commodity [sic], a reform was conducted in the structure of the existing rural supply and marketing cooperatives, focusing on restoring its popular, democratic and flexible character *as a commercial business network owned collectively by the farmers*. Such a reform, accompanied by the introduction of multi-form channels and various systems of marketing in the rural areas, stimulated the urban and rural markets, and *the rural economy underwent the transition from a self-supporting and self-sufficient economy to a commodity economy* (He 1989, 7; emphases added).

The Deng administration’s agricultural reform strategy, which Kueh (2008, 67) described as “a rather consistent programme of rural decontrol [sic] in favor of economic diversification and enhanced marketization and monetization”, led to significant improvements in both absolute production and per capita availability of food products. Between 1977 and 1992, the daily caloric intake of an average Chinese consumer increased by 600 kcal (from under 2000 in 1978 to nearly 2600 in 1992; Figure 4.3). As a researcher at the Chinese Academy of Agricultural Sciences observed in 1991, China’s long-term food concerns were “basically solved” (Liu 1991b, 24). The government’s efforts to diversify the popular diet through reliance on market competition and specialized production proved to be equally effective. During the same fifteen-year period, the per capita supply of animal products nearly tripled, and their contribution to the country’s total food supply grew from under 7 to nearly 15 percent.

Following the introduction of household-based production and contract farming, agricultural output expanded rapidly. Grain output, in particular, increased by 50 percent between

¹⁹China’s institutional situation thus bore an analogous resemblance to the state of affairs in nineteenth-century Europe, about which Marx (1964 [1885], 49) observed: “If a society is dominated by capitalist production relations, a non-capitalist producer, too, will be dominated by a capitalist orientation” (author’s translation).

Figure 4.3: Chinese food supply (1977–1992)



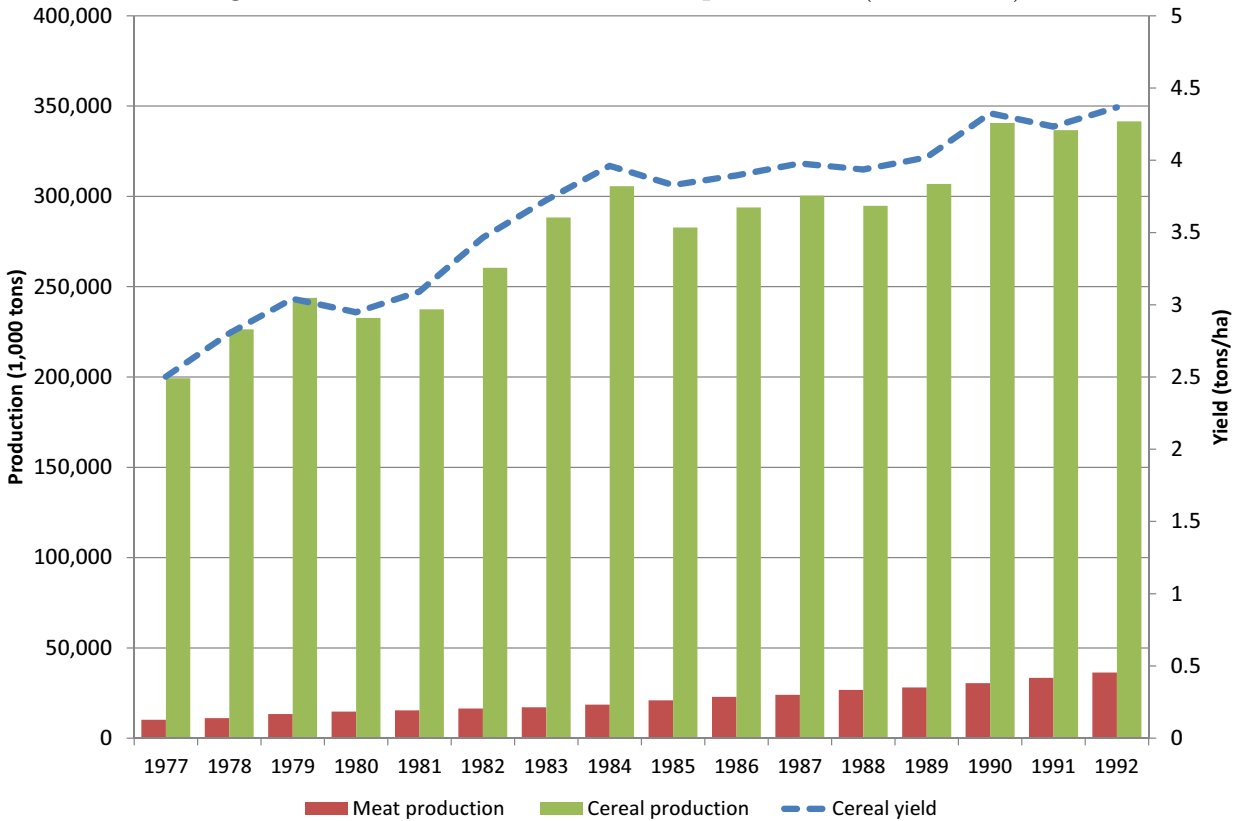
Source: FAO (2012)

1977 and 1984 (Figure 4.4). Accordingly, reformers displayed little skepticism regarding the new ownership system, as well as the viability of future liberalization. Du (1984, 35) summarizes the situation succinctly:

Some of the means of production are owned publicly and used for public purposes; some are owned publicly but used for private purposes; some are owned privately and used for private purposes; and still others are owned privately but used for public purposes. This seemingly “impure” ownership structure is acceptable to the peasants, produces good economic results, and helps boost social productive forces. *Is there anything bad about it?* (emphasis added).

Following the acceleration of market reforms in 1985, however, agricultural output growth entered a period of stagnation (Figure 4.4). As Nove (1990, 270) put it, the “peasantry’s overresponse to free-market incentives had taken the form of a sharp drop in production.” The growth in state purchase prices for grain and other farm crops had been much slower

Figure 4.4: Chinese cereal and meat production (1977–1992)



Source: FAO (2012)

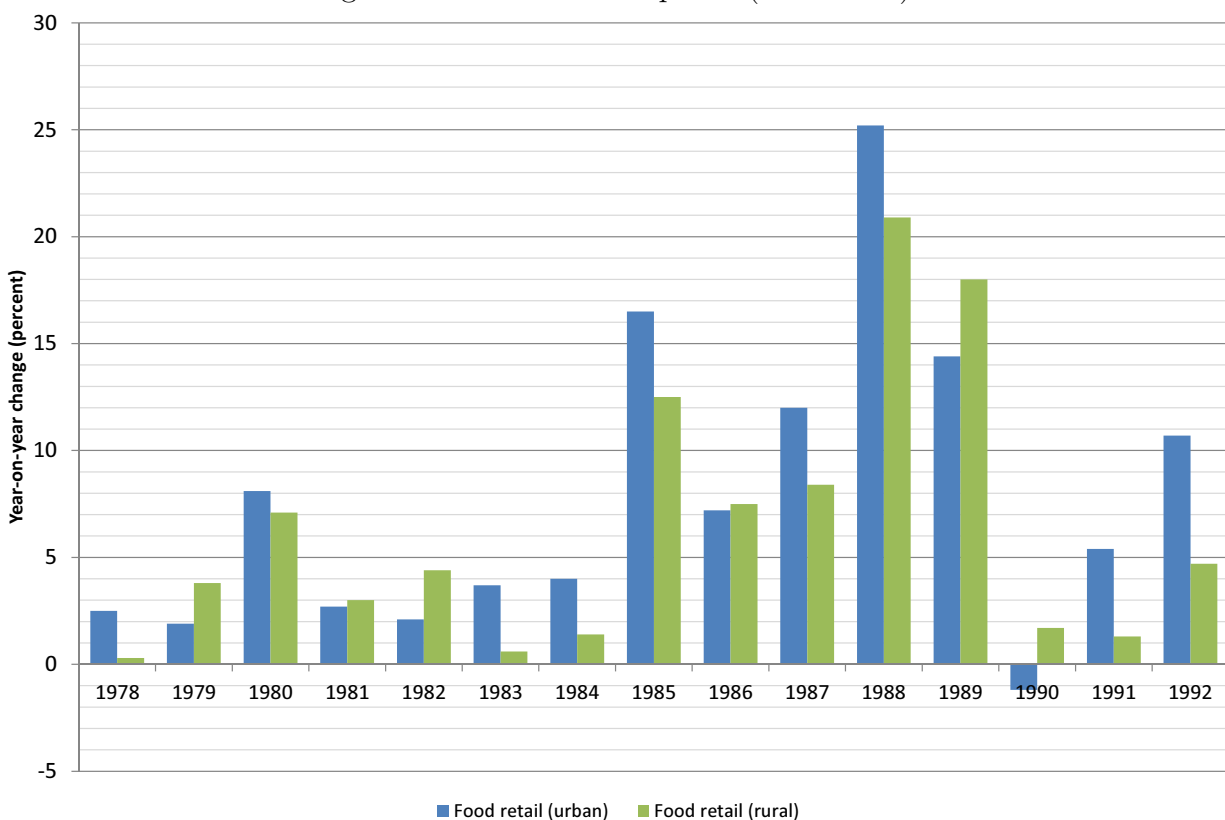
than the simultaneous increase in the prices of agricultural inputs and machinery, causing “the once narrowed price scissors” (He 1989, 9) between industrial and agricultural products to widen again. As a result, “the farmers enthusiasm for production sagged because of their comparatively low economic returns for growing grain and cotton” (ibid.). At first, the state responded to these difficulties by further “deepen[ing] rural reform” (CCCPC and State Council of the PRC 1986, 3):

Rural economic reform has a long way to go to reach its goal. The reform needs to destroy the old and build the new, and much work needs to be done to improve circulation and cooperation and to readjust the economic structure. If these tasks are not carried out well, there is the danger that the reform may have to be suspended. *Difficulties encountered during the reform will call for further reform and there must be no going back* (ibid.; emphasis added).²⁰

²⁰Western observers agreed with the reformers’ assessment that more reform was needed. Kueh (1985,

Between 1985 and 1989, grain output grew by only 8.5 percent (1978–1985: 24.9 percent), and meat production increased by 11.2 percent (1978–1985: 88.7 percent). While production slowed, prices increased (Figure 4.5). During the same period, food retail prices increased by an average of 15.1 percent per annum in cities (1978–1984: 3.6 percent), and 13.5 percent per annum in rural areas (1978–1984: 2.9 percent).

Figure 4.5: Chinese food prices (1978–1992)



Source: USDA Economic Research Service (1996, Tables 232, 233)

Responding to the stagnating performance of the food economy, as well as the wider social discontent of the late nineteen-eighties (which was aggravated by food price inflation), the government implemented a series of *ad hoc* policy. At the September 1988 plenary session of the 13th Central Committee, several measures were enacted to slow growth and prevent further price increases (Deng, 1989). The leadership also underscored the importance

131), for example, concluded in a study on the economics of Chinese decollectivization: “[T]he present rural situation represents by no means an ‘institutional equilibrium’.”

of agriculture for the national economy and announced greater investment of financial and material resources in the agrarian sector, while also raising government purchase prices for grain, in hopes of incentivizing farmers to raise production levels (Ministry of Agriculture of the PRC 1989).

Characterizing the situation in 1989, China's Minister of Agriculture observed rather poetically that "a number of problems, and twists and turns, or lapses in work have ... surfaced during the [sic] reform and development, and none of them should be overlooked" (He 1989, 9). Rather than pushing for more reform, however, as they had in 1986, China's leaders reverted to a more conservative policy regime during the post-Tiananmen years. Between 1989 and 1991, the State Council remonopolized the sale and supply of key agricultural inputs (e.g., chemical fertilizer, insecticides and plastic sheeting) "in order to guard against illegal speculation and profiteering of such materials on the market, and protect the interests of the farmers" (Ministry of Agriculture of the PRC 1989, 49).²¹

While Western analysts observed that "as of mid-1989 ... the reforms were still incomplete" (Johnson 1990, 44), China's leaders only moved to the next stage of rural reform in 1993, with the passing of the 1993 Agriculture Law, which signified the beginning of a renewed attempt to build a fully market-oriented food economy.²²

4.2 Soviet Union and Russian Federation

The literature on reforms in the Soviet food economy is characterized by two dominant perspectives. Among one faction, it is widely believed that market transition was inevitable. As Brooks and Gardner (2004, 575) write, "[t]he Soviets did not so much launch a transition in fall of 1991 as were [sic] swept into one — out of money, out of time, and facing what they feared would be a food shortage affecting as many as 280 million people." More

²¹Ever since the 1985 reform of the pricing and procurement system, the government had been "constantly confronted with the Achilles' heel of balancing peasants' incentives against the perceived broader context of national interests" (Kueh 2008, 78).

²²The implications of the the 1993 Agriculture Law, as well as its 2003 amendment, are examined in chapter 5.

specifically, the inevitability of market reforms is attributed to the inefficient and ultimately unsustainable production methods under socialism. As the World Bank put it in a 1992 report, the contradictory aspiration to “shield consumers from the costs of an inefficient food and agricultural system by passing the costs on to the budget was unsustainable, and the system collapsed in autumn of 1991” (World Bank 1992, 138).

Those writing on the market transition in the food economy constitute the second faction and tend to treat the reforms of the Gorbachev era as either inconsequential or as altogether ineffective, typically comparing them to the more radical measures introduced under Yeltsin. Serova (2000a, 103), for instance, describes the restructuring efforts of the late Soviet period as “first moves toward agrarian reform”, whose significance was eclipsed by the subsequent “radical stage of reform, which aimed at creating marketoriented [sic] production units.” Kalugina (2000, 87) argues that attempts to reform food production within the socialist framework were limited to “superficial adjustments” and ultimately “futile”, given that “[a]fter each campaign, everything returned to the original status. *The socialist system repelled the market elements alien to it*” (emphasis added).

As I have demonstrated in the preceding chapter, and contrary to the World Bank’s insistence, there was nothing inevitable or deterministic about market reforms in the food economy. Rather, the transition consisted of a series of deliberate policy changes that took place during the late Soviet and early Russian era. Moreover, as I argue in this chapter, there was in fact a remarkable degree of continuity between the two periods, since Gorbachev’s “perestroika in the countryside” (Moskoff 1990, iii) quickly evolved into a deliberate program aimed at introducing a capitalist market economy. Contrary to the dominant view in the literature, the reforms introduced between 1988 and 1991 actually had profound institutional consequences, and instead of resolving existing food shortages further aggravated them.

4.2.1 Monetization and property reform

At the April 1985 plenary meeting of the Central Committee of the CPSU, Gorbachev, first proposed *perestroika* – “the concept of accelerated socio-economic development for the USSR” (Gorbachev 1988c [1987], 10). His proclamations formed the basis for a new economic doctrine, which was subsequently endorsed as the nation’s general policy line at the 27th Congress of the CPSU in March 1986 (ibid.). The resulting attempt to reform socialism sought to overcome inefficiencies and address the lack of incentives, which (as demonstrated in the preceding chapter) were deemed responsible for the Soviet Union’s economic difficulties.

In the food economy, the reformers placed particular emphasis on improving the economic incentive structure for producers in hopes of raising efficiency and lowering production costs. Initial measures focused on reforming state procurement policy and the incentivization of agricultural organizations (Brooks 1990c; 1990b). In July 1986, for example, the newly formed USSR State Agro-Industrial Committee (*Gosagroprom*) began to experiment with new forms of performance-based rewards for farms and food processing enterprises:

[T]he USSR State Agroindustrial Committee has set up a special fund of material resources for barter sale to *kolkhozes*, *sovkhoses*, and other agricultural enterprises that overfulfill the plan for the sale of grain to the state in 1986 . . . [including] 20,000 trucks, 12,000 MTZ and K-700 tractors, 500,000 cubic metres of timber, 1 million metric tons of cement, and 100 million standard slates. . . . The USSR State Agroindustrial Committee has also announced a competition between farms achieving the highest indices in grain sales to the state. It has allocated 2,000 passenger cars and 3,000 buses as incentives for the competition winners. The results of the competition will be announced on 1 December 1986. The sale of the material resources allocated will be guaranteed during the first quarter of 1987 (1986, T1).

The primary focus of reforms, however, was on improving the performance of agricultural workers. The collective contract was an early attempt to enhance labor performance by promoting competition among *production brigades* using financial rewards (Brooks 1990a). Though experimentation with collective contracts had started as early as 1983, Gorbachev made a substantial effort to promote the policy following the 27th Party Congress in 1986

(Wegren 1998). The essence of a collective or brigade contract is described by Coffman (1986, 339; see also Van Atta 1990b):

The typical collective contract . . . attempts to regulate relations between a farm and small groups of individuals employed by the farm organized into production collectives. The farm contractually assigns to the collective a specified amount of land and equipment for a fixed period of time and agrees not to interfere with the collective's performance of its obligations to the farm. The contract also specifies the prices that the farm will pay to the collective for its produce and provides for the payment of premiums for deliveries in excess of the contractual minimum. The collective agrees not only to produce and deliver to the farm the amount and type of goods specified by the contract, but also to maintain the assigned land and equipment in good order.

The brigade evaluated the performance of its members and distributed earnings accordingly (Brooks 1990a). In addition to the predetermined contracted amount, workers were paid bonuses for any surplus production, thus further strengthening the link between income and worker productivity (Library of Congress 1991, 525).

In 1987 and 1988, Gorbachev and other reformers began to advocate the introduction of *lease-based farming* within the existing socialist framework. By mid-1988, reformers had come to consider the collective contract “transitional, ineffective, and unpopular” (Brooks 1990a, 76), because it had not yielded the expected cost reductions and productivity increases. Moreover, unlike in China, where decentralized production methods were eagerly adopted by the peasants, Gorbachev's rural reforms faced considerable resistance from both farm workers and administrators (ibid.). While Chinese peasants stood to benefit from economic decentralization, Soviet farmers were not uniformly enthusiastic about leaving their existing organizational arrangements, given that “[p]olicies developed or magnified under Brezhnev, including guaranteed wages and lack of financial discipline generally [sic], . . . created a situation where a significant number of Soviet farms, and the workers on those farms, [were] seriously threatened by a pro-efficiency reform” (Gray 1989, 60). Besides being concerned about the loss of minimum wages (which had been in place since the early Brezhnev era), employees of collective farms were skeptical of lease contracting because of widespread

reports about farms' refusal to meet contractually agreed upon payments to already existing leaseholders (Gray 1989).²³ Gorbachev attempted to allay such suspicions, asking: "Are we going to abolish the *sovokhozy*? No. On the contrary, we are unleashing whatever can be unleashed by a domestic lease contracting system; we are unleashing the potential of the *sovkhos*" (Gorbachev 1988b, 47).

In practice, it soon transpired that Gorbachev's assurances regarding the status of collective farms were, for the most part, political rhetoric. At a Central Committee conference on agrarian reform in October 1988, Gorbachev responded to the ongoing refusal of Soviet peasants to enter into lease agreements with their farms and further elucidated the economic rationale (and pro-market ideology) behind the adoption of lease-based farming. Speaking in front of an audience of farm managers, agricultural workers, and representatives of the agro-industrial complex, he argued:

There is a peasant's way of life. . . . [W]hen we alienated man from the land and from the means of production, we changed him from being the master of this land into being a day-laborer. . . . When a person takes both land and production for a definite period of time and then depends only in economic terms on a farm . . . , this is truly something else. (Gorbachev 1988a, 80-81)

Concluding his speech, Gorbachev reminded the audience to continue promoting the lease contract, underscoring the urgency of progress in adoption despite potential reservations:

[W]e would like to you to sincerely and truthfully describe the process of the transition to lease-contracting relations, its [sic] achievements, its problems and difficulties, and what must be decided. This is the main question. I would ask you please not to get sidetracked over shortages in one area or another (ibid., 85).

Perestroika in agriculture did continue. In May 1988, after several months of deliberations, the Soviet legislature passed the 'Law on Cooperation', permitting for the first time

²³Collective farm reorganization was moreover perceived as a threat because these organizations had been providing various public services to which their employees (as well as local residents) had grown accustomed the preceding decades. As Lindsay (2010, 267) observes, "the collapse of collective farms threatened the very existence of a complex network of economic activity and social services that most rural Russians depended on to some degree."

the formation of non-state agricultural enterprises in the form of cooperatives, which were “private enterprises in all but name” (Barnes 2006, 47; see also OECD 1998, 261). In addition to promoting private financial interests, the law also extended the managerial autonomy of *kolkhozes* and *sovkhoses* (ibid.). Gorbachev (1988c, 11) attempted to legitimate this unprecedented institutional innovation by associating it with the New Economic Policy, which had been adopted by Lenin in 1921, arguing that Lenin was “an ideological source of perestroika” and that his own objective was “to implement in full Lenin’s idea of drawing on personal interest, restoring the sense of being one’s own master and encouraging creative possibilities” (Gorbachev 1989b, 37).²⁴ Brooks (1988, 1) explains the significance of the new policy:

Under the new Law on Cooperatives, collective farms ... have the legal right to decide what to produce, how to manage their assets, and to whom to sell. They can rent assets in or out on long term leases and enter into contractual relations both with farm members and nonmembers. Collective farms make their own plans and can sell output to any purchaser. They can voluntarily contract with procurement organs who, in turn, use farms’ deliveries to fulfill their own state orders, but the *kolkhozy*, themselves, are not legally required to take on state orders.

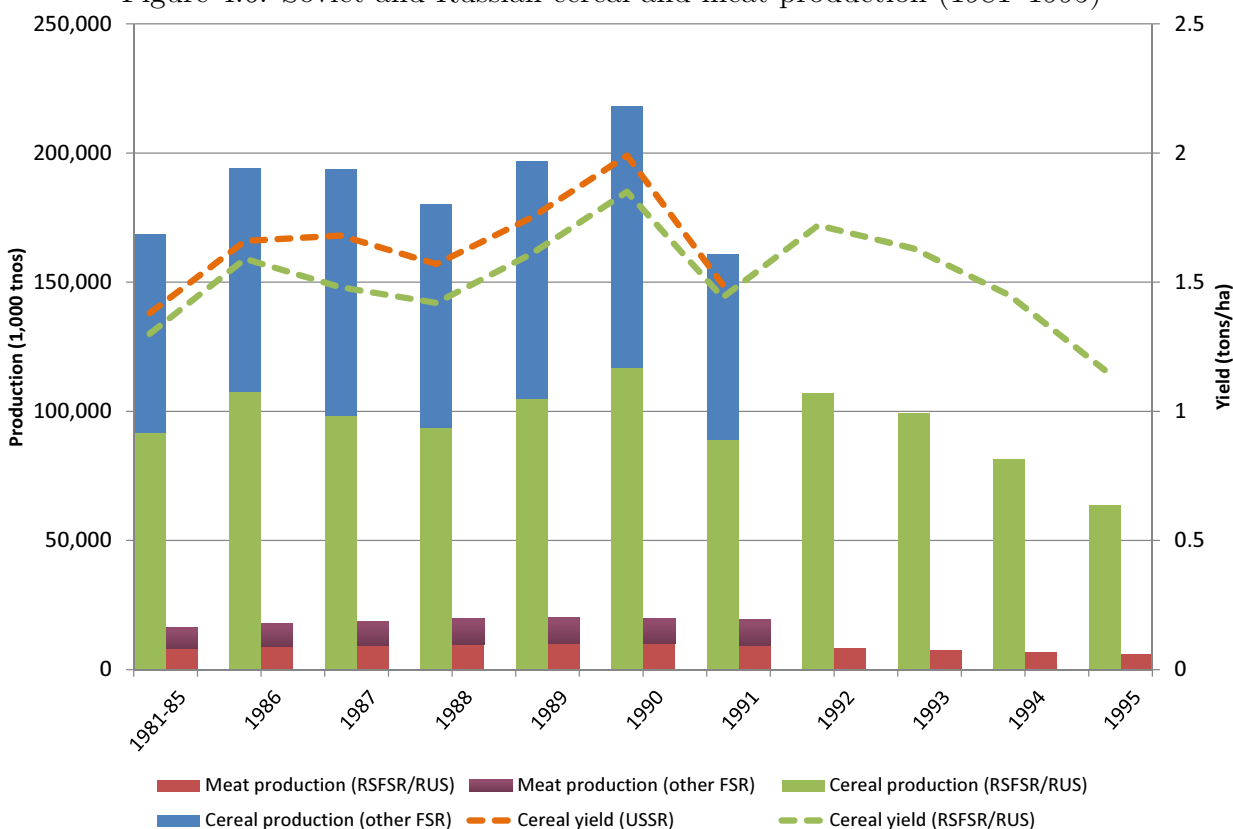
Despite these reform initiatives, the performance of agriculture and the agro-industrial complex continued to fall short of expectations, as the predicted efficiency gains did not materialize. Between 1986 and 1989, domestic grain output stagnated, while the livestock sector expanded at a slow rate, thus further increasing the country’s dependence on feed grain imports (Figure 4.6). The situation was exacerbated by an especially poor harvest in 1988 (Dronin and Bellinger 2005).

At a March 1989 plenary session of the CPSU Central Committee devoted to agriculture, Gorbachev (Gorbachev 1989a, 3) emphasized the urgency of the situation, arguing that measures taken thus far had not been effective in ensuring the nation’s food security:

The reality is this: We do not produce enough agricultural output. The state

²⁴As Barnes (2006, 45-46) noted, “Gorbachev was trying to resurrect Lenin’s idea of cooperatives to justify employing market forces to improve economic performance.”

Figure 4.6: Soviet and Russian cereal and meat production (1981–1995)



Source: Shend (1993, Tables 83, 85, 178, 179)

is forced to make large purchases abroad of grain, meat, fruit, vegetables, sugar, vegetable oil and certain other products. . . . In the past two decades, the agrarian sector has received many resources including capital investments, equipment and mineral fertilizer. A large-scale land-reclamation program has been carried out. But we have not received the return we counted on or the increased output we expected from the measures taken. Up to now, we have been unable to resolve the food question in a fundamental way.

After lease farming failed to produce the desired results, reformers concluded that if *perestroika* in agriculture were to proceed, more fundamental changes in ownership relations would be needed to create the necessary economic incentives (and pressures) for agricultural workers to opt for becoming self-reliant (petty) farmers. At the 1989 agricultural plenum, Gorbachev therefore advocated the urgent implementation of radical measures, namely, “an agrarian policy . . . which will be able to *revive the peasant as master of the land* and to reliably solve the food problem” (ibid.; emphasis added). The plenum supported the intro-

duction of long-term lease contracts for farmers, permitting individual proprietorship under conditions of full financial autonomy, and advocated the introduction of a new organizational form: the peasant farm (*kryest'yanskoye hozyaistvo*). Thus, the March 1989 measures constituted another step “in a series of property-reform laws that would have been unthinkable in the Soviet Union just four years earlier” (Barnes, 2006, 48).

On November 23, 1989, the Soviet state enacted the ‘Law on Tenancy’, which regulated the circumstances under which individuals and cooperatives could lease land (OECD 1998, 261). Along with several pieces of draft legislation concerning the ‘Law on Ownership’ (November 14, 1989) and a new land law (December 6, 1989), the ‘Law on Tenancy’ established the “legal foundation for leasing and proprietorship”, as well as “property relations that deviate from those of traditional collectivized agriculture” (Brooks 1990a, 72). At this point in the reform process, the Soviet leaders had determined that “if the problems in the agricultural sector were to be solved, it was necessary (in line with reforms in other sectors) to permit private ownership of land and other means of production and to provide opportunities for private methods of production” (Uzun 2000, 26).

On February 28, 1990, Soviet reformers put forth the “Principles of Land Legislation”, which introduced a framework allowing farmers to withdraw from state and collective farms while offering “lifetime inheritable proprietorship” of land for private use (OECD 1998, 261). This policy was followed rapidly by the March 6 ‘Law on Property Relations’, which formally transferred ownership of farm assets to the *sovkhozy* (ibid.). In November of the same year, the newly established Congress of People’s Deputies of the Russian Federation adopted the ‘Law on Agrarian Reform’ and the ‘Law on the Peasant Farm’ (ibid., 262) which created “the economic, social, and legal basis for the organization and operation of private farms and farmers’ associations” (Kalugina 2000, 88; see also Barnes 2006).

The unsuccessful *coup d’état* attempt by a group of anti-reform hardliners in August 1991 further undermined the already weakened authority of the Soviet state, and permitted Yeltsin (who had been elected President of the RSFSR in June) to become more bold in ad-

vocating his own, more ambitious reform agenda. In September 1991, Gorbachev (somewhat reluctantly) endorsed Yeltsin's plan to build a system of 'free enterprise' within 500 days. By October, Yeltsin's envisioned policy changes had come to encompass the privatization of state and collective farms, land reform, private sector development, and the creation of a land market (Wegren 1998). By the end of the year, the Russian government had begun to lay the legal foundation for a privately owned and operated agricultural economy, instituting several measures "aimed at changing the organizational and legal status of collective enterprises, giving workers the right to free choice of a form of entrepreneurship, and endowing workers with shares of assets and land, as well as the right to leave the collective enterprise ... Reorganization was to be completed by the end of 1992" (Kalugina 2000, 88).

Existing socialist farms were given three options, namely, to reregister as a worker-owned collective farm, to reorganize as a joint-stock company, or to disband altogether and distribute land and farm assets to the members of the collective (Lindsay 2010). The majority of farms chose to incorporate as shareholding enterprises, and only 4 percent opted to pursue independent private farming (Lindner 2007). Even if a farm was reorganized as a corporation (as opposed to being dissolved), farm employees were issued "certificates that entitled them to a per capita share of the collective farm's land" (Lindsay 2010, 20). Importantly, share ownership did not entail control over particular productive assets or plots of land within the confines of a farm. Shareholders were entitled only to retroactively redeem their shares for an actual piece of land, which they could then utilize for private farming or rent out (*ibid.*).

Like their Soviet predecessors, Yeltsin and his clique of 'neo-liberal' advisers were not aiming to eliminate large-scale farming operations *per se*. As Wegren (2005a, 7) explains,

Russia's [rural privatization] did *not* intend to destroy large farms, nor to transform all large enterprises into private farms, either in the short term over the long term. A more accurate characterization of Russia's agrarian reform is destatization of large farms, with limited access to and privatization of remaining agricultural land. Indeed, reform legislation explicitly and specifically envisioned the continued existence of large farms (emphasis in original).

Russian reformers hoped that, parallel to reorganizing Soviet-era farms, they could foster

the emergence of a dynamic sector of private farms, which were expected to finally yield productivity increases by creating strong financial incentives for the direct producers, while simultaneously exposing the entire agrarian sector to market competition. In December 1991, Yeltsin signed into effect the ‘Law on Land Reform’, which “repudiated the state monopoly on land and reinstated private ownership of land” (Kalugina 2000, 87). Simultaneously, the constitution of the newly formed Russian Federation also guaranteed the explicit right of private land ownership (ibid., 87).

By 1994, any elements of socialist agriculture which had remained at the beginning of the Yeltsin era were effectively destroyed. By the end of the year, 95 percent of state and collective farms had registered as collective enterprises, with 66 percent adopting a new organizational status; the remaining 3,600 *sovkhoby* and 6,000 *kolkhozy* retained their existing legal form (Kalugina 2000, 88). In terms of achieving competitive restructuring, however, these organizational and legal innovations accomplished remarkably little, causing “economic relations [to remain], in essence, the same” (Kalugina 2000, 97).²⁵ While farm reorganization achieved at least some nominal measure of success, “the private farmer’s movement failed to reach even that goal. ... By the end of the year [1992] private farms cultivated less than 2% of Russian agricultural land, and they produced only about 1-2 percent of the country’s food” (Barnes 2006, 92; see also Pallot 1993).

4.2.2 Marketing and economic management

Parallel to the creation of private financial interests, the reformers created the basic legal infrastructure governing both the status of private utilization of public property and the parameters according to which non-state actors engaged could in market exchange. In 1986, the state permitted *kolkhozy* and *sovkhoby* to sell up to 30 percent of planned output at market prices, as well as any production exceeding plan requirements (Uzun 2000, 26). Some

²⁵The existing large-scale farms for the most part proved to be ill-equipped to operate under market conditions. The share of large farms which were formally classified as unprofitable by Russian authorities increased from 5 percent in 1991 to 59 percent in 1994 (Rosstat 2001, 402; cited by Barnes 2006, 141).

local authorities refused to implement the new policy, fearing that the expected gap between state and market prices would encourage arbitrage and corruption (ibid.).

Unsurprisingly, the creation of private interests within collective agriculture, coupled with partial price liberalization, forced everyone to start buying and selling. Enterprises in the agro-industrial complex increasingly operated outside of the plan, either by failing to fulfill state procurement quotas or by simply suspending deliveries, thus leading to a breakdown of many existing supply relationships. Government credits to agriculture were routinely embezzled by financial intermediaries (Medvedev and Shriver 2000, 175). At the same time, state store employees and distribution enterprises began to divert food into the private market, leading to empty shelves in government food stores. As early as 1987, one Muscovite was quoted as saying, “We cannot eat *glasnost*”, indicating that food supply problems were even affecting residents of the Soviet capital.²⁶ A later report by the World Bank (1992, 139) distills the consequences of Gorbachev’s early liberalization measures:

Agricultural producers, lacking confidence in the ruble, refused to sell their output, instead using it in costly barter trade or increasing their inventories. The growing wedge between official prices and market prices generated large economic rents, and activities sprang up to capture those rents, such as the movement of organized crime into wholesale food trade ... Excess demand in food markets continued to worsen, depleting shelves in state food stores and pushing up prices on the free market.

The food shortages became so acute that by December 1990, the Soviet parliament granted Gorbachev emergency powers to combat widespread theft and black-market trade of food.²⁷ In 1991, the situation deteriorated further, as grain production declined by over 25 percent (see Figure 4.6 above). By the end of the year, the Soviet Union had ceased to exist as a political entity, and the new reformers under Yeltsin resolved to pursue market transition with a vengeance. In the food economy, the new Russian government faced the dual

²⁶“The Summit: The Stakes Are Momentous; What Gorbachev Wants: Success in the Talks, Spurring Change at Home”, by Philip Taubman. *New York Times*, December 08, 1987.

²⁷“Evolution in Europe: Parliament Backs Gorbachev Food Theft Crackdown”, by Francis X. Clines. Special to the *New York Times*, December 05, 1990.

challenge of restoring stability to production, while reassuring the population that the food supply situation would soon improve, lest hoarding by households and, in particular, regional authorities place even greater constraints on availability (Brooks and Gardner 2004). The Russian government under Yeltsin concluded that the most sensible way to proceed would be to further accelerate economic reforms.

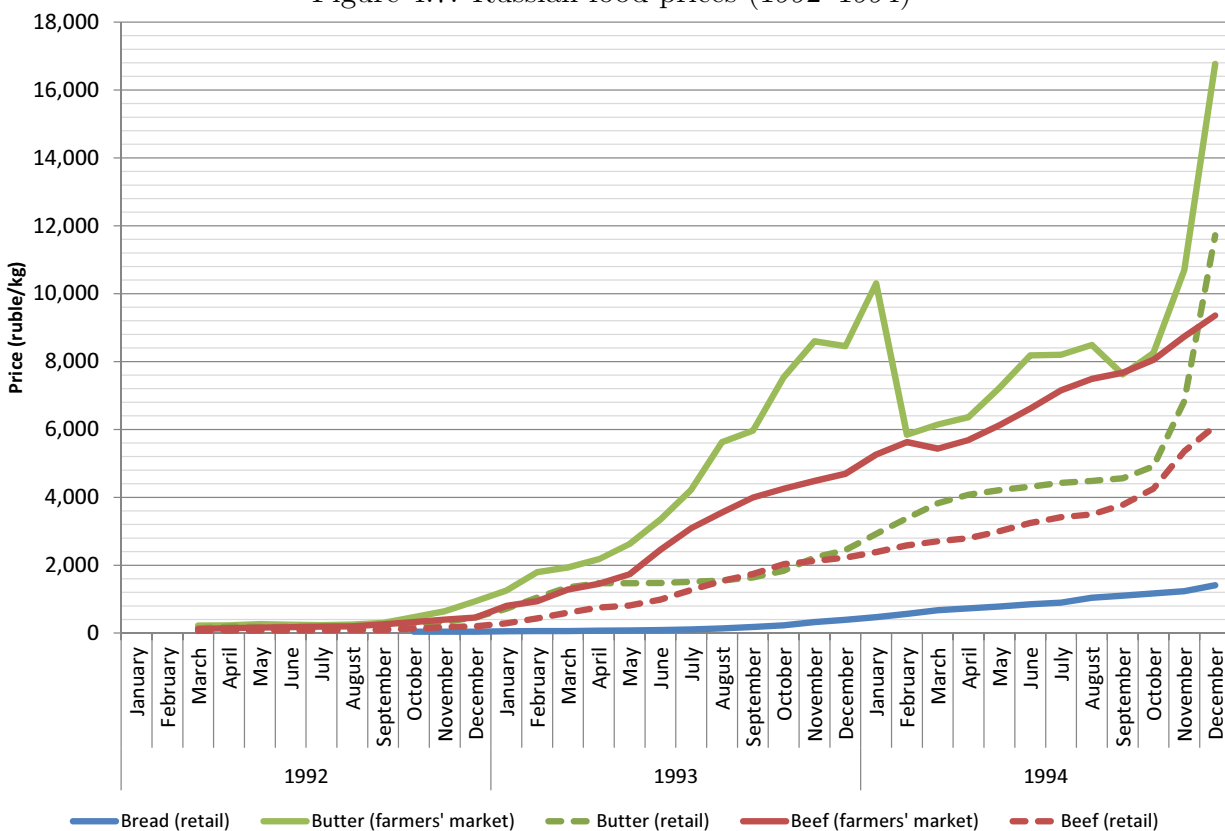
On January 2, 1992 the Russian government liberalized prices for most food products (ibid.). The freeing of prices meant that farms and processing enterprises would only engage in transactions which they deemed financially beneficial and would not necessarily honor any existing purchase or delivery obligations from the Soviet era. Unsurprisingly, chaos ensued. In its 1992 *Agenda for the Transition* in Soviet agriculture, the World Bank was quite aware that the removal of subsidies and the liberalization of consumer prices would suddenly put basic food staples beyond the financial means of poorer population groups, thus necessitating preventive welfare measures: “A combination of cash benefits, in-kind food assistance, and price subsidies will be needed until a comprehensive means-tested program is in place” (1992, 10).

As Figure 4.7 indicates, the World Bank’s suspicions were fully warranted. By the second half of 1992, food price inflation became increasingly rampant. Between January 1992 and December 1994, the average price for basic food products increased by over 1,000 percent, with price growth in farmers’ markets outpacing inflation in state food stores. Bread prices, in particular, increased by over 2,500 percent.

Concurrently, absolute declines in agricultural output exacerbated food shortages. The implications for Russia’s consumers can be seen in Figure 4.8: between 1990 and 1992, the total per capita availability of food fell by more than ten percent.

The Yeltsin reforms thus thrust Russian agriculture into even deeper chaos than those implemented under Gorbachev, exposing the remnants of the Soviet food system to multiple simultaneous shocks. Prices were liberalized at a time Russia’s consumers suffered from declining real wages due to the phasing out of food price subsidies, thus placing a severe

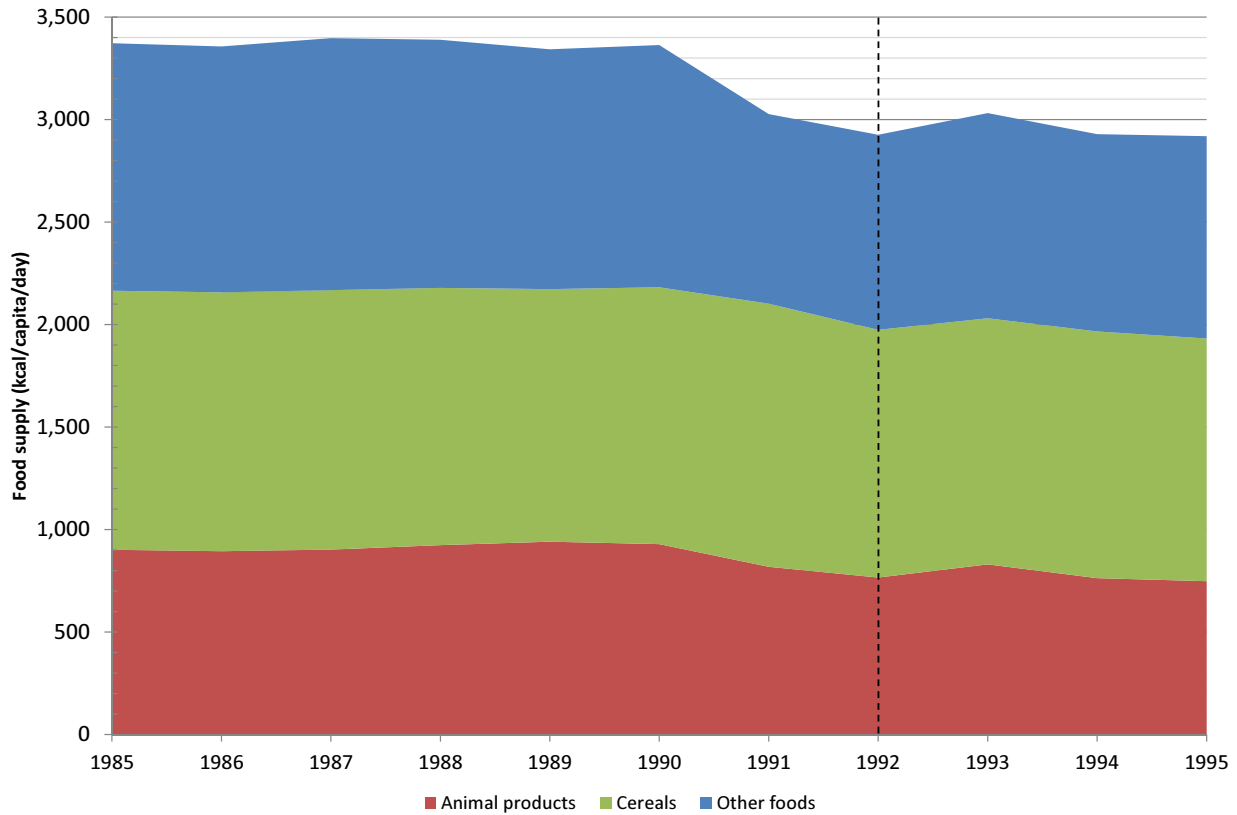
Figure 4.7: Russian food prices (1992–1994)



Source: USDA Economic Research Service (1995)

constraint on available purchasing power. At the same time, farms were forced to become economically self-reliant as producer subsidies were also eliminated. Domestic producers, including the new private farmers, consequently found it difficult to compete with newly arrived foreign manufacturers, and many were forced out of business as a result of growing food imports (Medvedev and Shriver 2000). In some cases, domestic crops (apples, beets, sugar) went unharvested or perished in warehouses, while the same products were imported from abroad (ibid., 30). By 1995, foreign-owned companies accounted for 55 percent of sales in the food retail sector (ibid., 156).

Figure 4.8: Soviet and Russian food supply (1985–1995)



Source: FAO (2012)

4.2.3 Institutional reform and policy support

Observers of the reforms in government administration, which accompanied restructuring of the food economy, were ambivalent over whether they constituted a process of “decentralization or recentralization” (Cook 1990, 132). In late 1985, accompanying the beginning of *perestroika* in agriculture, the new administration consolidated several existing ministries and agencies to form the State Agro-Industrial Committee (*Gosagroprom*) (Brooks 1990b, 117). Months later, in March 1986, the Soviet government promulgated the decree ‘On Further Improving the Economic Management Mechanism in the Country’s Agro-industrial Complex’, which delegated various aspects of economic decision-making to sub-national authorities, and charged republics and *oblasts* with overseeing their food supply chains on a local level (Cook 1990, 140; see also Severin 1990).

Gorbachev's first attempt at administrative reorganization did not result in the expected rationalization of economic management. Instead, the 1986 reform measures undermined the economic governance capacity and ultimately contributed to the territorial disintegration of the Soviet Union. Barnes (2006, 48) described the post-1986 trajectory as a process of "administrative devolution", which was "much more explicit and extensive" (49) in agriculture than in industry.

By 1988, the Soviet government was facing acute difficulties in supplying its population with food. As noted earlier, Gorbachev's reform program exacerbated these problems by creating actors with private financial interests in the food sector, whose profit-oriented behavior led to major disruptions in the socialist division of labor. Thus, "the pro-perestroika leadership [could not] afford the luxury of a gradual improvement in production and output. . . . The only alternative [was] to decentralize further" (Butterfield 1990, 42-43).

The Gorbachev administration concluded that subsequent reforms of the food production system would have to be accompanied by a significant decentralization of government administration and economic management. In addition, vested interests on various levels of the bureaucratic hierarchy had been obstructing the implementation of economic restructuring. A major source of resistance were the Raion Agro-Industrial Organizations (RAPO) — local-level administrative bodies which had been established under the 1982 Food Program, and whose duties were to provide centralized economic management and to facilitate regional coordination (Butterfield 1990). As part of the creation of *Gosagroprom* in 1986, they were granted greater authority over farms and enterprises, yet RAPO leaders, just as officials in various other party and government organs, "[had] not fully committed themselves to perestroika. . . . Until local officials gain confidence that perestroika will succeed, and that there will be no sudden end to it as part of a conservative backlash, they will be hesitant to fully identify themselves with it (ibid., 36).

At the agricultural plenum of the CPSU Central Committee in March 1989, *Gosagroprom* — which had earned the rather grandiose label "superministry" (Goldman 1989, 33) —

was dissolved and replaced by the State Committee for Food and Purchasing in March 1989 (Chotiner 1992, 166-167). As part of the 1989 measures, many of the planning, procurement and supply functions, which had thus far been provided under the aegis of the central planning apparatus, were delegated to the Union Republic and *oblast* governments (ibid.; see also Barnes 2006). As Barnes (2006, 49) observed, “[t]his reorganization essentially eliminated the union government’s role in most of the agro-industrial complex.”

Following the dissolution of the Soviet Union in December 1991, the new Russian government under Yeltsin pursued a more aggressive policy of reducing the interference of government in economic management. Given that the economy itself was in shambles at this point, Barnes (2006, 87) distilled the essence of this period as “revolution from above, survival from below.” Unlike China, which significantly increased its net agricultural investment during the initial transition years, Russia’s share of agriculture in total domestic investment declined by over 50 percent between 1990 and 1993, and fell by a further 55 percent between 1993 and 1995 (Rosstat 1999). As Medvedev and Shriver (2000, 143) put it, “the system by which the country had provided its own food supply was brought to the verge of destruction.”

4.2.4 Summary

The introduction of markets in the agricultural economy began in 1992–1993 when Yeltsin liberalized most food prices and launched agricultural privatization. As the present analysis has revealed, while these reforms were radical — ‘shock therapy’ was one of the most far-reaching and destructive social transformations in history —, they were merely the deliberate acceleration of a process that first began under Gorbachev. Indeed, “[d]espite his declining control of the Party and other political activity by early 1989, Gorbachev continued to marshal support for legalizing the market-oriented ideas he and his team championed” (Barnes 2006, 48). Perhaps the most fundamental difference between the late Gorbachev administration and the Yeltsin era is that Gorbachev wanted to reform the existing institutional and organizational arrangements (even if he in fact disrupted their function profoundly),

whereas Yeltsin sought to eliminate any remnants of Soviet institutions and replace them with a capitalist free market economy (Wegren and O'Brien 2002).

The dominant view in the literature on Gorbachev's *perestroika* in agriculture holds that his program for modernizing Soviet food production did not succeed. Serova (2000a, 103), for instance, argues that "[n]umerous forced attempts to restructure the agrarian sector within the framework of the socialist economy had failed, and radical change had become unavoidable." In the newly formed Russian Federation, the reformers around Boris Yeltsin increasingly viewed the adoption of Western capitalism and democracy as the only reasonable course of action. As Wedel (2001, 16) notes (in a seminal study on the role of foreign aid and advisory agencies in shaping post-Soviet institutions), following the dissolution of the Soviet Union, "Western capitalism and democracy were seen as the only reasonable choices: virtually no alternatives to the Western capitalist model of reform espoused by the international financial institutions were seriously entertained on either side."

As one might expect, the reformers' attempt to build a capitalist food economy in less than 18 months was unsuccessful. Subsequent reforms reflected an idealized view of the market economy: in practice, "reorganization was nominal" (Norsworthy and Paluba 2000, 5), as the new ownership structures were simply mapped onto the existing organizational units of the collective economy (Szelényi 1998). As a result, changes in the organization of production and exchange failed to materialize, while land markets — which formed a central component of the Yeltsin administration's property reform strategy — were especially slow to develop (Uzun 2000).

Despite the reformers' explicit insistence on building a 'Western-style' capitalist market economy, it would be a mistake to evaluate the resulting institutional outcomes purely in terms of their deviation from this (false) ideal. Researchers who hold a teleological view of the market transition are bound to appraise the agricultural reforms of the late Gorbachev era as insufficient first steps. Severin (1990, 129-130), for instance, observes that reforms until 1989 "amount[ed] to a set of partial measures", adding that "adjustments to those measures

already implemented and how to implement more comprehensive changes in organization and management need[ed] to be considered.” Similarly, Norsworthy and Paluba (2000, 7) characterize Russian agricultural reforms as “a series of successes and failures.”

Since both late Soviet and early Russian reforms relied on laws and their enforcement, a free-market perspective will further give rise to paradigms such as ‘laws on the books vs. laws in action’, which is nothing but the discrepancy between an ideal imagined *a priori* and observed empirical reality. Norsworthy and Paluba (ibid., 7), for example, attribute the lack of progress in farm reorganization and property reform to a “gap between the legislation itself and its implementation.” Serova (2000a, 116) applies a similar ideal-typical perspective to production, noting that socialist agricultural organizations were unable to operate in a competitive market:

The emergence of market-oriented producers was the primary objective of the reforms in Russian agriculture. Such producers have to operate in accordance with price signals derived from the interaction between demand and supply in more or less freely operating markets. The Soviet collective and state farms had demonstrated their complete inability to respond to market signals and therefore to operate in a market environment.

The political economy of food production that resulted from the late Soviet and early Russian reforms could no longer be described as socialism. As my detailed examination of government policy has shown, there already existed a significant departure from socialist relations of production during the late Gorbachev era. As Barnes (2006, 44) notes, “the property laws and decrees of [the Gorbachev] period represented a radical break with traditional Soviet positions on ownership.” Socialized agriculture, which had been the dominant mode of ownership since Stalin’s collectivization of the rural economy, effectively ceased to exist as a result of *perestroika*. From this moment onwards, agricultural organizations were *commodity producers* — they no longer operated with the goal of attaining profit targets and production quotas, but in accordance with the principles of profit-oriented governance and market competition.

Still, the system implemented under Yeltsin was not a capitalist market economy either. A decade after the beginning of reforms, Serova (2000a, 103) observes that “most of the existing agricultural producers are not market-oriented units.” This was perhaps to be expected, given the lack of a market-oriented institutional environment. Unlike their Chinese counterparts, Russian reformers did not first build capitalist institutions, gradually change financial organization, or temporarily mitigate competitive pressures. Nonetheless, collectivized agriculture became a relic of the past, and beyond the reliance on existing organizational ties to ensure economic survival (usually through barter), neither farms nor agro-enterprises retained any of their socialist governance and performance objectives.

Rather, these organizations became market-oriented commodity producers — except that the requisite markets and intra-organizational production arrangements did not exist. Still, both the late Soviet and the early Russian regimes implemented policies that required all participants in the food economy to behave as if they were already integrated into a capitalist division of labor. Although reformers were convinced that they already had created the institutional foundations necessary for a functioning capitalist market economy, they had merely passed legislation concerning property, land, and exchange, mimicking the legal framework of a Western market economy.²⁸ Without the appropriate institutional environment, however, the principal goal of these producers simply became “survival” (Serova 2000a, 103) rather than sustained accumulation. This form of organizational behavior led to sudden price increases and widespread bartering, creating what one might call a *commodity economy with Russian characteristics*.

²⁸What Russian and Soviet reformers failed to realize is that in Western countries — and in China for that matter, as will be illuminated in the next chapter — the passing or establishment of a legal framework governing the market economy, as well as the legal status of its actors and their economic transactions, was built only *after* the market relations had already been created in practice.

4.3 Discussion

The reforms carried out under Deng Xiaoping and Mikhail Gorbachev introduced commodity production and market exchange as the operating principles of the (still socialist) food economies of China and the Soviet Union. As the case discussions have demonstrated, the emerging institutional arrangements were characterized by several important differences in the content and sequencing of restructuring policies, which shaped each country's institutional environment and subsequent trajectories in distinctive ways.

Both Russia and China decollectivized their agricultural land, thereby creating a formal separation between state and economy with regard to ownership structure and control over the means of production in the food economy. The countries differed, however, in regard to the timing of the implementation of new ownership relations. The USSR implemented *perestroika* in all sectors of economy simultaneously. In contrast, initial reforms in China between 1978 and 1984 were limited to the countryside, while measures targeting urban areas were not taken until some five years into the reform era. At that point, not only had agricultural production recovered considerably, there also emerged a market-oriented enterprise sector in the countryside.

China began its reforms with the monetization of the agricultural economy. Increased state procurement prices and limited free market trade of agricultural surplus production effectively marked the beginning of the end of collective agriculture in China. By dismantling the People's Communes and allocating land to peasant families, the reformers created a class of farmers whilst simultaneously activating their private financial interests. Nonetheless, the state initially retained a high degree of control over the marketing of agricultural commodities. Even after the liberalization of prices and marketing channels was accelerated in 1985, the state retained its role as principal agent of the transition.

While China reformed both ownership structure and marketing, early Soviet reforms were limited to changes (e.g., introduction of brigade-based contracting) within existing agricultural organizations, with the ownership structure of the farming sector remaining largely in

place. Unlike in China, decollectivization did not begin until agricultural organizations were already incentivized to act like market-oriented producers. When reforms began in earnest in 1990, the Soviets underwent a rapid ‘shock therapy’ program, incorporating and privatizing the vast majority of *kolkhozes* and *sovkhazes* by 1994. Whereas Chinese reformers dismantled collective farms and allocated parcels of land directly to peasants, the dominant model of privatization in Russia consisted of issuing shares to farm employees, thus causing the existing organizational structures to persist in their late-socialist form.

The countries exhibited further differences in regard to the role of the state during the transition, as the reform process also encompassed reforms in government administration. In China, decentralization of production was combined with the decentralization of economic management to the local level, with new municipal governments supervising the operation of institutions such as wholesale markets and legal-administrative support services. In the Soviet Union, decentralization in economic organization initially took place contemporaneously with greater centralization of government administration (i.e., the consolidation of existing ministries and agencies into *Gosagroprom*). Subsequently, the decentralization process of administrative devolution was catalyzed by the dissolution of the Soviet state, as well as the reformers’ explicit desire to introduce Western-style capitalism with minimal government involvement in the (food) economy. This divergence, which became more accentuated with the radicalization of agrarian reforms under Yeltsin, manifested itself in different patterns of state-economy relations.

As the comparison of the two cases demonstrates, transforming socialist farms and enterprises into commodity producers does not simply consist of the creation of (nominal) private economic interests and new marketing opportunities; rather, profit-oriented production also requires significant changes in the actual organization of production — the process known as restructuring.

Russia and China displayed different patterns of state involvement in the restructuring of farms and food producers. The Chinese state was the principal agent of the market

transition. While producers became increasingly exposed to market competition (from other producers), the state set the pace of its own withdrawal from active economic management by retaining control over the marketing process using *indirect* means, such as targeted price interventions or continued state procurement of grain.²⁹ In addition, the Chinese state relied on subsidies to ensure farm profitability in essential product segments (grains), while also incentivizing households to specialize in certain product categories (e.g., meat or vegetables). Moreover, the state's implementation of a market-oriented institutional framework resulted in a significant increase in rural investment, infrastructure modernization, investments in research and technology, and the creation of a rural financial system.

While Chinese reformers took active measures to bring about the emergence of market-oriented producers, Russia's government believed it could achieve the same objective by simply reducing the role of the state in the food economy. The reformers under Gorbachev initiated, and those under Yeltsin accelerated, the creation of a legal infrastructure, price liberalization, and the privatization of agricultural land and the means of production — all whilst also eliminating subsidies. Unlike in China, where state assistance to agriculture and the rural economy was much higher after 1978 than during the Mao era, Russia's transition was characterized by a *reduction* in the net transfer of resources into the agro-food sectors. Thus, the Russian people suffered from the sudden exposure to market pressures and from the simultaneous withdrawal of financial compensation from the state.

Although reformers relied on different strategies that resulted in divergent economic and organizational outcomes, both countries were on course for a fundamentally similar transformation in the political economy of food production. Commodity relations and market exchange have now become the dominant mode of economic coordination in the food economy in both Russia and China — that is, economic actors no longer follow state decrees in operational decision-making but instead are guided by principles of profit-oriented governance.

²⁹In fact, full price and market liberalization for agricultural products did not occur until after the year 2000, and will be discussed in the next chapter.

Because the reforms did not immediately lead to a stable institutional environment and instead produced a series of unintended outcomes, it is not possible to isolate a specific point in time at which this process was completed.³⁰ Still, as the above case discussions have revealed, it is plausible to argue that commodity relations had become the dominant mode of economic organization in the food economies of both countries by 1994.

Though at this point Russia and China were no longer socialist, they were not quite capitalist either. In 1992, when the Communist Party formally declared China a *socialist market economy*, only 65 percent of national output was produced by private economic entities (Chow 1994, 36). In Russia, where nearly all production had been nominally placed in private hands, the result was institutional chaos and output declines instead of the emergence of a functioning capitalist food system. Russian reformers concluded that full-scale market economy was needed, arguing the contradictions produced by reforms thus far demonstrated the need for the state to make a more explicit and fundamental move toward the market economy. Chinese reformers reached the same conclusion.

In retrospect, the implementation of a fully developed system of market economy may appear predetermined, yet the inevitability of this process has been falsely asserted by both reformers and social scientists. The need for more reform emerged not from a process of orderly substitution of one economic mechanism for another — but as a result of the unforeseen consequences of the introduction of market elements. Indeed, newly created private interests undermined the fabric of the collective economy. As McMillan and Naughton (1996, 6) observe,

All the institutions of the planned economy were developed as component parts of that system: they are mutually consistent, but incompatible with the true market economy. . . . Precisely because the planned economy is an integral whole, the removal of certain crucial constituent elements can cause the whole edifice to tumble.

³⁰Moreover, the introduction of commodity relations was not a literal historic event but constituted an qualitative institutional transformation, whose evolutionary logic only becomes transparent once examined using the heuristic tools of political economy analysis.

Because existing socialist institutions “cannot be discarded until new institutions have been created to take their place”, transition economies were forced to “make do, at least temporarily, with the institutions left over from the planned economy” (ibid., 9) — or, in the language of Stark (1992; 1996), build a market economy not on but *with* the ruins of socialism. As a result, Russia and China faced problems such as the breakdown of existing supply relationships, price inflation, and a renewed tension between city and countryside. These challenges resulted not from the inherent contradictions of socialism but from the introduction of market elements into the collective economy. While the institutional outcomes of initial market reforms were not as stable as expected (institutions were non-complementary or even served contravening purposes), the direction of subsequent change could not have been predicted at any given point, as that largely depended on which political faction held power.

4.4 Conclusion

In both China and Russia, the introduction of commodity relations implied a qualitative change in the state’s attitude toward food production, as well as in the criteria according to which producers relate to their products and to each other. Whereas before, the state’s primary objectives were the creation of a stable supply of food to the (urban) population and a reliable source of inputs and resources for industry, the state now measures economic success in the agricultural sector from the standpoint of national wealth accumulation — the share of gross national product that is accrued in the agro-food economy. This transformation was not equivalent to the introduction of capitalism, nor did it result in consistent economic growth in either country (though certainly more so in the case of China). Still, from an institutional standpoint, both states embarked on directionally similar trajectories.

Commodity production requires a qualitative change in the role of money in the economy. Under socialism, money was neither an instrument nor an object of private accumulation. Rather, it constituted a means of controlling the flow and allocation of resources in the

economy; as such, it was subordinated to a particular set of distributive objectives. After the transition, on the other hand, the *need to acquire money* became the governing principle of the social division of labor in the food economy. This constituted a radical break with the socialist past, during which production for private gain had been outlawed and replaced with a system of state-coordinated redistribution. As demonstrated by the low malnutrition rates in the Soviet Union, prices under socialism were set in a way that allowed everyone to afford food. Within the socialist economic system, private interests and private ownership did not exist, which meant that consumers could not be prevented from accessing food by prohibitively high prices.

Food price liberalization during the reform era resulted in higher prices for those goods that were previously “subsidized” by the state, including food. The implementation of price liberalization and the privatization of public property and land resulted in the emergence of quasi-private actors who could now control and dispose over a part of the socially produced wealth. These producers and sellers made (and still make) price decisions according to cost-revenue calculations. Meanwhile, the governments of both countries have taken active measures to prevent farms and enterprises from continuing their existing procurement and distribution practices, encouraging them to instead maximize revenues and minimize costs.

In summary, while China and the Soviet Union previously used planned price systems to achieve certain production targets and to allocate resources, the decisive feature of such systems was their emphasis on what was to be produced and how it was to be allocated. Commodity production provides economic actors with exclusive control over the sale of the product, with the market determining what is produced and how it is allocated.

Because the market is indifferent to the specific useful qualities of a product, a market economy requires a total indifference to use-values, with production cost and sales price instead constituting the principles of operation. This shift toward cost and revenue (or profit) calculation in economic organization gave rise to price competition because of the limited available purchasing power and because of the limited market size for different products

within each industry. Price competition, in turn, has consequences for producers, distributors, and consumers of food. The next chapter will illuminate the various implications of this new emphasis on price and profit.

Chapter 5

Building a Capitalist Food Economy

The purpose of this chapter is to provide an in-depth comparative assessment of the capitalist reforms in the food economies of Russia and China, focusing on the production of wheat and pig meat. As I have argued in the previous chapter, the introduction of commodity relations in the food economy — that is, the adoption of cost-accounting and profit-oriented exchange — did not in and of itself amount to the establishment of capitalism. A capitalist market economy is not merely a system in which private economic actors exchange products for money, but one in which the entire organization of production is subordinated to the logic of capital accumulation.

In other words, a capitalist economy is an economic order in which actors invest an initial sum of money with the intent of realizing a net return on their investment. Prerequisite to starting this process of accumulation is first that entrepreneurs have access to an initial sum of money, and second, that they are sufficiently incentivized to invest it in pursuit of realizing return. In order for these seemingly simple conditions to be met, the state has to take a plethora of measures, including the establishment of secure property (or long-term usage) rights, a legal contract system, physical infrastructure suitable for production and distribution of goods, and various other market institutions.

Coincidentally, around 1992, Russia and China both made a renewed — if in the case

of China, not explicit — effort to introduce capitalist production relations into the food economy. In Russia (as demonstrated in chapter 4), Yeltsin merely accelerated a reform process that had been initiated under Gorbachev, and that was geared toward introducing a ‘Western-style’ market economy in the shortest time possible. Initiated in 1991, the reorganization of the food economy according to principles of capitalist accumulation was to be achieved by the end of the following year. In China, after a brief reform hiatus following the Tiananmen incident, Deng’s 1992 ‘Southern Tour’ signified a renewed push for the implementation (and acceleration) of market reforms. By the middle of the decade, the Chinese state was more or less fully committed to the establishment of a capitalist economy.¹

The principal goal of reformers in both countries was the organization of the economy in a way that would encourage the operation of private farms and businesses. In Russia, Yeltsin tried to accomplish this through the rapid retreat of the state from all functions of direct economic management, which resulted in chaos and a sharp decline in the output of agricultural products. This trend was only reversed by Putin, under whose leadership Russia embarked on a comprehensive, state-guided agricultural modernization program, similar to that pursued by Jiang Zemin and Hu Jintao in China. toward the end of the last century, both China and Russia were thus firmly on the path of state-guided modernization. While their earlier reform trajectories had been radically different, both countries have recently converged on a similar model of capitalist development, involving the coordinated establishment of infrastructure and institutions for the support of market-oriented food production.

This chapter begins with a brief overview of the natural properties of wheat and pigs

¹The question of whether China’s economic system is communist, capitalist, or something altogether different is debated to this day. This confusion stems largely from the language Chinese reformers use to describe the reform process. As Jan (2004, iv) elucidates,

[a]lthough China still officially subscribes to the theories of communism and claims to be a socialist country, . . . [f]or all practical purposes, China today is more capitalistic than communist. China maintains that it is practicing ‘socialism with Chinese characteristics.’ It can be argued that the present Chinese economic system can also be called ‘capitalism with Chinese characteristics’.

Or, as my dissertation supervisor once put the matter in more straightforward terms, “if it quacks like a duck, it’s probably a duck.”

(their physical and biological constitution), and a discussion of the natural and environmental conditions necessary for their successful production under market conditions. These introductory sections are followed by separate country assessments for Russia and China, each of which encompasses an overview of macroeconomic and policy developments, and a study of the wheat and pig production sectors.

5.1 Natural properties and production conditions

For the purpose of the present analysis, it is crucial to have an understanding of the natural properties of wheat and swine in order to grasp their implications for the production process. Natural properties — that is, essential biological and behavioral qualities as they appear “in nature” — include not only the native or intrinsic features of plants and animals but also the environmental and climatic conditions under which they thrive. These characteristics impose limitations on the productive output of a country’s agricultural sector and shape its economic geography irrespective of political system or mode of production. For example, wheat may only be grown in areas of sufficient water availability and soil quality; as a result, production might be concentrated in certain provinces or regions, which will then supply grain-deficient areas with their surplus harvest.

For the most part, natural properties cannot be easily manipulated, although modern technology permits farmers to ‘work around’ them using, for instance, improved feed or fertilizer, and more recently genetically modified crops and livestock. Occasionally, basic scientific insights about these properties are altogether disregarded, such as when farmers engage in unsustainable crop growing patterns leading to the depletion of essential nutrients and long-term soil erosion.

5.1.1 Wheat

Wheat is a global staple food commanding more land and producing greater yield than any other grain in the world (Cherepanov et al. 2008). Primarily consumed in the form of bread and other baked goods, wheat must be milled into flour prior to human consumption; it is also an essential ingredient in cereals, confectionery products, and animal fodder (ibid.). Importantly, wheat has the highest protein and caloric content of any food crop (FAO 2009a, 5).

One of the most versatile crops known to mankind, wheat exists in hard, medium, and soft varieties, which are distinguished primarily by their differential baking properties (Cherepanov et al. 2008). Though all wheats are single-season plants, some variations exist in the cultivation of different strains. Spring varieties are more drought resistant than their winter counterparts, and are planted in the spring and harvested in the fall after a short growing season of 70 to 110 days. (ibid.). Winter varieties are planted in the fall, develop extensive root systems, temporarily halt growth during the cold season, and resume growth in the spring before an early summer harvest (FAO 2009a). The ideal conditions for wheat cultivation are “slightly acid soils” and “well-drained silt and clay loam soils”, “an average growing season temperature of 77° F (25°C)”, and 20” to 35” of annual rainfall (with 4” to 6” required during the two months preceding harvest) (ibid., 7). Some cold-resistant varieties, such as those planted in Russia, can survive short periods of frosts in the spring (Cherepanov et al. 2008). Most strains demonstrate weak growth during the first month of vegetation and are sensitive to hot or dry winds, which are particularly damaging while plants are still ripening (ibid.). With modern cross-breeding and genetic modification techniques, however, it has become possible to create wheat strains which are resistant to adverse climatic and weather conditions or pests and natural diseases.

Nowadays, wheat is typically sown with grain-sowing machines (using drill or closed-drill techniques), and harvested with combines or reaping machines (ibid.). Depending on soil and climate conditions, wheat is planted at depths ranging from 3 to 8 cm and at a density of

180 to 250 kg of seeds per hectare (4 to 7.5 million seeds) (ibid.). As Table 5.1 shows, global variance in wheat yields is considerable and not only reflects natural and environmental conditions, but also economic circumstances affecting farm organization — as in the case of Russia, where wheat yields declined by nearly a third during the first decade of the transition.

Table 5.1: Global wheat yields (1980–2010)

	1980/1981	1990/1991	2000/2001	2005/2006	2010/2011
China	1.89	3.19	3.74	4.28	4.74
Russian Federation	–	2.05	1.48	1.87	1.56
United States of America	2.25	2.66	2.82	2.82	3.12
European Union	3.84	4.83	4.98	5.12	5.20

Note: Yields are expressed in tons per hectare.

Source: USDA Foreign Agricultural Service (2012c)

While wheat production may be challenging from a farmer’s standpoint, the planning and production decisions he faces are rather straightforward. Absolute productive capacity is a function of *total available land* and the *yield* realized per unit of land. Total output volume is therefore given by the simple product of land size and yield. Yields, in particular, are subject to multiple natural constraints, including seed and soil quality, weather and climate conditions, and farming methods. As noted above, scientific advances and modern production technologies have made it increasingly possible to evade these constraints. In utilizing these techniques, however, farmers must be careful not to undermine long-term reproductive capacity by depleting soil quality or water levels (both surface and ground). These problems can be avoided through the use of sustainable planting techniques (e.g., crop rotation) or the use of non-chemical fertilizers (e.g., manure).

5.1.2 Pigs

As one of the most easily bred varieties of livestock, pigs satisfy a diversity of human dietary needs. As Whittemore (1980, 1) notes, “[p]igs rival fowl in the efficiency with which they convert feed into meat for human consumption. . . . As to the range of feedstuffs they will

consume, they are the most catholic of animals, and their carcasses go to provide the widest possible range of meat and meat-containing products.” Pig can be bred under versatile conditions, ranging from small backyards to large factory complexes. They respond well to a variety of dietary regimes, including single-ingredient feedstuffs (e.g., barley, wheat, maize, or soybeans) and ready-made compound feed mixes (ibid.).

On the whole, pig reproduction occurs naturally, although human producers will have to provide feed, labor, housing, equipment, and power, in addition to “a low level of livestock importation of young breeding animals” (Whittemore 1980, 3). Though female pigs are typically fertile 150 days after birth, delaying mating until after 200 days can often yield larger first litters. In ideal circumstances, each successive litter will increase in size “with the best performance typically reached by the fourth litter” (ibid., 16). Pregnancy lasts approximately 112 to 117 days and weaning occurs about 12 weeks after birth under natural conditions (ibid., 10). Producers, however, typically wean pigs earlier because sows cannot simultaneously lactate and conceive (ibid., 21). Pigs are typically slaughtered at a live weight between 50 and 120 kg (ibid., 10). As Whittemore (ibid., 16) notes, “[t]he time spent in the uterus is about half the total life of a growing pig destined for meat production.” Although there is considerable variation by breed, a pig’s carcass weight tends to be around 75 percent of original live weight, while the yield of edible meat typically is around 50 percent (ibid., 5).

Similar to wheat farmers, pig producers face a series of constraints, which derive from the natural properties and reproductive needs of swine, as well as certain spatial and environmental factors. Specifically, the production quantity a hog breeder can realize is determined by the *size* and the *productivity* of his herd. How many pigs can be kept on a given farm is a function of available space, water, and feed resources, as well as access to suitable breeding animals. Herd productivity depends on two factors, namely, average litter size and meat yield per slaughtered pig. This differentiation gives rise to different criteria by which producers assess sows (breeding) and growing pigs (slaughter). An optimal breeding female is

“one who produces numerous young at each confinement, who exhibits an unrelenting desire to be pregnant and whose offspring thrive”, whereas an optimal growing pig is characterized by “[fast] lean growth and lower carcass fatness, together with adequate . . . meat quality” (Whittemore 1980, 83).²

Herd productivity can vary significantly. As Table 5.2 indicates, average carcass weight (ACW) and average litter size (ALS) — two basic measures of pig breeding productivity — fluctuate considerably across countries and time. As Gadd (2011, 27) notes, “[l]ow litter size is a major problem worldwide”, and one that is not easily remedied. While good feeding has an effect on the birth weight, it does not increase litter size or lower piglet mortality; rather, as (Whittemore 1980, 25) notes, “it is attention to the details of good husbandry throughout the breeding cycle which ensures minimum losses at the various stages.”

Table 5.2: Global pig herd productivity (1980–2010)

	1980		1990		2000		2005		2010	
	<i>ACW</i>	<i>ALS</i>	<i>ACW</i>	<i>ALS</i>	<i>ACW</i>	<i>ALS</i>	<i>ACW</i>	<i>ALS</i>	<i>ACW</i>	<i>ALS</i>
China	57.10	7.2	73.60	12.7	76.47	14.3	75.46	14.4	76.57	13.8
Russia	–	–	72.76	7.0	51.68	11.6	63.92	11.7	67.75	13.8
European Union	80.54	14.2	83.50	16.0	85.13	17.3	88.06	16.8	88.61	18.9
United States	77.56	10.5	81.57	13.2	87.74	16.2	90.67	17.4	92.38	19.4

Note: Average carcass weight (ACW) and average litter size (ALS) are expressed in kilograms.

Source: USDA Foreign Agricultural Service (2012c)

While there is no easy way of increasing litter sizes, pig farmers can resort to other measures to optimize productive efficiency. For instance, they might increase the frequency of pregnancy cycles by shortening the post-birth lactation period, thus minimizing the interval between weaning and conception (sows cannot become pregnant while lactating). Because pigs are living beings, they require more particular attention than crops. The tensions between producer and product are perhaps most obvious when it comes to the question of

²Sow pregnancies are easily induced through artificial insemination, which constitutes “a simple do-it-yourself technique, using fresh semen which has about a three-day refrigerator life and which may be dispatched via the postal services” (Whittemore 1980, 24). Because both conception rate and litter size tend to be between 10 to 20 percent lower for artificial insemination than for natural mating, this technique is predominantly used for the introduction of specific genetic characteristics into nucleus herds (ibid.).

housing swine:

The pig needs an area in which to lie warm and dry and an area in which to feed; it requires also to excrete, move about and have its being. The building [housing a pig] must allow man to provide the feed, handle the stock and remove the excreta — preferably automatically. The whole to be accomplished at least cost. It is harmonizing the requirements of men and pig that is so difficult (Whittemore 1980, 100).

5.2 Wheat and pigs under market conditions

As demonstrated in the preceding chapter, the introduction of commodity relations in food production — that is, the adoption of profit-oriented governance, financial self-reliance, and competitive exchange — implies a new set of criteria by which producers decide what to plant or produce, how much, at which quality, and for which market segment. Under socialism, all costs, revenues, profits, and investment levels were externally stipulated with physical production quotas sometimes overshadowing profit targets, as it did during periods of “direct planning” (Lardy 1983, 19) in China. Under conditions of commodity production, farms and food enterprises carry out their own economic calculations, which has important implications for how food producers relate to the natural properties of their goods. As Marx (1964 [1884], 128) observes, particular constraints emerge from the subordination of nature to marketplace conditions:

It is in the nature of things that the supply of vegetable and animal substances, whose growth and production are subject to definite organic laws corresponding to naturally occurring temporal cycles, cannot be abruptly increased at the same rate as, say, machinery and other fixed capital . . . whose production in an industrial economy can be accelerated on short notice, provided that the appropriate natural conditions are in place (author’s translation).

The following sections explore specific implications of profit-oriented governance from the standpoint of wheat and pig producers.

5.2.1 Wheat

For a wheat producer, the profit calculation is given by the production quantity times the difference between unit price and unit cost. For instance, a farmer who has 5 hectare of land and is able to achieve a yield of 2 tons per hectare will harvest 10 tons of wheat. Assuming an average production cost of \$150 per ton of wheat, and a (favorable) wholesale price of \$200 per ton, the farmer will realize a net profit of \$500.

In order to optimize the profit calculation given the available resources, quantity and unit price should be maximized, while production costs minimized. Unfortunately, the key variable — unit price — is not within the direct control of the individual farmer but is determined instead through the market — that is, the aggregate behavior of all farmers in a given product segment. Production quantity — which is (mathematically) optimized by maximizing *land size* and *yield per unit of land* — is primarily constrained by the amount of land an individual farmer owns. Although successful farmers may acquire more land over time, this requires persistent financial success (and moreover assumes that there are no legal or political obstacles to land acquisition). Yield may be optimized by using modern production methods, such as (chemical) fertilizer, sowing and harvesting equipment, seeds with greater yields or resistance to pests, or improved irrigation systems. These technological innovations, however, require the farmer to take on additional economic calculations which have nothing to do with the immediate production process. The cost of procuring fertilizer, for example, depends on the wholesale price which can vary significantly depending on (global) market conditions. Similarly, in the case of machinery, acquisitions are a question of cost — specifically, of whether the requisite (fixed) investment will pay off over time. For instance, though a large harvesting combine might reduce the necessary labor of an individual wheat producer to virtually zero, it is not only expensive to buy, but also requires a certain acreage of land in order to recoup the cost of acquisition. A small family farm acquiring such a piece of equipment would essentially be committing economic suicide. Thus, money (i.e., capital) is a precondition for financing production costs (such as seeds, harvesting equipment, fer-

tilizer, and depending on the size of the farm, human labor), as well as a precondition for becoming more productive (through squiring improved seed strains, better machinery, etc.) Therefore, a farmer's decisions on what to produce, how to organize production, and how much to produce are all subordinated to how much money he has.

5.2.2 Pigs

Modern pig farms, much like manufacturing plants, operate by “[importing] raw materials and [processing] them into products which are exported from the premises” — the only difference to a factory being that “some of the material is self-generated” (Whittemore 1980, 3). But irrespective of whether production takes place in a concentrated animal feeding operation (CAFO) or backyard, pig producers in a market economy share one fundamental objective. As Whittemore (*ibid.*, 1) puts it, “[f]irst, pig production is for providing the pig producer with profit. . . . Next, pig production is for providing the human race with edible meat.” Business-oriented pig farmers, therefore, “measure their progress by profit, not necessarily by physical performance” (Gadd 2011, 227) and organize their production accordingly.

The task of a modern meat producer is to “produce the maximum amount of good quality lean meat at the lowest possible cost” (Gadd 2011, vii). Litter size becomes a major component of “breeding efficiency” (*ibid.*, 28). Because “the cost of providing food and facilities to a breeding female is almost totally independent of her productivity” (Whittemore 1980, 10), limitations in the profit margins are a matter not of meat quantity but of the high fixed costs associated with production. As Gadd (2011, 28) notes, “[i]t costs an appreciable amount just to get one piglet born, whether dead or alive.” Profitability, therefore, relies on pursuing economies of scale by maximizing the number of piglets produced annually from each female. Optimal use of a production facility involves housing as many pigs as possible, given space and input constraints (and perhaps government regulations) and encouraging rapid growth of swine without compromising leanness of meat (Gadd 2011). In assessing the productivity of their herd, modern-day pig farmers rely on such metrics as the feed conver-

sion ratio (FCR) (the rate at which feed is transformed into lean meat), the average daily gain (ADG) of growing pigs and the cost per kg gained, and the sow productive life (SPL) of breeding animals (Gadd 2011).

Successful operations make use of new technology, such as improved genetics, new animal stock, better feed, growth hormones, and automated facilities — all of which farmers view through the lens of cost-revenue analysis. Due to the high relative expenses associated with feed, in optimizing the stock of growing pigs, “strategic feeding is the door opening to maximization of profit margins” (Whittemore 1980, 75). Because it is generally in “the nature of the pig industry that margins fluctuate,” producers must additionally maintain “an effective and efficient production policy” and “be adept in the application of new technology” (Whittemore 1980, 1).³ Farmers, however, will only adopt technology if it makes economic sense, which has important implications for the environment. When improperly managed, pig production can be a major source of organic water pollution (both surface and ground) and soil degradation. Though waste treatment and other sustainable production methods are well-established,⁴ Eco-friendly technologies are often costly to implement and directly conflict with producers’ cost-revenue calculations — unless the government makes it financially viable through subsidies or the added cost can be passed on to the consumer (e.g., in the case of high-end organic foods).

Summary

Farming for profit means investing money to make more money. But in order to make more money, a farmer needs to have money first in order to finance production upfront. Making money also requires that a farm or food enterprise can consistently produce at competitive prices — what Marx called production at the “average socially necessary labor time” (Marx

³Importantly, as Michman and Mazze (1998, 17) observe in a study of global food production, “[i]nnovation does not simply happen . . . The trick is to be first, hopefully insuring [sic] the widest profit margins, and to secure a favorable position in the market when competition is not a serious threat.”

⁴“Project Completed on Environment-Neutral Pig Production.” *ThePigSite.com*, November 21, 2011. <http://www.thepigsite.com/articles/25/environmental-management/3660/p/> (accessed December 1, 2011).

1968a [1867], 53; author’s translation). This requires cost-efficient production and productivity increases over time. Agricultural producers need to be up-to-date on inputs, production methods, and technology if they want to stay in business, which in turn presumes access to further investment capital (in addition to money needed to finance the next production cycle). Obtaining bank financing is a considerable challenge for farmers in a market economy, due to general risks inherent in agricultural production (such as bad harvests or livestock epidemics). In a transition economy, the challenge of obtaining capital to finance the next production cycle, as well as the maintenance and acquisition of productivity-increasing technology, is exacerbated, given that market-oriented financial institutions (i.e., a domestic banking sector) did not exist under socialism.

As the following case discussions will illuminate, states can adopt various measures to mitigate these economic constraints for producers. The available acreage for wheat farming, for instance, might be increased through the reclamation of barren or underutilized land. Similarly, a state can offer subsidies for agricultural inputs, such as fertilizer or machinery, promote research on improved seeds and breeding animals, and — most importantly — provide access to affordable credit and subsidies to agricultural operators.

5.3 China

5.3.1 Background and policy context

After a brief hiatus following the 1989 Tiananmen incident, China fully embraced the transition to a market economy in 1992. After Deng Xiaoping’s Southern Tour, during which he publicly praised the success of market experiments in Guangdong and the Special Economic Zones, the pace of reforms quickened. In the food economy, China’s renewed push for market reform manifested itself in the promulgation of the first Agriculture Law of the People’s Republic of China on July 2, 1993. Much as Deng’s Southern Tour “was not an ordinary family outing” (Vogel 2011, 671), the 1993 Agriculture Law was no ordinary statute:

Rather, it constituted a legally binding, comprehensive economic development program for the agricultural sector.

Indeed, at the beginning of the nineteen-nineties, the Chinese state decided to increasingly employ the rule of law as the organizing principle of its administrative and economic reform. For the agricultural sector, this meant the establishment of “a complete legal system for the development of rural economy” with the purpose of “promoting China’s agriculture and the development of the rural socialist market economy” (Ministry of Agriculture of the PRC 1994, 53). In 1993, the government accordingly passed two laws — the aforementioned Agriculture Law and the ‘Law of the People’s Republic of China on the Popularization of Agricultural Technology’ (July 2, 1993) — which underscored “the position of agriculture as the foundation of the Chinese economic and social development” (ibid.), as well as the state’s objective of “building a market economy” (ibid., 54). By 1993, The Chinese state was thus firmly on its way toward creating a capitalist economy through legal means. Near the end of the decade, Chinese reformers (after further experimentation) decided that the rule of law would indeed be the appropriate form of governance for China’s new economy, and took measures to administratively implement this objective in all areas:

The report on the Government Work ... proposed that the government should strengthen the administrative legislation work, intensify law enforcement and supervision and advocated administrating by law. It clearly defined the strict administration, building a clean, diligent, pragmatic and highly efficient government. At the national meeting called by the State Council in July 1999 on administrating by law, Premier Zhu Rongji called for earnest implementation of the guidance and strategy to rule the country by law and practicing administrating by law across the board” (Ministry of Agriculture of the PRC 2000, 68).

The general introduction of the rule of law as a governing mechanism also applied to the agricultural sector. On the occasion of a 1999 CPC Central Committee meeting, general secretary Jiang Zemin gave a speech entitled ‘Vigorously strengthen the Building of a Rural Legal System’, in which he stated that the government “must continue to push forward the building of the rural legal system in the light of the realities of rural reform and development

in accordance with the guideline and strategy of ruling the country by law” (ibid., 69). In the same year, the government issued the ‘Decision of the State Council on Promoting Law-based Administration in an All-round Way’, and in 2008, the government followed this with the ‘Outline for the Implementation of Promoting Law-based Administration in an All-round Way’ (Information Office of the State Council of the PRC 2008).

The revised 2002 Agriculture Law continued to make provisions for active state support of the agricultural sector and the development of markets. Besides expanding existing programs and establishing new funds for the support of agricultural science, technology, and education, the state committed itself to fostering continuous and sustainable economic growth. What distinguishes the 2002 revision from the 1993 original, however, is its emphasis on regulating the operation of nation-wide agricultural product markets, which had come into existence in the mid-nineties. Faced with such problems as corrupt government officials and the growing prevalence of unsafe food products, reformers moreover inserted several new chapters into the 2002 law to address these issues.

According to the government, the implementation of this last aspect of the law proceeded quickly and with impressive results (even though, as the sector studies below will reveal, food safety violations remain pervasive to the present day):

In 2003, governments at all levels carried out more than 1.2 million person-time of inspection [sic] with a number of 35,000 agricultural input enterprises inspected, put on files for further action of 47,000 cases and handled legal and regulation violations of producing and selling counterfeit and shoddy agricultural inputs, destroyed 4,000 points of producing and selling the counterfeit inputs and saved the economic loss [sic] of over 1 billion yuan for farmers. (Ministry of Agriculture of the PRC 2004, 23)

The Chinese state had thus demonstrated that it was not a ‘paper tiger’ but was willing to use its administrative power to enforce the newly promulgated laws. At the same time, the state elicited compliance among the population through a so-called “educate and implement” campaign in rural areas (ibid., 24). Various government departments in agriculture were tasked with “supporting agriculture through . . . holding seminars, publishing signed articles,

speeches on TV or acceptance of interview, special columns on newspapers, providing study materials, training courses, spreading the publicity and education of laws to rural areas and organizing legal knowledge competition [sic]" (ibid., 24). The state was thus fully committed to ensuring that its laws would be followed.

In fact, Chinese leaders since the nineteen-eighties had "focused on the creation of a rational economy in China, one that operates by independent, transparent accounting systems and respects formal rational laws and contracts" (Guthrie 2009, 237). Realizing that a market economy is best governed through a legal system, reformers proceeded to publish a plethora of laws and regulations. In fact, in a 2011 white paper entitled 'The Socialist Legal System with Chinese Characteristics', the State Council proudly notes the sheer quantity of legislation that has been promulgated:

Since New China was founded, and particularly since the policy of reform and opening up was introduced in 1978, China has made remarkable achievements in its legislation work. By the end of August 2011, the Chinese legislature had enacted 240 effective laws including the current Constitution, 706 administrative regulations, and over 8,600 local regulations. As a result, all legal branches have been set up, covering all aspects of social relations; basic and major laws of each branch have been made; related administrative regulations and local regulations are fairly complete; and the whole legal system is scientific and consistent. A socialist system of laws with Chinese characteristics has been solidly put into place (Information Office of the State Council of the PRC 2011).

Although the Chinese government worked hard at building an administrative and enforcement apparatus, and creating a legal environment compatible with the requirements of international trade and commerce, the state faced considerable difficulties in the implementation of its program. In a report entitled *Governance in China*, the OECD (2005, 280) described the state of China's regulatory apparatus as characterized by "insufficient law enforcement, over-regulation, under-regulation, inefficient and outdated regulation, regulation with department interest orientation and the abuse of discretionary regulatory powers".

The 1993 Agriculture Law

The overall purpose of the law can be found within its preamble or “General Provisions” (Ch. 1), and is the (first) part of the law relevant to the present inquiry. In the 1993 Agriculture Law, the Chinese state is above all else interested in “ensuring the fundamental position of agriculture in the national economy . . . and [in] promoting the continuous, steady, and coordinated growth of agriculture” (Art. 1). In other words, the principal purpose of the 1993 Agriculture Law was the establishment of agriculture as a *continuously growing* sector of the national economy that increasingly operates according to the principles of profit and competitive exchange.

As an important part of the national economy, agriculture was not only considered a growth sector, but one whose success was (and is) explicitly supported by the state: “The State shall adopt measures to ensure the steady development of agriculture” (Art. 2). The active promotion of capitalist development through laws — in this case in the agricultural sector — was thus one of the guiding principles of the Chinese reformers under Jiang Zemin. In implementing this strategy, the Chinese state proceeded to actively build the foundation for a functioning market economy, focusing initially on the construction of “production bases of commodity grain and commodity cotton in a planned way” (Art. 22, emphasis added) while ensuring the “steady growth” of these products (*ibid.*). The state further resolved to encourage the business activities of farmers by promoting an “increase [in] the added value of grains” (Art. 28), as well as the “development of insurance undertakings for agriculture” (Art. 31). In order to create stable production conditions for farmers, the Chinese state moreover decided to “encourage and assist the development of insurance undertakings for agriculture” (Art. 31), to institute a “protective purchasing price system”, and to “establish [a] risk fund for the major agricultural products” (Art. 36).

Interestingly, the legal subjects whose activities were governed by the 1993 Agriculture Law were not primarily farmers and other economic actors. Rather, the principal addressee of the law is the state itself — the phrase “the State shall” appears no fewer than 38 times

in its 66 articles. More specifically, the law is directed at the different agencies in the state's administrative bureaucracy: "People's governments at various levels must ... assume the responsibility to organize ... *all the relevant departments and the whole society to support agriculture*" (Art. 10; emphasis added). In short, the Chinese state expected and instructed its subsidiary branches to organize society so as to create a market economy in agriculture.

As I have argued in the preceding chapter, in 1993, when the Agriculture Law was passed, China's economy was not (yet) operating fully according to capitalist principles. At this time, the country was designated a "socialist market economy", as the state continued its strategy of introducing market institutions sequentially, stipulating that "[i]n rural areas, [the] socialist economy under public ownership shall be taken as the main sector", whilst "diversified economic sectors shall be developed jointly" (Art. 5). Instead of suddenly exposing farmers and agricultural enterprises to free market competition, the state decided to first "stabilize the rural responsibility systems. . . , [to] perfect the two-level operation system of the household responsibility system. . . , [to] develop socialized service systems, [and to] expand actual strength of the collective economy" (Art. 6, emphasis added). Moreover, the law stipulated that "[p]eople's governments at various levels must make rational use of land, and earnestly protect cultivated land" (Art. 4).

Having identified markets as an effective means of organizing China's food economy, the reformers adopted various measures to create a hospitable business environment in the agrarian sector, using "such means as taxation, credit and loan, [to] encourage and [to] support the development of industries of means of agricultural production" (Art. 46). The law specifically charged government authorities "to ensure the material supplies for the steady growth of agricultural production" (Art. 8), and to facilitate farmers' access to inputs, "such as [sic] chemical fertilizers, pesticides, veterinary drugs, agricultural plastic films and agricultural machinery" (Art. 46). Besides providing for the physical inputs required in agricultural production, the state also decided to invest significant financial resources in agricultural research and development, instructing "people's governments at various levels [to] steadily increas[ing]

the expenditure on agricultural science and technology and on agricultural education” (Art. 48). More specifically, the state committed itself to “implement[ing] compulsory education in the countryside, [and to] develop[ing] professional education of agriculture” (Art. 49).

Chinese reformers evidently did not subscribe to the view that markets operate under the guidance of an ‘invisible hand’, but rather believed that the state itself had to create both the institutional and infrastructural preconditions for sustainable economic growth. Accordingly, the state did not rely on people’s natural “propensity to truck, barter, and exchange” (Smith 1869, 14) but rather deemed it necessary to “encourage and guide peasants to engage in various forms of circulation activities of agricultural products”, while concurrently supporting “the establishment and development of rural fairs and wholesale markets for agricultural products” (Art. 39).

In summary, the 1993 Agriculture Law thus aimed at building the institutional foundation of a market economy, while simultaneously taking care to create stability for food producers and consumers.

The 2002 Agriculture Law

The 2002 Agriculture Law was a response to the perceived shortcomings of the 1993 Agriculture Law, as well as the social and economic difficulties that had resulted from the implementation of the market economy. In the nine years between 1993 and 2002, the Chinese state continued with its reforms, and proceeded to gradually transform its economy from a socialist market economy to an increasingly less socialist market economy. The 2002 revision of the ‘Agriculture Law of the People’s Republic of China’ constituted an expansion of the rule of law over agricultural production and distribution, and an intensification of the measures initiated under the original 1993 version. The changes (and additions) in the 2002 Revision reflect the problems that had arisen over the course of economic reforms during the preceding decade.⁵

⁵Many of the problems identified by the Chinese state were a necessary consequence of the implementation of a capitalist economy. Committed both to the implementation of market reforms, and to governance

In the General Provisions, the state reaffirms its commitment to “the position of agriculture as the foundation of the national economy” (Art. 1), as well as to the promotion of “sustained, steady and sound growth of agriculture and the rural economy” (Art. 1). The 2002 Agriculture Law is unambiguous regarding its purpose as an economic development program: “[T]he development of the socialist market economy, . . . the need of developing the national economy, . . . [and] the modernization of agriculture and the countryside” (ibid.). Still, the law not only provides a development program for the agriculture sector but also addresses various issues concerning popular welfare, the geographical distribution of social inequality, and the “transfer of the surplus rural labor to non-agricultural industries and to cities and towns” (ibid.). Moreover, the state emphasizes the overall importance of the agricultural sector for the national economy “in the supply of food, industrial raw materials and other farm products . . . and in the promotion of rural economic and social development” (Art. 4).

Despite these provisions, the law mandates explicitly that “the purchase and sale of agricultural products is to be regulated by market forces” (Art. 26). In addition, the state committed itself and its administrative apparatus to establishing a “unified, open, competitive and orderly market system for agricultural products and formulat[ing] plans for the development of a wholesale market for agricultural products” (Art. 27).⁶

Overall, the 2002 Revision significantly expanded the scope of China’s Agriculture Law. Whereas the 1993 original consisted of nine chapters encompassing 66 articles, the 2002 edition was expanded to thirteen chapters encompassing 94 articles. The four new chapters that were added encompassed the areas of Grain Safety (V), Protection of Rights and Interests of Farmers (IX), Development of the Rural Economy (X), and Law Enforcement and Super-

through the adoption and enforcement of laws, reformers continued to employ an (expanded and modified) legal framework to address social and economic problems.

⁶For businesses, political and policy stability is one of the principal requirements for successful planning and operation. Hence, Chinese reformers reassured investors that “the State, *for a long time to come, within a long period*, stabilizes the two-tier management system . . . develop[s] systems for commercialized services, expand[s] the actual strength of collective economy, and guide[s] the farmers onto the road of common prosperity” (Art. 5, emphasis added).

vision (XI). In addition, many of the articles in the original chapters were modified, as the state now aimed to further the advancement and regulation of a rapidly evolving agricultural sector.

Just before the promulgation of the 2002 Agriculture Law, Gao Dezhan, then chairman of the National People's Congress' Agriculture and Rural Affairs Committee, delivered a speech explaining the draft amendments of the new law before the standing committee of the Ninth National People's Congress. As this speech elucidates the state's rationale revising the law, it is worth quoting its summary at length:

China is now facing serious problems in the agricultural sector, which include unsuitable management modes, a slowdown in farmers' incomes and challenges from international markets brought about by China's accession to the World Trade Organization. The main aims of the draft amendments are to help adjust the agricultural and rural economic structure, promote food security and safety, safeguard farmers' interests and strengthen the supervision of the implementation of the law. . . . China has to feed its enormous population by its own efforts, and food security is essential for stability and economic prosperity.⁷

Many of the issues addressed by the 2002 Agriculture Law were indeed a consequence of the very reforms the Chinese state had been pursuing. This is evident from the number of newly introduced measures targeting specific problems that resulted from the establishment of the market economy itself. In a process typical of early capitalist development, the Chinese state felt compelled to reign in those budding agro-entrepreneurs whose appetite for accumulation interfered with the central government's goal of national economic development. In addition, the state needed to control its own bureaucrats, who were using their political and administrative power to appropriate a part of the rapidly increasing national product.

Indeed, one of the principal problems confronting the reformers was the incentive for bureaucrats and government officials to enrich themselves by means of graft and corruption. Receiving benefits and salaries that paled in comparison with the sums which they handled daily, government officials throughout the country used their influence and position to collect

⁷"China to Amend Agricultural Law." *People's Daily*, June 24, 2002.

rents from enterprises and organizations under their administrative supervision. In response, the 2002 Agriculture Law made it a priority to “[protect] the property and other legitimate rights and interests of farmers and agricultural production and operation organizations from infringement” (Art. 7). Accordingly, two entire chapters (IX and XII) are devoted to protecting farmers’ rights and threatening administrative sanctions for those officials who violate these prescriptions.

Chapter IX of the 2002 Agriculture Law, entitled ‘Protection of the Rights and Interests of Farmers’, unambiguously establishes which kind of payments and fees government authorities may levy, and under which circumstances. The specific prohibitions and injunctions listed give an indication of the administrative practices common in the Chinese countryside during the nineteen-nineties: Article 67 (which is representative) states that “[f]armers . . . shall have the right to refuse to pay any charges for which there are no laws or regulations to go by. . . . No government department or unit may, by any means, make apportionment among farmers Farmers . . . shall have the right to refuse any apportionment made by any means.”⁸ As the state wanted to make clear that it was serious in protecting farmers from corrupt officials, it stipulated an entire catalog of sanctions for violations of the provisions of the law in Chapter XII, ‘Legal Responsibility’. These include, among others, the threat of administrative sanctions, criminal investigation, public shaming, the payment of compensation, and the return of any illegally obtained monies.

Besides protecting producers from government officials, the state also decided that it was necessary to “take measures to enhance the quality of agricultural products, establish a sound system for quality standards of agricultural products, and . . . [to] ensure the quality and safety of agricultural products” (Art. 22). Incentivized to lower unit costs as much as possible, agricultural producers during the nineteen-nineties had not always employed the safest production methods, which led to persistent violations of food quality standards. In

⁸The remaining articles of Chapter IX contain provisions detailing the various forms of apportionment the state deemed it necessary to explicitly interdict, including the collection of extraordinary education fees (Art. 70), the coercion of farmers into buying specific agricultural machinery or into selling products through certain market channels (Art. 72), and the reduction of the price or the withholding of payments from sellers.

response, the state promoted the establishment of a “sound certification and mark system for quality agricultural products” (Art. 23), a “system of animal and plant epidemic prevention and quarantine” (Art. 24), and a “system for the safe use of the means of agricultural production (Art. 25).⁹ In the grain sector, quality and safety concerns were so severe that reformers dedicated the newly inserted Chapter V, aptly entitled ‘Grain Safety’, to these issues.

Even as the state resolved to address these issues, it retained its overall commitment to market-oriented growth, and the development of the agricultural sector in particular. This was to be achieved through the continuing implementation of market institutions, as well as the establishment of a detailed regulatory framework. Indeed, the progress of market reforms and the increasing organization of production according to principles of profit-oriented governance did not induce the state to reduce its role in economic management and regulation. On the contrary, the 2002 Agriculture Law demonstrated the state’s desire to retain strong regulatory influence over all aspects of production and distribution.

Reformers were eager to promote the successful emergence of a market economy in agriculture by all means necessary. Accordingly, to increase productivity, the state decided that it would “take measures to develop industrial management of agriculture” and encourage “integrated operation of production, processing, and marketing” (Art. 13). The state further encouraged the establishment of “trade associations . . . to provide their members with services related to production, marketing, information, technology, training, etc.” (ibid.), and promoted “the formation of a rational regional distribution of agricultural production [sic]” (Art. 15).

In 1993, the Chinese state had set out to build a modern market economy within a few decades, and subsequently adapted its laws and institutions with remarkable stringency and

⁹Typical practices on the part of manufacturers and sellers, which the state decided to hold “responsible for the products they manufacture and sell” (Art. 25), can be deduced from the injunctions listed in the law: “They are prohibited from passing off inferior products as good ones, or fake products as genuine ones, or substandard products as standard ones; and they are prohibited from manufacturing and selling such agricultural means of production as pesticides, veterinary medicines, feed additives and farm machines, which are eliminated by State decree” (ibid.).

speed. Reformers realized that this would ultimately necessitate the subordination of the entire economy to the requirements of market competition: According to Art. 16, the state “guides and supports farmers ... in their efforts to readjust and optimize the structure of agricultural production *according to market demand* ... and to develop an agriculture with high quality, yields and returns in order to enhance the competitiveness of agricultural products in the world.” One of the central ways to achieve just this is “to increase the added value of products” (Art. 29) whilst encouraging “the development of import and export trade of agricultural products” (Art. 30). In particular, the government resolved to “[establish] a sound network for support and protection of agriculture, and takes such measures as financial investment, preferential taxation and banking assistance to support ... scientific research and popularization of technology, education and training, supply of the means of agricultural production, market information, quality standard, test and quarantine, commercialized services and disaster relief, farmers and agricultural production and operation organizations...” (Art. 37).

A further prerequisite to competitiveness, high productivity, and increased value-added in agricultural production is the establishment of modern industrial infrastructure in areas like transportation, irrigation, and rural energy supply. In the 2002 Agriculture Law, the Chinese state therefore instructed “People’s governments at all levels ... [to] strengthen ... the construction of infrastructures for agriculture and the rural areas” (Art. 17.) with a focus on “supporting readjustment of the agricultural structure and promoting industrial management of agriculture” (Art. 38).

Implementation and results

The execution of the objectives articulated in the 1993 and 2003 Agriculture Laws was ensured through the promulgation of further, more specific laws in areas, such as agricultural modernization and technology, food safety, animal husbandry, and land administration. Major pieces of legislation are listed in Table 5.3.

Table 5.3: Chinese legislation on food production and agriculture

Area	Promulgation date	Law
Agricultural modernization	July 2, 1993	Law of the People's Republic of China on the Popularization of Agricultural Technology
	June 25, 2004	Law of the People's Republic of China on Promotion of Agricultural Mechanization
Grain production	July 8, 2000	The Seed Law of the People's Republic of China (amended August 28, 2004)
	February 12, 2012	Grain Law (draft)
Animal husbandry	December 29, 2005	Stock-breeding Law of the People's Republic of China
Food and product safety	November 19, 1982	Food Hygiene Law of the People's Republic of China (amended October 30, 1995)
	April 29, 2006	Law of the People's Republic of China on the Quality and Safety of Agricultural Products
	February 28, 2009	Food Safety Law of the People's Republic of China
Land	June 25, 1986	Land Administration Law of the People's Republic of China (amended December 29, 1988, August 29, 1998, August 28, 2004)
	June 30, 1995	Guarantee Law of the People's Republic of China
	August 29, 2000	Law of the People's Republic of China on the Contracting of Rural Land
	March 16, 2007	Property Law of the People's Republic of China
	June 26, 2009	Law of the People's Republic of China on the Mediation and Arbitration of Rural Land Contract Disputes

Source: author's research.

Throughout the reform era, the state devoted considerable financial resources to implementing the mandated development program. As Figure 5.1 shows, support for agriculture increased during the post-Tiananmen era. Reflecting the mandate of the 1993 Agriculture Law, greater resources were devoted to capital construction projects beginning in 1997. Government support for agriculture grew further with the issuing of the 2004 ‘No. 1 Document’, which emphasized rural development, farmer incomes, social services for farmers, infrastructural modernization, and the improvement of the regulatory environment.¹⁰ More recently, the state resolved to develop grain production to the point where domestic output would meet 95 percent of the nation’s grain needs (USDA Foreign Agricultural Service, 2010c).

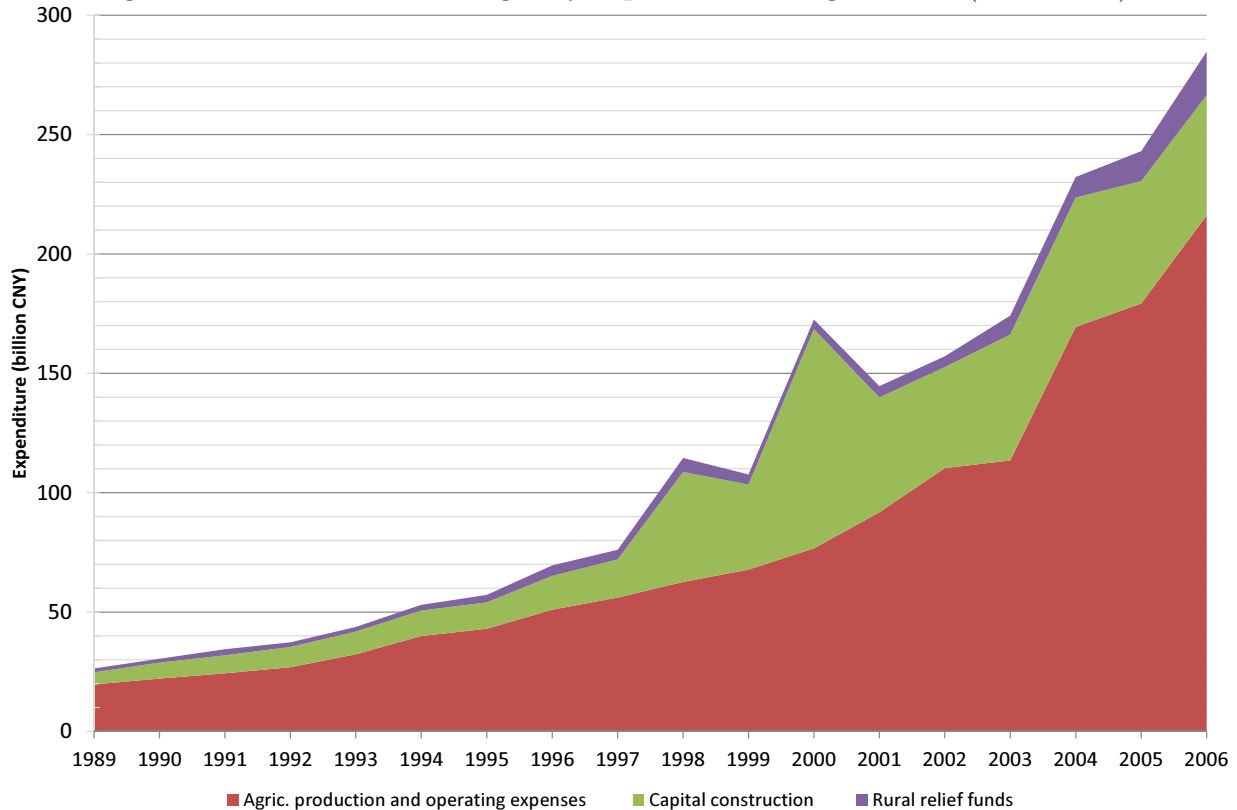
Following the global financial crisis, as well as a major drought affecting China’s grain producing regions, the Chinese government further accentuated its support for rural areas. The 2010 ‘No. 1 Document’ refers to the year 2009 as “the most difficult year for China’s economic development since the new century”, as farmers and food producers faced “abnormal fluctuations in international and domestic markets of agriculture products” (CCCPC and State Council of the PRC 2010). Pledging renewed emphasis on rural investment and policy support, the ‘No. 1 Document’ states that

[a]ll agencies and sectors should take a proactive approach in serving the needs for agricultural and rural development in favor of rural areas when plans, project development and fund increase are to be made. . . . Public spending on agriculture at all levels of government must grow at a higher rate than the growth rate of regular budget revenues (ibid.).

Funds were allocated toward continued subsidization of grain farmers and improvement of grain varieties, while subsidies for the acquisition of machinery, including livestock production and water-saving technologies, were increased. The state placed a particular emphasis on the modernization of animal husbandry, emphasizing the need to “[s]upport the devel-

¹⁰The Central Committee adopted the label ‘No. 1 Document’ for its annual rural policy directive in 1981 in order to demonstrate that “[rural] policy was a top priority” Du (2006, 4). After 1986, however, the government ceased to employ the term and returned to its previous system of chronological numbering of policies (ibid.). The decision to resurrect the label in 2004 is thus further testimony to the government’s renewed emphasis on rural development.

Figure 5.1: Chinese state budgetary expenditure on agriculture (1989–2006)



Note: Other expenditures include working capital for communes (phased out after 1983), technology trials and promotion promotion, and rural relief funds.

Source: USDA Economic Research Service (2011)

opment of breeding systems for livestock and poultry” while strengthening existing disease control and prevention methods (ibid.). Regarding China’s pervasive food safety problem, the state hopes to resolve food quality concerns by developing more upscale “green” (organic) products as a market by “[speeding] up the development of the agricultural product quality and safety supervision and inspection system, and vigorously develop hazard-free products, green products and organic products.”¹¹

The document’s strong focus on increasing resource flows to rural areas does not, however, amount to unconditional support for household farms and small agricultural operators. While

¹¹Organic products are rapidly becoming more popular among members of China’s affluent middle class, thus creating a new market for high-end agricultural. Between 1997 and 2011, the number of registered organic farms grew from 260 to over 1,500 (Euromonitor 2012). During the same period, the total land used in organic farming was expanded from 14,000 ha to nearly 1.9 million ha, implying an increase in average farm size from 54 to 1,158 (!) hectares (ibid.).

the document assures farmers that it will “[r]esolutely defend the ‘red line’ for farmland”, the focus of intended investment and subsidies is on larger organizations: “While keeping the structure of distribution of the existing level of subsidies unchanged, *the new increases in subsidies should be in favor of large grain farmers and specialized farmers’ cooperatives*” (ibid.; emphasis added).

Finally, the 2010 No. Document confirms China’s full commitment to the promotion of markets, ordering subsidiary branches of government to “[v]igorously develop the rural market” (ibid.). Specifically, authorities are expected to

improve post-sales service, strengthen market supervision, and prevent fake or poor-quality products from flowing into the countryside. Develop modern distribution systems such logistics management, supermarket chains and e-commerce, and support trading companies and postal service to extend to the countryside. Build sales points for consumer goods, agricultural inputs and products. Continue to support the Supply and Marketing Cooperative’s New Countryside Modern Distribution Network project, and improve the quality of service of chain stores in rural areas. Encourage rural financial institutions to provide consumption loans to farmers for building houses, purchasing automobiles and home appliances. Increase lending for opening shops in rural areas.”

5.3.2 China’s wheat production sector

China’s top ranking grain in terms of output is rice, followed by wheat. Since 1949, the proportions of rice and wheat total grain production have increased steadily; the significance in the growing relative importance of wheat can be attributed to its adaptability to various growing conditions, as well as the less sophisticated farming techniques required compared with rice (Sun 1988). Growing conditions for wheat vary significantly across Chinese provinces based on climatic and geographic factors. A predominantly arid country, China’s “distinctive pattern of wet summers and dry winters” (ibid., 208) is strongly influenced by the southeast monsoon. About 90 percent of the country’s agricultural and water resources are concentrated in the eastern monsoon region, where unpredictable weather conditions and alkaline soil hinder agricultural production (ibid.). In years when “the monsoons are too

weak to cross over to the Yellow River valley and become stuck over the central mountain belt” (Naughton 2007, 20), the northern monsoon region is subject to droughts while the Southern countryside is flooded (see also Sun 1988, 212).

Prior to 1949, grain deficiency plagued large parts of the country, including the coastal provinces of Guangdong, Fujian, Jiangsu, Hebei, and Shandong. Historically, China has relied on extensive grain management systems to ensure the delivery of surplus production from Heilongjiang, Jilin, Jiangsu, Anhui, Zhejiang, Hunan, Hubei, Jianxi, Guangdong, and Sichuan to supply grain to the historically grain-deficient provinces and regions of Liaoning, Shanxi, Shaanxi, Gansu, Ningxia, Inner Mongolia, Qinghai, Xinjiang, and Guizhou, as well as the Beijing, Tianjin, and Shanghai municipalities (*ibid.*).¹² Under Mao, the government initially relied on a central planning and distribution system for grain, but beginning with the Cultural Revolution the state placed an emphasis on local and regional self-sufficiency (Walker 1984).

Today, China’s main wheat growing regions are located in the areas surrounding the Huang, Huai, and Hai rivers, and include the provinces of Shandong, Henan, Hebei, Jiangsu (north of Huai River), Anhui, Sichuan, central Shaanxi, and southern Shanxi. In 2009, China’s top wheat producing provinces were Henan, Shandong, Hebei, Anhui, and Jiangsu, which together accounted for nearly 75 percent of total national output (Table 5.4). Wheat processing mostly takes place in regional urban centers, though some larger facilities are located in coastal provinces that are not themselves producers of wheat.

Following the 1978 Third Plenum, the Chinese state reformed the domestic grain sector, moving from a system of fixed prices and government procurement to one of market prices with targeted state intervention. These developments coincided with strong growth in wheat production: Chinese wheat production increased steadily from the beginning of economic reforms until about 1997 (Figure 5.2). During this time, domestic production was supple-

¹²Granaries were introduced in China as early as 54 B.C. and first became highly prevalent during the Tang Dynasty (618–907 A.D.) (Chai 2011, 19). For a study of the highly sophisticated granary system established during the Qing Dynasty (1644–1912), see Will and Wong (1991).

Table 5.4: China's top 5 wheat-producing provinces (2009)

	Production (1,000 t)	Share of total (%)
Henan	30,560.0	26.5
Shandong	20,473.0	17.8
Hebei	12,298.4	10.7
Anhui	11,771.6	10.2
Jiangsu	10,044.2	8.7

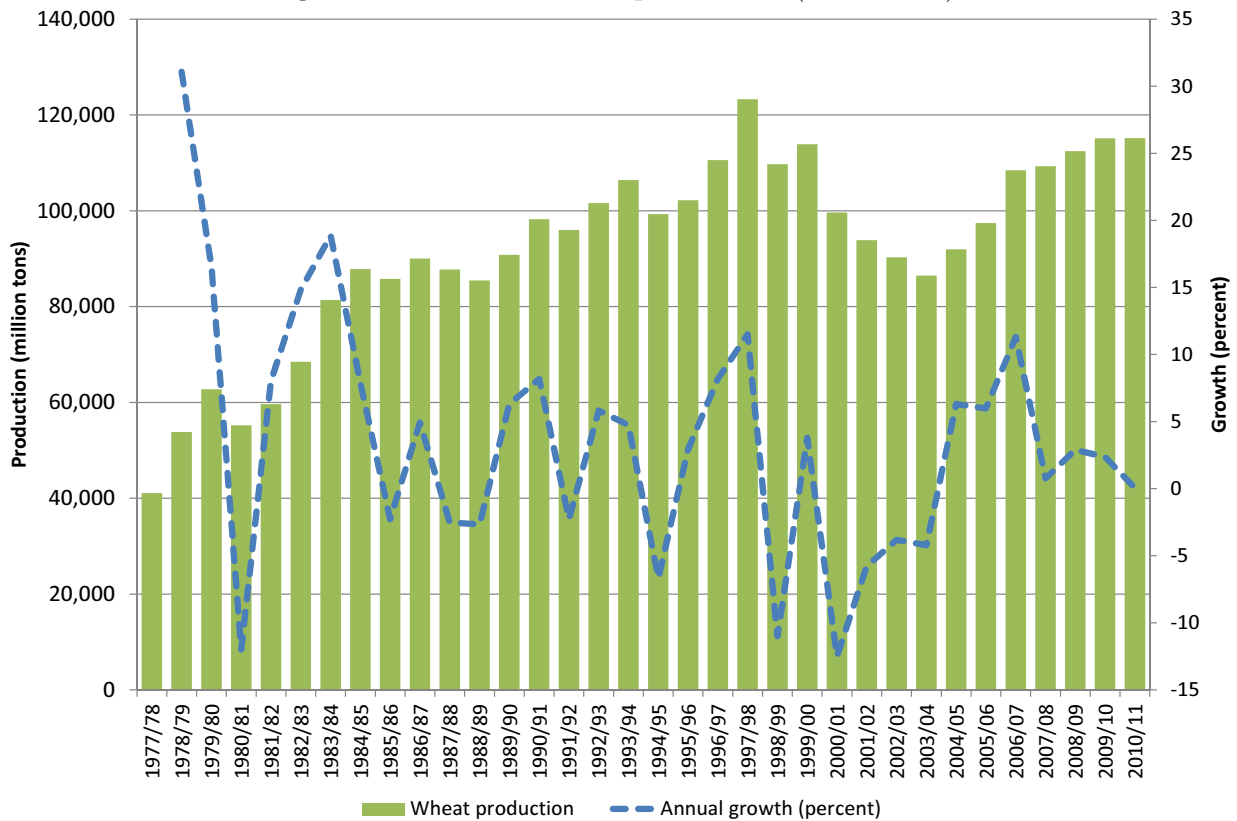
Source: USDA Economic Research Service (2011)

mented by imports to ensure a stable supply of food (Figure 5.3). Between 1997 and 2003, production declined by nearly 30 percent (Figure 5.2), due in part to imbalances arising from the government's price and procurement policies (Tian and Zhou 2005). Since 2004, a new system of intervention purchases and grain reserves, coupled with an extensive agricultural modernization program, has led to a recovery in production and a stabilization of domestic supply. This allowed China to significantly reduce its import dependency, approach domestic self-sufficiency, and even develop export capabilities in some years.

Until 2004, Chinese wheat policy was characterized by a move away from "strict control over production, consumption and trade by means of administrative measures" toward "a less controlled regime using increasing market forces" (ibid., 11). In 1985, following a succession of bumper harvests between 1980 and 1984, the government replaced the existing mandatory grain delivery quotas with a procurement system based on direct contracts with households. Because many farmers refused to sign contracts, the government resorted to various incentive measures to induce grain production (ibid.). The limited success of the measures combined with unfavorable weather conditions led to a stagnation of production levels between 1985 and 1989 (Figure 5.2).

Between 1989 and 1992, China pursued more conservative policies and eventually introduced a national grain reserve system. In 1990, the government pledged to purchase all excess grain from farmers at guaranteed minimum prices (ibid.), which allowed the state to not only stockpile wheat but also to release grain reserves into the wholesale market to depress prices if needed. Following the passage of the 1993 Agriculture Law, however, the

Figure 5.2: Chinese wheat production (1977–2011)

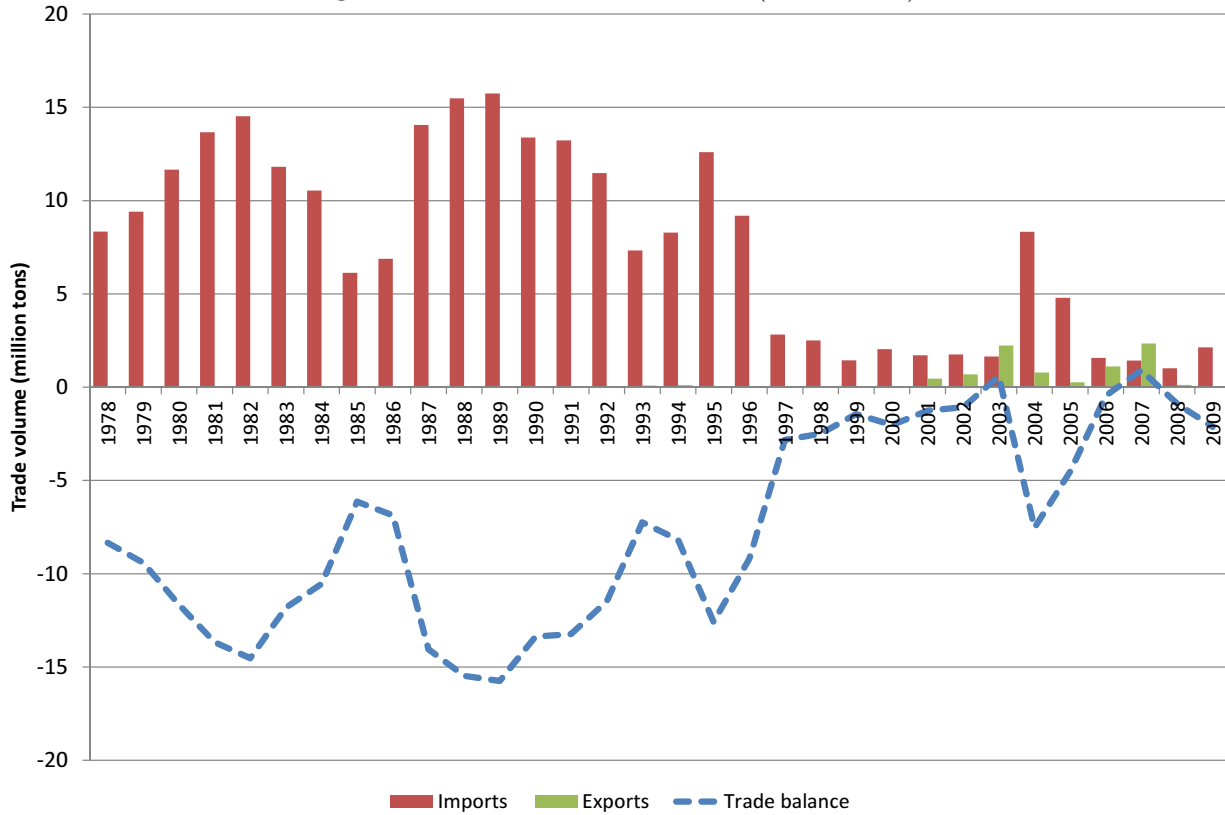


Source: USDA Foreign Agricultural Service (2012c)

reformers returned to their earlier ambition of expanding market regulation in the grain economy. In October of 1993, the government announced that beginning in 1994 the state would continue to procure grains but do so only at the market rate, a declaration that was followed by a sudden spike in market prices, which increased faster than those offered by state grain trading agents (*ibid.*). A decline in production in 1994 put output back under the 100 million-ton threshold, which had been crossed for the first time in 1992 (Figure 5.2).

In response to production declines, the central government ordered local authorities to procure and store more grains, while requesting that provincial governors “take responsibility to procure 70–80% of the marketed grains, to organise grain supply, and to keep prices under control within their territories” (*ibid.*, 13). Simultaneously, the state (temporarily) allowed greater imports to depress domestic prices and attempted to increase absolute production

Figure 5.3: Chinese wheat trade (1978–2009)



Source: FAO (2012)

capacity through policies, such as investments in irrigation infrastructure and land reclamation. The combination of measures succeeded, leading to three years of consecutive output increases (Figure 5.2). In 1997, however, due to the sudden increase in domestic supply, market prices began to fall again, causing farmers to abandon wheat production in favor of other, more lucrative lines of production, and leading to an output decline of over 10 percent in 1998 over 1997.

When China began to experiment with a new system of market interventions based on price floors in 1998, the system was initially plagued by some friction, as farmers sold low quality grain to the state grain marketing enterprises, which in turn exploited their “monopolistic position” (ibid., 14) in various ways. By 1999, the state had modified the parameters of intervention, ordering local governments and state grain authorities to purchase “surplus grain at the protective price without quantity limitation [while] setting the price

according to the grain quality” (Ministry of Agriculture of the PRC 2000, 50). The policy proved to be effective in the short run at “protecting farmers’ enthusiasm in grain production” (ibid., 50) — that is, it created financial incentives to ensure that a sufficient base of farmers remained engaged in wheat production — and domestic production increased slightly in 1999.

In 1999 and 2000, anticipating China’s 2001 accession to the World Trade Organization, “the government initiated further market-oriented reforms” (Tian and Zhou 2005, 14) and gradually lowered price floors. In 2002, the state deregulated grain markets in several provinces, including some of China’s grain-deficient regions. Beginning in 2000, the state moreover permitted greater exports of wheat and in 2003, the country became a net exporter for the first time. The state trading enterprises conducting wheat exports were state-owned prior to 1993, when they were “essentially transformed into entities responsible for their own operating results, which induced them to also become profit-seeking enterprises” (ibid., 16).

While grain exporters benefited greatly under the market environment of the early 2000 decade, wheat farmers saw their incomes decline and increasingly opted to plant cash crops or leave their land altogether in order to pursue better economic opportunities in China’s coastal cities. As wheat production fell for three consecutive years between 2000 and 2003, there emerged a growing recognition among farmers that they were no longer the ‘winners’ of China’s reform program. In addition to facing an unfavorable price environment, farmers were excluded from participating in the downstream distribution of their own products (which offered much greater revenues than primary production). The supply and market co-operatives, which farmers had been allowed to form in order to realize economies of scale and increase their bargaining power, had been restructured as *de facto* private enterprises. Although farmers were still their nominal shareholders, the cooperatives “never repaid profits to the farmers while the farmers obtained dividends a little higher than at the interest rate paid for bank deposits. Despite the farmers’ legal ownership of the supply and marketing co-operatives, their profits are of no significance in the management of the co-operatives and

the relation between the farmers and the supply and marketing co-operatives has changed into a buying-and-selling relation” (Han 2000, 224).

Under the Hu Jintao administration, a greater emphasis was placed on rural development and improving the situation of China’s farmers. First introduced for rice in 2004, a new minimum purchase price program for grain was expanded to include wheat in 2006 (Ministry of Agriculture of the PRC 2010). Undertaking various measures to lower the tax burden for farmers, the government successively reduced agricultural taxes and levies between 2000 and 2005 and abolished national agricultural taxes altogether in 2006 (OECD 2007, 74).¹³ The guidelines of the Eleventh Five-Year Plan (2006–2010), which implements many of the mandates of the 2002 Agriculture Law, provided a significant increase in direct and indirect payments to farmers in order to “[make] it profitable enough to entice farmers to produce grains instead of such other products as fruit and vegetables, which generally generate high returns” (United States International Trade Commission 2011, 4-8).

Since 2004, the government has implemented a strategy of grain market liberalization coupled with state participation in markets. While “qualified non-state firms” have been allowed “to purchase, sell, store, and process grains” (OECD 2005, 478), the government has retained considerable control over the wheat sector through its pricing and procurement policies, as well as the state grain trading and reserve system. As a part of China’s National Development and Reform Commission (NDRC), which manages the country’s grain balances, the State Grain Administration (SGA) oversees procurement, distribution, marketing, and import and export of the nation’s central grain reserves (*ibid.*). In addition to administrative duties, the SGA “also drafts and implements reform proposals” for national distribution channels and “provides guidance” to regional Grain Bureaus and the China Grain Reserves Corporation (Sinograin), which manages the “storage, delivery, processing, and import/export operations for the central grain reserves” (*ibid.*, 479). The Agricultural Development Bank of China moreover offers regional grain bureaus access to preferential financing funds for the purchas-

¹³Aubert and Li (2002) estimate that, in 2000, an average Chinese farmer spent about 10 percent of his net income on fees and taxes.

ing, storage and marketing of grains (ibid.). Finally, the state trading company COFCO administers policies regarding the trading of grain and other agricultural products (ibid.).

The overall production increase since the beginning of the reform era, and in particular, the period of uninterrupted annual production growth since 2004, are not simply a result of improved incentivization of producers. In fact, the wheat sector became significantly more productive during this period (Table 5.5). By 2010, an average Chinese wheat farmer was able to harvest nearly 2.5 times more wheat per hectare than his (average) predecessor in 1980. As wheat yields increased disproportionately relative to other crops, wheat began to occupy a growing share of total grain production. Importantly, these gains occurred despite the fact that the total harvested acreage decreased by over 15 percent.

Table 5.5: Trends in Chinese wheat production (1980–2010)

	1980	1990	1995	2000	2005	2007	2010
Area Harvested (million ha)	29.19	30.75	28.86	26.65	22.79	23.72	24.26
Yield (tons/ha)	1.9	3.2	3.5	3.7	4.3	4.6	4.7
Share of wheat in grain production (% of total)	19.7	24.3	24.4	24.5	22.7	23.9	24.1

Source: FAO (2012)

The productivity gains were accomplished through policy measures focused on infrastructural modernization and large-scale irrigation projects. The government carried out major investments to improve irrigation and transportation infrastructure in various provinces, including Jilin and more recently Heilongjiang, which have developed into major wheat suppliers to rest of the nation. Productivity increases were also fostered through measures directed at making farm level operations more efficient. The state offers subsidies enabling farmers to purchase agricultural chemicals, improved seeds, and agricultural machinery, and even relies on direct payments to ensure the production of basic food staples like rice, wheat, and corn (OECD 2009, 81). The results, as seen in Table 5.6, indicate that fertilizer application increased by over 200 percent, while total irrigated area grew by nearly 25 percent, with nearly two thirds being supplied by automated pumps today. Yet the most prominent gains were in the agricultural mechanization drive of the government — available farm machinery

increased four-fold.

Table 5.6: Mechanization and technology on Chinese farms (1980–2008)

	1980	1990	1995	2000	2004	2006	2008
Fertilizer application (kg/ha)	127.8	270.7	378.4	323.3	333.3	378.7	404.7
Irrigated area (1,000 ha)	44,888	47,403	49,281	53,820	54,249	54,478	55,751
Share using automated pumps (%)	56.4	57.3	65.3	66.8	66.8	66.2	67.7
Power of agricultural machinery (kw/ha)	1.5	3.0	3.8	4.1	4.3	5.2	6.0

Source: USDA Economic Research Service (2011)

As noted earlier, the most obvious way for a farmer to increase his output is by acquiring more land, which not only permits absolute output increases but also permits the exploitation of economies of scale (e.g., by deploying modern sowing and harvesting technology). Importantly, however, Chinese agricultural land was not privatized. Rather, as was discussed in chapter 4, the Mao-era People’s Communes were abolished and replaced by a system of household-based agriculture. Families were initially assigned plots of land, and subsequently permitted to lease land from the still-existing local collectives. Initially, egalitarian distribution of land within villages persisted despite government-sponsored markets for land leases — but with expanding job opportunities in China’s cities and special economic zones, growing numbers of peasants (especially holders of plots with poor location or soil quality) opted to seek employment as migrant workers in China’s urban areas and transferred their land usage rights to other operators. Today, although farmers cannot legally sell their land, the reforms in land usage and transfer rights amount to a regime of *de facto* private property. As Lohmar and Gale (2008, 15) note, China has been

strengthening farmers’ rights to land — although stopping short of allowing full ownership of land — so farmers can rent land, consolidate their holdings, and achieve efficiencies in size and scale. Moreover, agricultural officials seek to band small farms together into ‘production bases’ to supply uniform products to selected agribusinesses which, in turn, supply farmers with standardized inputs, technical information, and production credit.

Using survey data, Zhang et al. (2004, 1066-1067) have identified three common methods of farmland consolidation: “land trusts” (*tudi xintuo*), “reverse renting and sub-contracting”

(*fan zu daobao*), and “shareholding land co-operative,” or “land for shares” (*gutian zhi*). Such methods have permitted some agricultural producers to significantly increase the size of their landholdings (Dillmann 2009, 189-201). More recently, in its 2010 ‘No. 1 document’, the Central Committee underscored its intention to further the concentration of farmland through targeted investment and subsidies for larger operators: “While keeping the structure of distribution of the existing level of subsidies unchanged, the new increases in subsidies should be in favor of large grain farmers and specialized farmers’ cooperatives” (CCCPC and State Council of the PRC 2010).

Adapting to these developments, the household responsibility system introduced under Deng Xiaoping has changed considerably. As one recent study puts it, “[t]he household-based, smallholding agricultural production reinstated by the HRS has been transformed into specialized, commercialized, vertically integrated and larger-scale agriculture that is competitive in export markets” (Zhang and Donaldson 2008, 43). Agricultural product markets are competitive and free, making agriculture one of the most marketized sectors of the entire Chinese economy (Huang and Rozelle 2006; Rozelle and Huang 2010). One of the central elements of this transformation has been the emergence of contract farming (Guo et al. 2007). This process has been catalyzed by the government’s designation of large agro-business contractors as so-called ‘dragon head’ companies (Gale and Collender 2006).¹⁴ In exchange for their role in promoting rural development, these companies receive support from all levels of government, as well as direct financing from the Agricultural Development Bank of China (Guo et al. 2007, 288).

¹⁴As Gale (2003, 19) explains, dragon head companies

are selected or established by government authorities in localities to contract with farmers to procure produce with specific attributes. The dragon head company provides seed, operating loans, fertilizer and other inputs, and technical expertise. The company mills or otherwise processes the raw materials and sells products under a brand name often associated with the locality.

5.3.3 China's pig production sector

Accounting for over 70 percent of meat products consumed in China, pork is “used in a wide range of pig meat and offal recipes” and oftentimes “eaten for specific purposes or on particular occasions” (McOrist, Khampee, and Guo 2011, 961). According to recent estimates, an average Chinese consumer presently eats 38 kg of pork per year (ibid.). Fortunately, the country offers favorable geographic and climatic conditions for pig breeding, allowing farms to operate all across China except in the Muslim regions of Xinjiang, Inner Mongolia, and the Qinghai-Tibet plateau (Sun 1988). Pigs are most frequently bred in areas like the Yangtze River and Pearl River valleys, and north of the Yellow River in regions offering a “warm, subtropical climate, fertile soil, and abundant fodder from farm production” (ibid., 280). Today, most hogs are being bred in Sichuan, Henan, and Hunan provinces, which collectively account for about 30 percent of national inventories and meat output (Table 5.7). Large-scale commercial production of pork is primarily based in the coastal regions of Southern China, such as Guangdong, Fujian, the Yangtze River area, Sichuan, Guangdong, Hunan, and Jiangsu provinces. China's meat-processing industry is also concentrated in the coastal provinces, although some large processing firms can also be found in the urban centers of the interior regions.

Table 5.7: China's top 5 pig-producing provinces (2009)

	Hog inventory (1,000)	Share of total (%)	Hog slaughter (1,000)	Share of total (%)
Sichuan	51,220	10.9	69155	10.7
Henan	45,289	9.6	55087	8.5
Hunan	40,328	8.6	51436	8.0
Shandong	27,531	5.9	41557	6.4
Yunnan	27,362	5.8	28245	4.4

Source: USDA Economic Research Service (2011)

Depending on local conditions and natural resources, there are large deviations in methods of production and breed selection (ibid.). China currently boasts approximately 45 “extant native Chinese pig breeds” (ibid.). There is considerable variation among the differ-

ent types in terms of their culinary purpose; some were “bred over time for important and desirable traits such as fatty carcasses with lard deposition, a good foraging appetite and hardiness outdoors” (McOrist, Khampee, and Guo 2011, 961), whereas others were raised explicitly to maximize lean meat content (Hays 1980). The diversity in pig stock is believed to be the result of “centuries of crossing or mixing” and “the relative degree of geographical isolation” among breeders, both of which historically characterized Chinese swine production (ibid., 41).

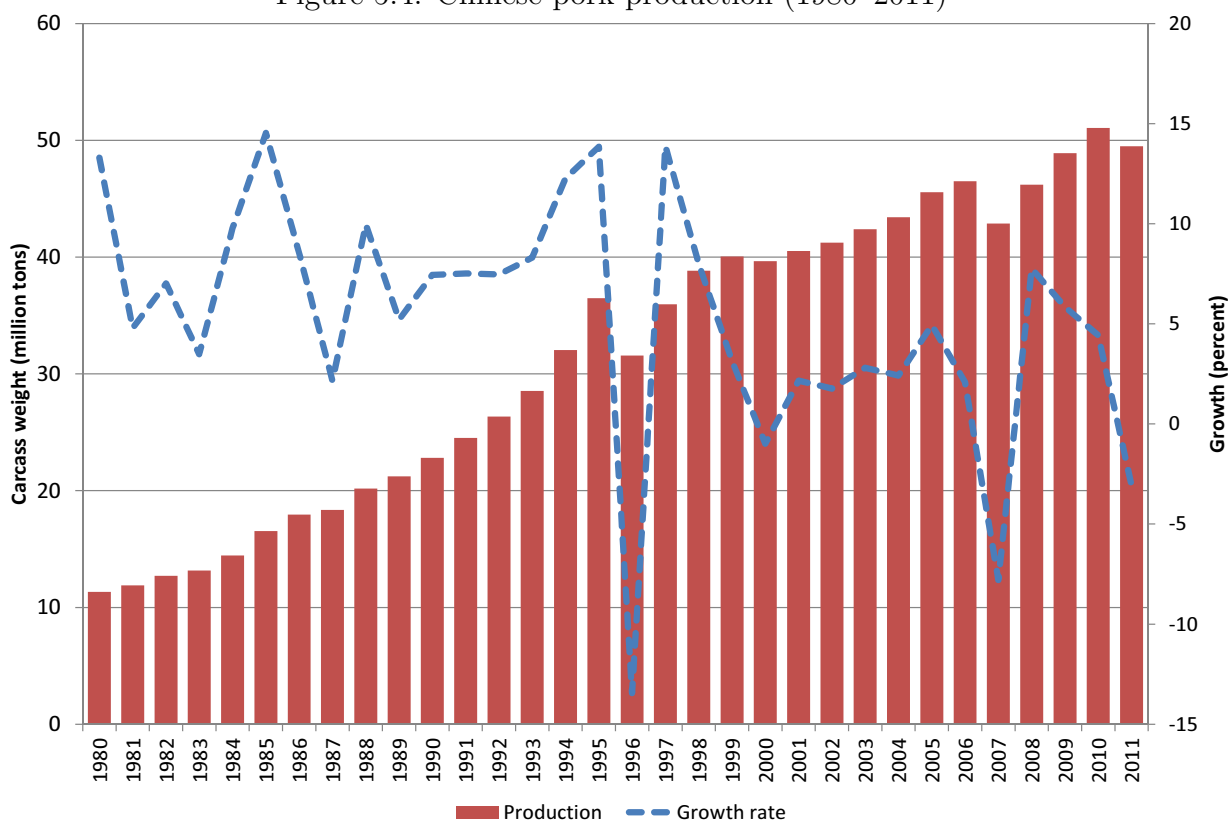
During the socialist era, China’s livestock economy suffered from considerable neglect, as the Mao leadership placed a strong emphasis on grain production and moreover restricted the number of animals which could be kept for personal use by families. Following the 1978 Third Plenum, the contract responsibility system transferred to households “the power to manage their own affairs regarding production and operations” (Wang and Xiao 2008, 11). That year alone, the purchase price of live pigs increased by over 25 percent, creating a strong financial incentive for more farmers to enter the livestock sector (ibid.). A 1979 field study of Chinese animal husbandry by a delegation of American scientists learned from interviews with local experts that “individual families [were] able to get their pigs to market weight more quickly than communally reared pigs [sic]”, and moreover that the

[p]erformance and survival of these family-owned pigs [were reportedly] superior to those of the pigs kept in the collective units. This superior performance is attributed to the individual care, protection from cold, and the more adequate food supply that can be provided. Often the pig is housed in a small sty attached to or near the family home. The potential income and food to be realized by sale of the pig encourages provision of extra labor to care for the pig and probably, if necessary, a sharing of the food supply” (Hays 1980).

At the time, rural household producers thus enjoyed a ‘natural’ comparative advantage over larger operators, prompting China’s reformers to further encourage the development of the nation’s livestock industry and to increase the contribution of animal husbandry to overall agricultural output (Wang and Xiao 2008). In 1984 and 1985, the government effectively subsidized the livestock sector by allocating additional grain shipments to households that

would increase their animal holdings (Huang 1996, 29). As a result, between 1978 and 1984, China’s total pork output grew nearly 85 percent to 14.5 million tons, and annual slaughtering increased by over 35 percent to 220.5 million heads (USDA Foreign Agricultural Service 2012c; see also Figure 5.4).

Figure 5.4: Chinese pork production (1980–2011)



Source: USDA Foreign Agricultural Service (2012c)

In January 1985, the central government took a decisive step toward building a market-oriented livestock economy by abolishing obligatory delivery quotas for farmers and liberalizing producer prices: “The fixed state purchase of pigs, aquatic products and vegetables in the big and medium size cities . . . will be gradually abolished. These products can be sold and traded freely on the market at the market price according to their quality” (CCCPC and State Council of the PRC 1985, 2).

Aided by further support measures, such as the state-funded “Vegetable Basket Projects” which were “aimed at boosting the supply of meat, poultry, milk, eggs and fish for urban

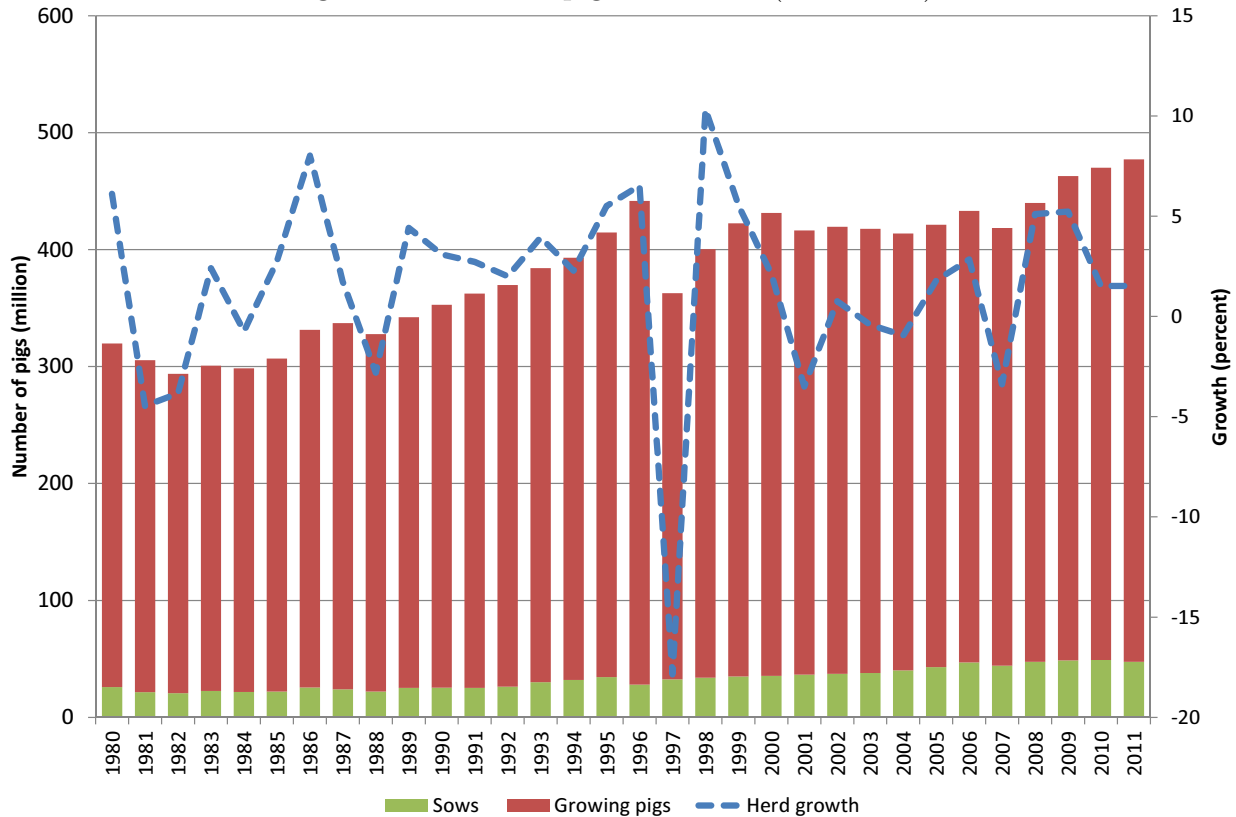
consumption by the city authorities” (Ministry of Finance of the PRC, Agricultural Finance Department 1989, 52), China’s hog industry entered a period of rapid expansion. Between 1984 and 1989, the sector grew at an annualized rate of nearly 10 percent (USDA Foreign Agricultural Service 2012c).

With the exception of two major single-year contractions in 1996 and 2007, the Chinese pig sector has continued its expansion, with absolute production growing nearly five-fold between 1980 and 2010 (Figure 5.4), although growth began to slow in the mid-nineties. Today, nearly all of China’s annual pig meat production is consumed domestically, so that essentially nothing remains to be traded. With a total output value of CNY 644.35 billion, the Chinese hog industry currently accounts for approximately half of the world’s annual pig production, as well as about 50 percent of China’s own livestock output (Wang and Xiao 2008, 9).

Today, China ranks first in the world in both inventory and slaughter of swine (477 million and 677 million, respectively, in 2010) (USDA Foreign Agricultural Service 2012c) and boasts 3,700 medium to large scale meat processing enterprises and 2,155 large scale slaughterhouses and meat processors, which produce goods such as smoked pork, sausage, and ham (Wang and Xiao 2008, 25). The number of small slaughtering facilities is estimated to exceed 30,000 nationwide (*ibid.*). Henan and Shandong provinces are home to some of the largest meat processors in the country and responsible for over 85 percent of sausage production in China, which boasts over 500 producers of sausage alone (*ibid.*). In 2004, meat processors brought in a total annual revenue of CNY 162 billion (Wang 2006, 37). The largest Chinese meat processor is Shuanghui Group, with an annual slaughtering capacity of 15 million hogs and a total output of over 100 million tons of pork (Wang and Xiao 2008, 25).

The rapid growth of China’s pig sector after 1992 was not achieved through a mere increase of absolute production capacity. As Figure 5.5 indicates, total pig inventories increased over the course of the reform period, growing about 45 percent between 1980 and

Figure 5.5: Chinese pig inventories (1980–2011)



Source: USDA Foreign Agricultural Service (2012c)

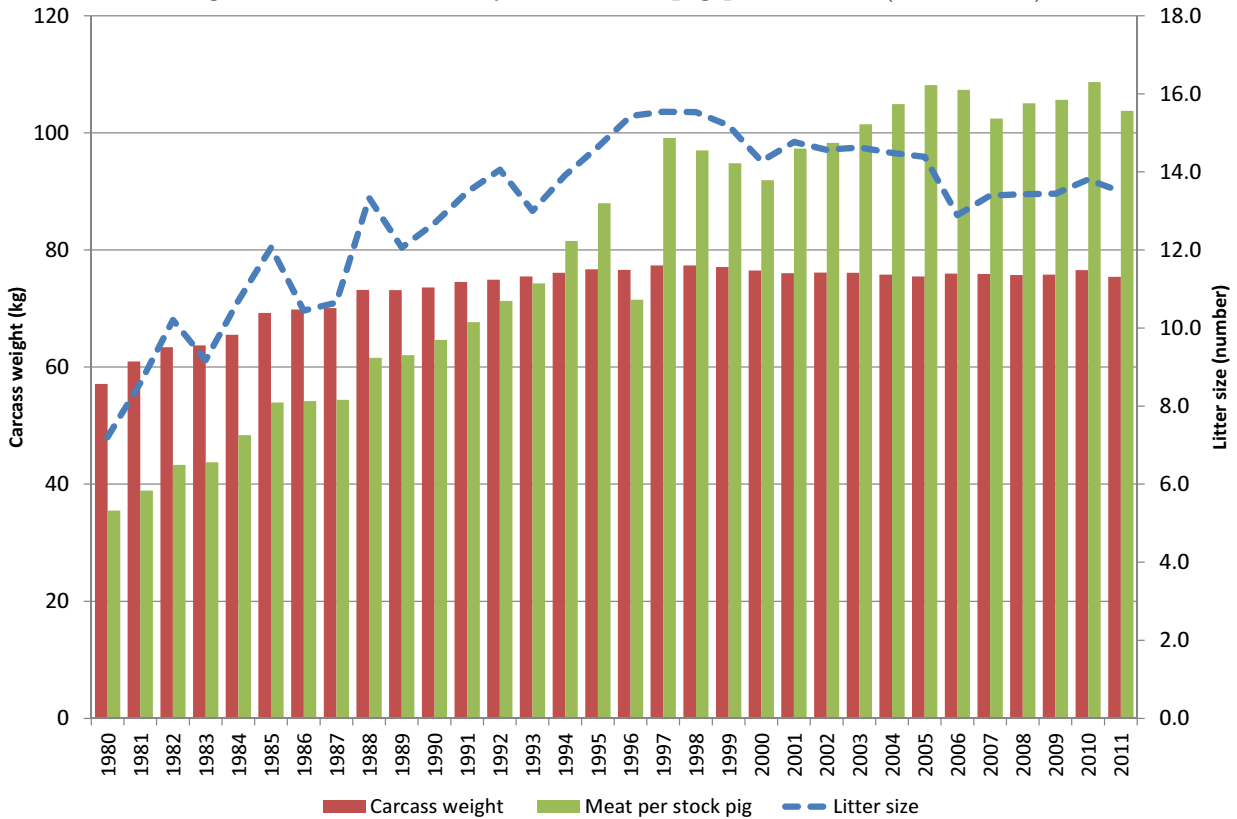
2010. During the same period, total meat output increased by 350 percent (Figure 5.4). As can be seen from Figure 5.6, the expansion in output occurred despite no increase in average carcass weight (meat per slaughtered pig). As the increase in meat per stock pig¹⁵ suggests, ‘pig level’ productivity grew significantly during the reform era — more importantly, average litter size also increased dramatically

These developments were no longer driven simply by efficiency increases among small-scale household producers but resulted principally from the government-sponsored development and promotion of new, more productive swine breeds. As early as 1985, the Ministry of Agriculture hailed the successful breeding of the ‘Lean Type Sanjiang White Pig’:

This new breed grows fast and at the age of six months, the live weight can

¹⁵Meat per stock pig is an indicator of overall herd productivity measuring total meat output in a given year relative to the initial inventory of growing pigs.

Figure 5.6: Productivity of Chinese pig production (1980–2011)



Source: USDA Foreign Agricultural Service (2012c)

reach 90 kg; 1 kg of weight gain consumes 3.5 kg of feed; percentage of carcass lean meat is over 58%; the meat colour is fresh and the meat is tender and juicy (Ministry of Agriculture of the PRC 1985).

The Sanjiang White, which is used primarily for bacon production, is a cross-breed between a Danish imported variety (Landrace) and the native Min Zhu type, and required multiple years of collaboration by researchers from different parts of China (Hays 1980). Since then, various additional breeds have been developed, exhibiting such characteristics as improved weight gain and resistance to parasites and diseases. More recently, large commercial pig breeders have been importing advanced breeding stock directly from specialized producers abroad.¹⁶

¹⁶“Just over 1,000 breeding pigs sent to China.” *PigProgress.net*, November 28, 2011. <http://www.pigprogress.net/news/just-over-1-000-breeding-pigs-sent-to-china-8053.html> (accessed December 1, 2012).

As a result of further government investment in areas such as infrastructure and breeding technology, both the quality and overall productive output of the Chinese pig sector continued to increase. In the the Ninth Five-Year Plan (1996–2000), the government made explicit provisions for the modernization of production and the development of an industrial value chain for livestock products. The mid-term report on progress in implementation highlighted some of the key “breakthroughs” (Ministry of Agriculture of the PRC 1999, 83) of the preceding years. Major accomplishments were noted regarding the “development of large-scale husbandry of major livestock and poultry and their industrialization technologies” (ibid.), including the construction of a domestic “elite livestock breeding system” which had already “developed a batch of fine-quality livestock and poultry breeds” (ibid.). The report also discussed the introduction of “key technologies”, such as “the application of molecular marking” which “aided selective breeding of lean-type pigs” (ibid.), methods for “animal breeding through embryo transfer” (ibid.), “new-type feeds and their industrialized production” (ibid., 84), and “technical integration” on large-scale livestock farms (ibid.).

Under China’s post-2004 agricultural modernization program, the government became more explicit in its desire to promote a globally competitive pig sector. To this end, it issued the ‘Stock-breeding Law of the People’s Republic of China’ (December 29, 2005), which makes support of livestock sector development a legal requirement of the state and its subsidiary branches:

The state shall support the development of livestock and give full play to the role of the livestock in the development of agriculture, rural economy, and increase of farmers’ income. The people’s governments at or above the county level shall take measures to strengthen the construction of the basic facilities for stockbreeding, encourage and support the development of breeding on a large-scale basis, push forward the industrialized operations of stockbreeding, promote the comprehensive production capacity and develop stockbreeding into a high-quality, highly efficient, ecological, and safe industry (Art. 3).

More recently, the extensive financial support for large-scale hog farms manifested itself in a fundamental transformation of the sector’s organizational structure and ushered in the

decline of backyard production. As Table 5.8 shows, in the short period between 2007 and 2009, over 15 million (!) small farms (less than 50 animals) exited the industry, while the number of very large operators (over 50,000 animals) nearly doubled. Today, large-scale integrated hog breeders, such as the Guangdong-based Wens Family Farms (350,000 sows)¹⁷ or Henan-based Muyuan (50,000 sows), rival Western producers in terms of their production technology and performance:

In general, the organization of commercial producers in China is similar to that in developed countries. . . . [M]ost of these farms are integrated, from feed supply, sow-piglet production, pig finishing, slaughter-processing, and distribution. They maintain their own transport and storage facilities. Although they sell some of their production through the wet market, they mostly cater to supermarkets, hotels, restaurants, and other institutional buyers. Also, they have access to the export markets, including Hong Kong, Russia, the Middle East, and other Asian countries (Fabiosa, Hu, and Fang 2005).¹⁸

Table 5.8: Chinese pigs farms by annual slaughter volume (2007–2009)

Annual slaughter (number of pigs)	Number of farms			2007/2009 (%)
	2007	2008	2009	
1–49	80,140,750	69,960,452	64,599,143	-19.4
50–99	1,577,645	1,623,484	1,653,865	4.8
100–499	542,014	633,971	689,739	27.3
500–999	83,731	108,676	129,369	54.5
1,000–2,999	30,053	40,010	46,429	54.5
3,000–4,999	6,146	8,744	10,342	68.3
5,000–9,999	2,840	4,172	5,117	80.2
10,000–49,000	1,803	2,432	3,083	71.0
50,000 and above	50	69	96	92.0

Source: USDA Foreign Agricultural Service (2011c, 7)

Already subject to stiff competition from larger, more technologically advanced opera-

¹⁷Inventory data are taken from McOrist et al. (2011, 963) and current as of March 2011. Both producers, which now rank among the largest in China, expanded their capacity significantly in recent years. Wens Family Farms had an inventory of 110,000 sows in March 2008 and thus grew by over 200 percent over a mere three years; Muyuan’s expansion during the same period was even more spectacular, with inventory growing by more than 350 percent from the March 2008 stock of 11,000 (ibid.).

¹⁸Some firms, especially large, vertically integrated producers and meat processing enterprises, were more over able to attract foreign investors or participate in joint-venture projects, thus allowing them to both upgrade their means of production and acquire improved know-how of industrial livestock production (Wei and Cacho 1999).

tors, the outlook of backyard producers worsened further following the outbreak of several swine epidemics in 2007 and 2008, including the highly infectious Porcine Reproductive and Respiratory Syndrome (PRRS)¹⁹ — also known as ‘blue-ear pig disease’ in China —, which spread to 22 regions in under six months.²⁰ The disease, a viral infection that induces high fever and typically leads to a pig’s death, is highly infectious and requires careful management to prevent the destruction of an entire herd. Small-scale producers lack the space and facilities to effectively quarantine infected animals, leading to disproportionately high pig mortality rates (USDA Foreign Agricultural Service 2009). Although the government later offered subsidies to small producers to encourage the rebuilding their inventories (ibid.), the principal emphasis of government support remained on large agricultural enterprises. In particular, these organizations were found to be far more effective at disease prevention and management than their backyard counterparts. An article published in the *People’s Daily* in August 2011 features the case of Henan-based producer Chuying, which was able to leverage its size and superior access to capital to construct advanced housing facilities and implement far-reaching security measures to prevent the spread of PRRS and similar diseases:

Chuying divided the traditional raising process into four stages — pregnancy, delivery, care of baby pigs, and raising them to market size. The farmers are guided by trained technicians and are involved in just a single process, which can prevent the spread of disease. . . . To get into Chuying’s No. 1 Breeding Base, a car passes twice through sanitation showers about 300 meters away. Technician Liu Qingfeng said visitors cannot enter unless two days have elapsed since they visited another farm, and they must wear protective clothing.²¹

Aside from their greater capacity for disease control, large-scale pig producers displayed a series of additional characteristics that made them worthy of enhanced subsidization. In an environment of highly volatile prices — largely the result of fluctuations in herd size and meat output, which had been induced by the restructuring of the sector and compounded

¹⁹For a concise overview of the disease, see <http://www.thepigsite.com/diseaseinfo/97/porcine-reproductive-respiratory-syndrome-prrs>.

²⁰“Blue-ear disease breaks out in 22 Chinese provinces, says chief veterinarian.” *People’s Daily*, June 12, 2007.

²¹“Pig farmers hope to breed success”, by Yang Wanli and Shi Baoyin. *China Daily*, August 22, 2011.

by the aforementioned epidemics — industrial operators were expected to realize “more predictable returns by entering into production contracts with slaughter facilities” (United States International Trade Commission 2011, 4-9).

Since the second half of the 2000 decade, large-scale pig producers have enjoyed widening profit margins, owing to a rapid increase in consumer spending on food and meat in particular. Between 2007 and 2009, the market for consumer meat products grew at an annualized rate of over 20 percent (Figure 5.7). Unsurprisingly, small-scale producers were unable to keep up with the more sophisticated capitalist production and marketing practices of vertically integrated pork enterprises.²²

In an environment of high prices and emerging limits to consumer spending ability, many food producers have resorted to alternative means of expanding their profit margins. Instead of — or sometimes, in addition to — increasing revenues through further prices increases, these producers have attempted to lower their manufacturing and procurement costs by economizing on product quality and safety. In 2011, it was discovered that pig breeders across China had been feeding their animals the metabolic enhancer clenbuterol, which causes meat to become leaner and is cancerous to those who ingest it.²³ Reacting to these phenomena, Chinese consumers are increasingly refraining from purchasing freshly slaughtered pork on wet markets, buying packaged meat from supermarkets instead (Gale et al. 2012).

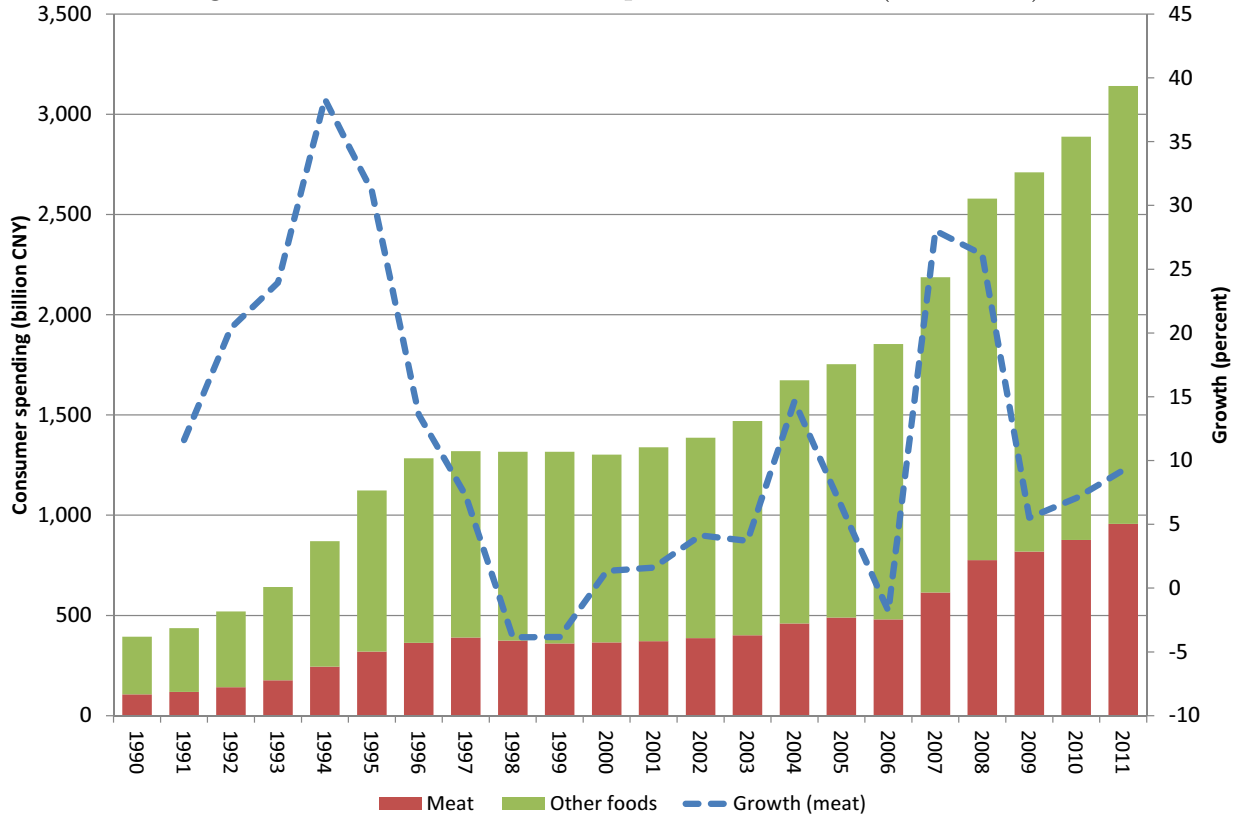
Benefiting from consumers’ appetite for meat, producers of pig meat have enjoyed several periods of major increases over the past five years (Figure 5.8). However, as an analyst of the *Financial Times* explains, recent fluctuations in Chinese pork prices are not the result of deliberate farmer action, as many small-scale producers are ‘price-takers’:

China’s pork prices move in a 36-month, boom-and-bust cycle because many pigs are still raised in small backyard farms by farmers who decide how many pigs to raise based on current pork prices. When pork prices rise, there tends to be a

²²Interestingly, the resulting decline in the absolute number of small-scale hog was a predominantly coastal phenomenon, whereas the scale of backyard production in China’s poorer inland provinces actually increased in recent years (Qiao et al. 2011).

²³“China bans production, sale of clenbuterol.” *China Daily*, September 30, 2011.

Figure 5.7: Chinese consumer expenditure on food (1990–2011)



Source: Euromonitor (2012)

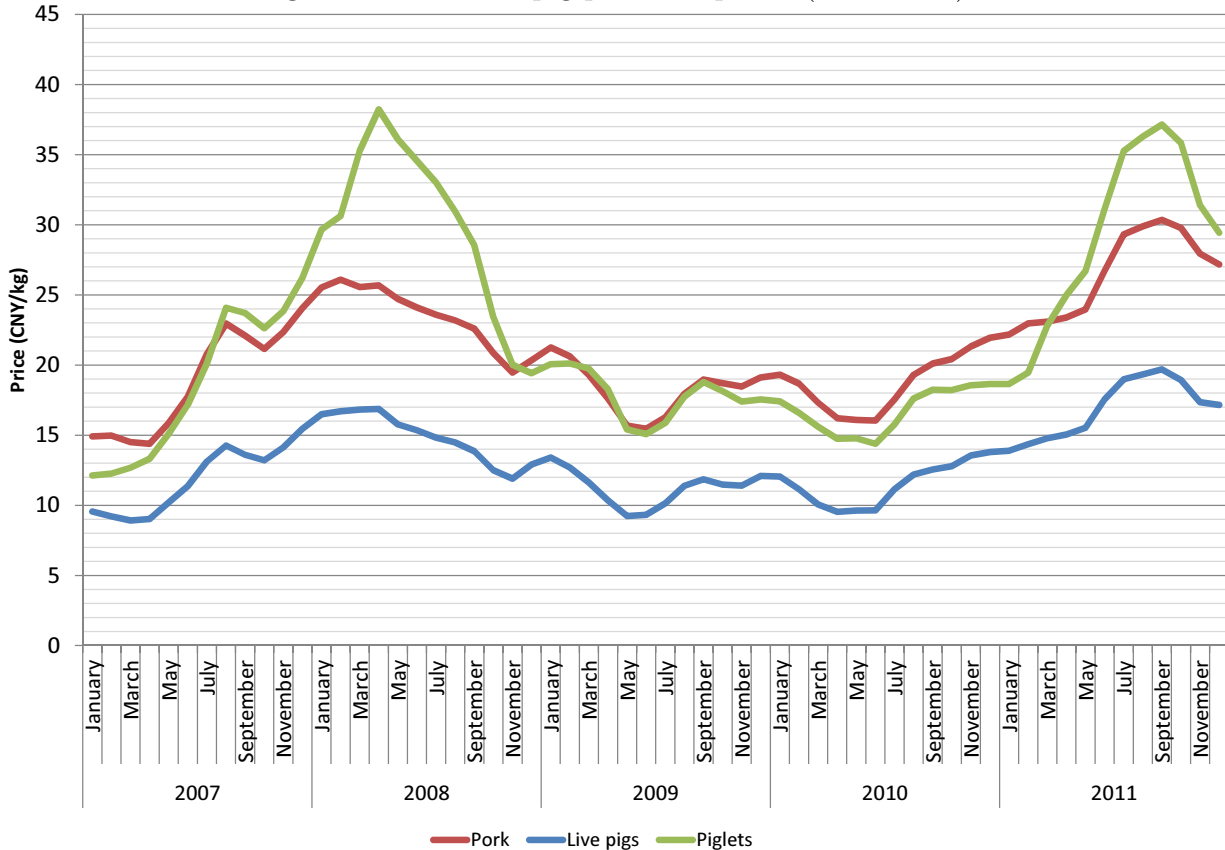
glut of pigs on the market about 18 months later. And vice versa when prices fall. The classic hog cycle. ... China's pork-raising is ... gradually moving from small backyards to large-scale farms, which will even out the price cycles as big farms usually raise a constant number of pigs.”²⁴

These cyclical price movements were exacerbated by the absolute decline in China's hog population resulting from PRRS and other swine diseases, causing producers problems in meeting consumer demand and thus leading to higher prices (USDA Foreign Agricultural Service 2012b). The Chinese government, troubled by threat of social unrest due to price inflation,²⁵ decided to intervene by directly participating in the wholesale market for pork. To this end, a national pork reserve was established, holding some 200,000 tons of frozen

²⁴“Pork prices fall, politburo rejoices.” by Leslie Hook. *Financial Times*, October 28, 2011. <http://blogs.ft.com/beyond-brics/2011/10/28/pork-prices-fall-chinas-politburo-rejoices/> (accessed October 29, 2011).

²⁵“Surging Chinese price rises fuel protests”, by Jamil Anderlini. *Financial Times*, June 14, 2011.

Figure 5.8: Chinese pig producer prices (2007–2011)



Source: USDA Foreign Agricultural Service (2012b, 8-9)

pork, which can be selectively released onto the market to depress prices.²⁶ Coupled with government announcements to rebuild and expand absolute production capacity through further investment, this measure succeeded in stabilizing prices (Gale et al. 2012).

While many small industry participants may have doubts about their economic future, large-scale pig production continues to be viewed as a highly promising market by investors, attracting even the attention of capital from other industrial sectors. In March 2012, the *People's Daily* reported that the Wuhan Iron and Steel Group, faced by tough conditions in the metals market, found it prudent to invest CNY 39 billion (over \$6 billion) to construct a pig farm holding 10,000 animals.²⁷

²⁶“China Plans to Release Some of Its Pork Stockpile to Hold Down Prices”, by Michael Wines. *New York Times*, July 15, 2011.

²⁷“Steelmaker invests in pig farm”, by Cheng Anqi. *People's Daily*, March 7, 2012.

5.4 Russia

5.4.1 Background and policy context

Market transition in the Russian food economy was fundamentally shaped by state behavior. As Wegren (1998, 228) puts it, “[t]he Russian state — by defining reform legislation, influencing farm operations, and affecting the larger economic environment — lies at the center of reform results.” As demonstrated in the preceding chapter, the reform process initiated under Gorbachev and accelerated under Yeltsin following the dissolution of the USSR was driven by the explicit desire to introduce capitalist markets and political democracy. Reformers believed that a ‘Western-style’ market economy would be more effective than socialism at ensuring both the nation’s food security and economic growth. By reducing state involvement in the food economy, reformers hoped to transform the latter into a sphere of self-fueling accumulation, in which private economic actors compete with each other for market shares. In the system reformers hoped to implement, these actors would carry out all decisions concerning the production and distribution of food in a manner akin to the ‘Pareto-efficient’ outcomes produced by a market in an economics textbook. While the state indirectly benefits from private sector accumulation through taxation, it no longer actively participates or intervenes in the economy. Reformers believed that this system would simultaneously improve popular welfare by increasing both the absolute availability and variety of food products.

Reforms in the food economy were carried out rapidly following the prescriptions of the ‘shock therapy’ approach advocated by international development agencies, as well as Yeltsin’s own economic advisers. Farms, wholesale enterprises, food processing plants, and retail stores were privatized in quick succession (Wegren 1998). In the farm sector, the majority of *sovkhoses* and *kolkhoses* were privatized through a mass privatization program between 1992 and 1994 — a process which disproportionally benefited managers and agricultural elites (Barnes 2006). Along with primary production, Russia’s food processing and

manufacturing sector has undergone a combination of mass privatization, insider privatization, and strategic government sales (Barnes 2006). In food retail, nearly all state-owned outlets were privatized during the early transition years (Radaev 2004).

As the last chapter illustrated, simultaneous liberalization of food prices meant that newly privatized farms and food enterprises were immediately exposed to competitive market pressures. Incentivized to make a profit, but lacking the requisite organizational restructuring, food producers resorted to price increases. The resulting inflation forced many farms and processors to cease operations, as suppliers of agricultural inputs and technology raised prices, thus hindering both the maintenance of equipment and infrastructure, as well as the introduction of improved production methods (Wegren and O'Brien, 2002). Declining consumer purchasing power coupled with removal of state subsidies left domestic producers even more vulnerable to the harsh competitive environment unleashed in the wake of trade liberalization.²⁸ As a result, Russian enterprises were outcompeted by foreign importers and retail chains, which not only offered a greater variety and quality of foodstuffs to consumers but also produced such goods in a more cost-efficient manner.

Thus, the “radical economic transformation” (Kalugina 2000, 87) of the agrarian sector, which focused on land reform, reorganization of collective and state farms, and development of a private farm sector did not lead to greater output or growth, but instead resulted in the competitive redistribution of existing goods and money alongside the dismantling of the inter-organizational division of labor. The economic crisis that followed was characterized by massive year-on-year declines in food output, thus endangering the basic reproduction of the population. The following report from the *New York Times*, published in March 1992 (one month after the liberalization of food prices), describes the situation:

How people and enterprises have survived these weeks is something of a mystery, considering tumbling production, a breakdown in economic links between former Soviet republics, a host of new, and some argue paralyzing, taxes and other

²⁸Real incomes declined in large part due to the drastic increase in food costs following the liberalization of prices in 1992 (see Figure 4.7 above).

obstacles thrown in their path during this rough-and-tumble economic transition. . . . How, for instance, to explain how a factory, which has seen its government contracts cut back eight times and its prices shoot up four times and more, can give its 20,000 workers a pay raise in January of 250 percent? Or how a family of three with a combined income of 3,000 a month can afford to keep food on the table, when sausage costs about 50 rubles a pound and the cost of sending a child to kindergarten has gone up to 1,000 rubles a month?²⁹

One of the few ways by which consumers did survive was through subsistence production on garden plots and community orchards. While household agriculture thrived out of necessity, the remainder of the food economy entered a prolonged recession. Large farms suffered from the most severe production declines, as producer wholesale prices grew significantly slower than agricultural input prices (Wegren 2010). The dilapidated state of agriculture was further aggravated by a general shortage of credit due to the lack of a functioning domestic financial sector. Russia's new domestic capitalists, the oligarchs, were drawn to the raw materials sector, where commodities, such as oil or aluminum, promised revenues that were not only higher than those of agricultural products but moreover traded in foreign currency (which was not subject to the ruble's ongoing devaluation). Large farms thus "felt a financial squeeze in both revenue and expenditures" (ibid., 200), leading to widespread unprofitability and unserviced debt and making write-offs a "continual practice" (Yanbykh 2000, 426).³⁰

The privatization of farmland also failed to yield the anticipated results. By the early nineteen-nineties, "the legislative basis for the creation of a mixed economy in the agrarian sector had been created, and every rural worker had a choice of forms of land ownership and farm management" (Kalugina 2000, 88), yet only a "rudimentary land market" (Wegren and O'Brien 2002, 10) emerged. Reformers had originally hoped that by providing an appropriate legal framework, private ownership of land, and freedom to exit the corporate farm, they could encourage farm employees to leave their parent organizations in order to be-

²⁹"Russia's Ruble Gamble: A special report", by Celestine Bohlen. *New York Times*, March 1, 1992.

³⁰Chinese farmers, by contrast, were not immediately exposed to market competition. With a focus on monetizing the rural economy, reformers initially raised procurement prices and created further financial incentives by permitting farmers to sell production in excess of state delivery quotas at market prices.

come self-reliant agricultural producers. These policies constituted a considerable expansion in the formal rights of Soviet farm workers, who were already subject to fewer restrictions than Chinese peasants. Nonetheless, Russian farmers had limited incentive to leave their existing organizational arrangements (Yanbykh 2000), given the politically and economically uncertain climate and the lack of “reliable law enforcement mechanisms” and “competitive, non-monopolistic market services” (Lerman 1997, 331). As Wegren and O’Brien (2002, 9) note, merely a third of peasant families opted for independent farming, adding that “more undoubtedly would have done so in a more favorable macroeconomic environment.” Lerman (1997, 331) summarizes the institutional outcomes of post-Soviet reforms in agriculture:

After five years of reforms, it is clear that the emerging structure of agriculture ... is different from the initial expectations. ... [D]espite all the changes, the restructuring of the collective sector has been slow and relatively superficial. Most land still remains in collective (although ‘privatised’) ownership.

The 1998 devaluation of the ruble against foreign currencies had serious implications for the food industry, causing a “sharp contraction of food imports” (Yastrebova 2000, 348). In particular, special banks that had previously provided limited financing to agriculture went bankrupt during the crisis, causing a credit crunch for both farms and food processing enterprises (Yanbykh 2000). Moreover, informal out-of-market transactions, such as “barter and payment-in-kind ... [became] an even more common practice” (Yastrebova 2000, 348), as farms continued to accumulate unsettled debts.

In 1998, nearly 90 percent of Russian farms were unprofitable (Wegren 2010, 202). Though many farms survived only by resorting to non-market activities, some farms were able to persevere despite the adverse institutional and economic conditions under which they operated. According to Kalugina (2000, 90),

In each Russian province some agricultural enterprises are functioning successfully despite the current unfavorable conditions. What is notable is that these farms have managed to adjust promptly to the new economic environment: they have studied the market situation, identified the most profitable channels for selling their products, and restructured their production according to market

requirements. They have successfully developed processing of agricultural products and are selling their products through a network of their own stores, retail markets, or trusted wholesale agents, at better prices than they could otherwise command.

As Serova (2000a, 116) observes, the food sector has become “responsive to price signals”, and farms now enjoy greater choice and diversity in marketing channels, with some organizations “[demonstrating] a financial discipline that is remarkable for Soviet-type producers” (ibid.). By the end of the decade, there was thus “a certain amount of progress in the economic behavior of agricultural agents” (ibid., 117).

A process resembling the stage of “primitive accumulation” described by (1968a [1867]: 740-744) had been set in motion (cf. Kotz 2001). Although the observation may not hold for the entire Russian economy,³¹ the agricultural sector witnessed farms exhibiting market-oriented behavior as they acquired the requisite resources to restructure their operations according to the new conditions. In other words, some agrarian businesses persevered in the face of market competition, revealing themselves (in hindsight) to be capable of accumulation through efficiency gains and consolidation of their operations.

In 1998, following Russia’s sovereign debt default and the resulting devaluation of the ruble, central government control over the food economy weakened, as regional governments started to act autonomously in regulating markets by imposing price controls within their administrative territories. For instance, one review of Russian food policy notes that various regional authorities implemented policy measures aimed at controlling food trade and prices, in response to “monopolistic behavior” (Csáki et al., 2002, 22) on the part of local processing enterprises. In many areas, *oblast* governments controlled the sale of grains via a system of “commodity credits” (ibid.), allocating budgetary resources during the sowing season, which would be repaid upon the completion of the harvest (oftentimes through barter deals).³²

³¹Kotz (2001, 157) argues in an assessment of Russia’s broader institutional trajectory that the Yeltsin reforms did not initiate primitive accumulation but rather gave rise to a “non-capitalist predatory/extractive system.” He predicted that there would likely be “continuing technological regress, demographic disaster, authoritarian rule, and [a] possible disintegration of the Russian state” (ibid.).

³²This type of “monopolistic behavior” was an inevitable result of Russia’s economic geography in food

Due to this devolution of economic management, which occurred at a time when agricultural output capacity had already been severely diminished, Russia was forced to request foreign food aid for the second time in a single decade (Wegren 2010).

Thus, when Vladimir Putin replaced Boris Yeltsin as Russia's president on December 31, 1999, he faced an agricultural situation which "was bordering on catastrophic" (Wegren, 2010, 201). Drastic changes in government food policy were initiated shortly thereafter. In July 2000, a mere six months into the Putin presidency, the state adopted the 'Basic Directions of Agro-food Policy to 2010', a new agrarian policy framework which entailed greater federal investment, financial subsidies, and various forms of direct and indirect support (Wegren and O'Brien 2002, 13; see also Wegren 2010). With the hope of revitalizing the national food economy, the new Russian government implemented a comprehensive agriculture development program, with a particular emphasis on the expansion and upgrading of domestic production and the reduction of import dependence food products (especially meat). Following what Wegren (2011b, 213) described as a "Keynesian approach", the state also adopted various measures to ensure a more long-term orientation among producers.

Focusing on improved access to capital and mitigation of production risks, this program of financial renewal allowed farms to restructure their debt and write off accumulated penalties and fines. In 2001, the government established a state-owned agricultural bank (*Rossel'khozbank*) with various regional branches — both to make credit available to farmers and to oversee planned infrastructural modernization projects. In addition, the state supported the creation of a crop insurance program, as well as a price support system for grains (Wegren 2005b, 226-235; OECD 2009, 122). Starting in 2003, small producers began to benefit from favorable taxation policies, under which they were allowed to sell food produced on private plots at no tax (Wegren 2010, 204). Small-scale producers moreover enjoyed an increase in subsidies and preferential financing, thus allowing them to acquire machinery

production. Because primary producers could not market their products regionally or nationally (due to lack of credit, infrastructure, etc.), they were forced to sell to local processing enterprises which would pay unfavorable prices (77).

and livestock and encouraging the introduction of new technology on Russia's "chronically undermechanized" (ibid., 204) private and household farms. Furthermore, a new law on agricultural land mortgaging, adopted in 2004, permitted the farmers to use their land as collateral to obtain credit lines to finance future production cycles, although the sale and purchase of land remained subject to restrictions (ibid.).

A mere three years into the Putin administration, these policies were beginning to deliver promising results from the standpoint of the state. As Ioffe and Nefedova (2002, 84) observe, "there is a large amount of evidence that farms are being economically resurrected by emerging [sic] direct links with processing operations", as demonstrated by the fact that several meat-processing plants entered into purchase agreements with previously unprofitable farms (ibid.). One of these plants, Cherekizovsky — a legal predecessor of Cherkizovo, now Russia's largest meat processor³³ — went further than signing procurement contracts and acquired multiple pig farms of its own (Ioffe and Nefedova 2002, 84).

Unlike the administration under Yeltsin, the Putin government was willing to use direct market intervention, such as price regulations for basic foodstuffs, as a policy tool to support domestic food producers and consumers. Beginning in 2001, the state regularly carried out grain market interventions; by 2002, these transactions already amounted to more than 5 billion rubles (Wegren 2005c, 114). Concurrently, the government adopted various protectionist food trade policies, geared toward stemming rising food imports (Wegren 2009b).

On September 5, 2005, the Russian president designated agriculture one of four National Priority Projects, which entitled the sector to enhanced budgetary support (USDA 2005). In the following year, the government began to implement the 'National Priority Project for Development of the Agro-Industrial Complex' which allocated 31 billion rubles to be spent over two years (OECD 2007). By the end of the first year, however, government investment, subsidies, and preferential loans to agriculture already amounted to 70 billion rubles (Wegren 2010, 208). The program included a major emphasis on the livestock sector, as well as the

³³Cherkizovo will be discussed in the case analysis of Russian pig production below.

development of small agricultural enterprises and construction of rural housing to encourage skilled workers to move into the countryside (OECD 2007).

On December 22, 2006, the Russian Parliament adopted the “Federal Law on the Development of Agriculture” in which they defined agrarian policy objectives and deemed agriculture a central component of the state’s national development strategy (State Duma of the Federal Assembly of the Russian Federation 2006, Art. 5.1).³⁴ In addition, the reformers aimed to “increase the international competitiveness of agricultural products and producers” (ibid. Art. 5.2-1), support sustainable rural development and raise incomes for farmers (ibid. Art. 5.2-1), create an “effectively functioning market” for agricultural products, raw materials and food products, while simultaneously ensuring the profitability of producers in these markets (Art. 5.2-4), and support a “favorable investment climate” in agriculture (ibid. Art. 5.2-5)

As a result of modernization policies and financial support from the state, the share of unprofitable farms declined significantly from 89 percent in 1998 to 42 percent in 2005 to 32 percent in 2006 to 25 percent in 2008 (Wegren 2010, 202). During the Medvedev interlude (2008–2012), the government retained the policy direction of the second Putin presidency, though increasingly focusing reform efforts on improving the international competitiveness of Russian food producers (ibid.). The desire for domestically produced products instead of the foreign imports (which continued to dominate the consumer food market) manifested itself in a new Food Security Doctrine, which was enacted by the Russian president in January 2010. Geared toward achieving self-sufficiency in all major food categories (USDA Foreign Agricultural Service 2010b), the doctrine establishes specific minimum self-sufficiency requirements – that is, production targets for the share of domestic production in the total supply of commodities. These are 95 percent for grain and potatoes, 90 percent for milk and dairy products, 85 percent for meat and meat products and 80 percent for sugar, vegetable

³⁴Since its adoption, the law has been revised four times. Amendments occurred on December 30, 2008, April 5, 2009, July 25 2011, and March 1, 2012; the first three amendments regulated various aspects pertaining to the law’s implementation and, in particular, the role of Russia’s regions in the agricultural modernization program. The March 2012 update pertains to the time of Russia’s agricultural modernization program and will be discussed below.

oil, and fish products (*ibid.*).

Toward the end of the second Putin presidency, Russia began to set its sights on joining the WTO (although the accession process had already formally begun in 1993). This move underscored the Russian state's objective to build an internationally competitive food economy. The Putin-Medvedev approach to achieving this objective, however, diverged considerably from Yeltsin's earlier (simultaneous price and trade liberalization), and instead focused on shielding domestic producers from global competition to facilitate restructuring and modernization (Wegren 2007). Food policy under Putin and Medvedev has therefore relied on trade protection and government regulation of domestic markets in order to create a stable business environment for farmers and enterprises (e.g., by preventing speculation in commodity and land markets). In addition, the government has allocated large budgetary resources to agricultural modernization, focusing in particular on the rebuilding of Russia's livestock sector, which was expected to face particularly harsh competition following the country's WTO accession (Wegren 2007; Wegren 2010).

After an accession period of 18 years, Russia finally joined the WTO on December 16, 2011.³⁵ Russia's agriculture minister, Yelena Skrynnik, characterized the accession as "the principal issue for Russian agriculture" (cited in USDA 2012a, 4). On March 1, 2012, less than two months after Russia's WTO membership became effective, the state enacted a further amendment to the 'Law on the Development of Agriculture', significantly extending the time frame and duration of the state's agricultural modernization program. As the Kremlin explains in the official press release accompanying the amendment,

Currently, Article 8 of the Federal Law On Developing Agriculture establishes a five-year term for the State Programme. . . . The Government Commission of the Russian Federation on the Agro-Industrial Complex has found advisable to set the term for the State Programme for Agriculture Development and Agricultural Products, Raw Materials and Food Markets Regulation from 2013 through 2020 (Russian Presidential Executive Office 2012).

³⁵"Director-General's statement on Russia's accession." December 16, 2011. http://www.wto.org/english/news_e/sppl_e/sppl213_e.htm (accessed March 7, 2012).

In a report to the Russian parliament on February 8, 2012, Agriculture minister Yelena Skrynnik outlined the principal objectives of the ‘State Program on Development of Agriculture in 2013- 2020’ and confirmed the objectives of the existing modernization program, namely, to ensure national food security by supporting domestic farm profitability and increasing the attractiveness of agriculture for investors (USDA Foreign Agricultural Service 2012a, 3). In order to expedite the process, the federal government allocated budgetary resources amounting to nearly 2.5 trillion rubles (approximately \$83 billion) to be spent through 2020 (*ibid.*). The funds will go toward existing priorities from the National Project agenda, such as supporting the domestic livestock sector through preferred credits and subsidies, development of grain and crop production, building of improved market information and regulation systems, and development of the rural economy. In addition, the government will fund new projects, including enhanced support for private farms and small agricultural enterprises, export subsidies for agricultural products, modernization of the food processing and manufacturing industries, development of market infrastructure in the agro-food sector, and measures to mitigate weather and climate risks (*ibid.*).

It may seem contradictory that these developments should follow WTO accession, which is commonly associated with requirements of lower government spending and market interference. As minister Skrynnik informed the Russian State Duma in February 2012, however, Russia was able to negotiate very favorable agricultural terms relative to other WTO accession candidates (USDA Foreign Agricultural Service 2012a). Under the stipulations of Russia’s accession package, the state will actually be allowed to increase government support for the agro-food economy to the sum of \$9 billion (almost twice the originally budgeted \$5.6 billion) (*ibid.*, 4). The government intends to allocate 6 billion rubles annually (for a period of three years) in subsidies for the development of the pork processing sector alone, and under the WTO agreement, Russia also retains the right to impose import quotas for pork, poultry, and beef (*ibid.*). As Vladimir Putin summarizes the rationale behind Russia’s accession:

We must learn the best practices of the longtime WTO members. We must learn to use both direct and indirect measures to support our producers. We are not going to give complete control over our agricultural sector or any other industries of the Russian economy. We have not revived the domestic production and agriculture to give it all some unfair competitors. There are a lot of instruments for protecting the internal production.³⁶

Describing the reforms of the Putin-Medvedev era, Wegren (2010, 199) has argued that there were two main ‘stages’ to the government’s post-2000 agrarian reform agenda reform:

The first stage was the creation of an institutional and policy base that would stabilize the agricultural sector and pave the way for economic growth. The second stage has witnessed the introduction of significant financial assistance that is intended to increase domestic production, make Russian agriculture internationally competitive, and reduce dependence on foreign imports.

But while the reforms proceeded in stages with different policy emphases, they served a broader institutional goal, namely, to build a capitalist food economy that serves as a source of export revenues while simultaneously addressing the nation’s food security requirements. In this regard, the Putin-Medvedev reforms exhibit a striking resemblance to China’s earlier development strategy, which holds that the state must be the principal agent of market creation. For example, in 2001 Russia founded a state-owned agricultural development bank (*Rossel’khozbank*) to facilitate lending to farmers; the government moreover created insurance programs for farmers (USDA Foreign Agricultural Service 2011a), lowered taxes, and selectively intervened in the grain market — measures that had all been previously implemented in China. Russia’s experience, in particular, highlights the crucial importance of establishing a rural finance system for market-oriented agriculture (which China had began to build as early as 1979, when the Agricultural Bank of China was reestablished) — while simultaneously raising procurement prices and permitting household level production. In order to build a market economy in a formerly socialist country, the state need not retreat from

³⁶Cited in “WTO accession forces Russia to spend billions on pig industry”, by Vladislav Vorotnikov. *PigProgress.net*, March 5, 2012. <http://www.pigprogress.net/news/wto-accession-forces-russia-to-spend-billions-on-pig-industry-8438.html> (accessed March 14, 2012).

the economic sphere altogether, but must first instead create the economic and institutional conditions for profitable activity in the food economy.

The Russian government under Putin and Medvedev did exactly this. At a government presidium meeting in January 2012, Viktor Zubkov, Putin’s deputy prime minister, highlighted preferred financing for agricultural input acquisition as one successful agro-food policy measure: “Farmers purchased a substantial amount of agricultural equipment in 2011, largely due to government efforts, such as a 50% discount on purchasing farm equipment. Over 5,500 machines were added to Russian agribusiness fleets.”³⁷

In addition, the state offered a significant increase in budgetary funding for *Rosagrosnab* and *Rosagrolizing*, two state-owned enterprises which lease agricultural machinery and equipment to farmers at subsidized rates. In 2011, the Russian government moreover allocated 5 billion rubles to subsidizing fertilizer purchases by farms. Zubkov hopes that as a result, the country “can expect that the 3 million tonnes of fertilizer stipulated in the government programme will become reality this year and will be used to boost the harvest”, adding that the state also facilitated “an agreement between fertiliser producers and the Union of Agricultural Producers which keeps the potential rise in fertiliser prices within the 6.9–11.5 percent range” (ibid.). The passage of the ‘Federal Law on State Support of Agricultural Insurance’ further contributes toward creating long-term financial stability for farmers, especially in the face of natural disasters like the drought and wildfires which hit Russia in the summer of 2010 (USDA Foreign Agricultural Service 2011a).

These recent trends illustrate that the Russian government’s ambitions to build a competitive agricultural sector are being gradually fulfilled. Today, farm products and inputs are sold on markets and for money; barter, which was prevalent during the nineteen-nineties, has virtually disappeared (Spoor and Visser 2005; Serova and Shick 2008). The farm sector is characterized by strong competitive pressures — both between large and small farms, and

³⁷Quoted in “Prime Minister Vladimir Putin chairs a Government Presidium meeting.” Official transcript (public portion of the meeting). January 12, 2012. <http://premier.gov.ru/eng/events/news/17730/> (accessed January 16, 2012).

between domestic and foreign farms —, and insolvent farms frequently exit the market (Uzun 2008; Wegren 2007). With the end of government procurement of grain and livestock, the food processing and manufacturing sector has also been marketized. Responding to the vigorous competition between different producers, vertical integration has become the dominant strategy of food processors (Ahrend 2004, 5-6).

Large agricultural enterprises³⁸ accounted for about 43 percent of total agricultural output in 2010, with the remainder being contributed by private peasant farms (7 percent) and household farms (50 percent) (Table 5.9). This constitutes a significant change compared to 1992, when large corporate farms accounted for over two thirds of output.

Table 5.9: Agricultural output shares by farm type (1992–2010)

	1992	1995	2000	2005	2007	2008	2009	2010
Agricultural enterprises	67.1	50.2	45.2	44.6	47.6	48.1	45.4	43.9
Household farms	31.8	47.9	51.6	49.3	44.3	43.4	47.1	49.3
Private (peasant) farms	1.1	1.9	3.2	6.1	8.1	8.5	7.5	6.8

Note: Percentages calculated at current prices.

Source: Rosstat (2011, Table 15-2)

Large agricultural organizations also account for an increasingly low proportion of cultivated land, while the share of family farms has been increasing (Table 5.10). In 1990, these farms constituted under 4 percent of total agricultural holdings; by 1995, this figure had risen to about 6 percent, and by 2006, it was almost 15 percent. Private family farms were moreover using land more efficiently than large agri-businesses, producing 4.5 times more gross output and 10 times more added value than their large-scale counterparts (Uzun 2006).

Putin (2011), in a major speech on Russian agrarian policy in 2011, summarizes the accomplishments of reforms to date:

Today the call to “buy Russian” is no longer an attractive abstract slogan but a reality: domestic products are returning to stores after a period in which imports

³⁸Most large farms are privately owned (Barnes 2006).

Table 5.10: Share of agricultural and arable landholdings by farm type (1992–2006)

	Agricultural enterprises		Private (peasant) farms		Household farms		Garden plots	
	TL	AR	TL	AR	TL	AR	TL	AR
1992	85.52	91.69	3.09	3.62	3.04	2.54	0.81	0.46
1995	81.68	88.71	4.96	5.88	2.53	2.66	0.91	0.47
2000	80.00	84.88	7.36	9.36	2.89	3.43	0.81	0.42
2001	78.66	83.29	8.12	10.41	3.06	3.61	0.82	0.42
2002	77.29	81.93	8.74	11.15	3.29	3.72	0.77	0.34
2003	76.11	80.77	9.18	11.66	3.35	3.83	0.77	0.34
2004	73.78	78.51	9.71	12.24	3.37	3.94	0.78	0.34
2005	71.94	76.49	10.17	12.66	3.39	3.96	0.73	0.26
2006	79.89	80.51	12.89	14.69	4.83	2.45	0.48	0.39

Note: TL denotes total land; AR denotes arable land; all percentages based on author's calculations.

Source: Rosstat (2008, Table 15-1)

had wiped them off the shelves. There are still plenty of foreign imports, but the situation is changing. More and more, people prefer domestic products that have an edge in terms of quality and environmental purity and that are natural products rather than some cheap synthetic surrogate brought in from abroad.

We are becoming the masters of our own food and agrarian market step by step. All this is the result of the development of the Russian agro-industrial sector — the tangible result of the work of Russian farmers, livestock breeders, and the food processing industry. I can cite one example: the share of domestic products in the meat market has increased from about 50% in 2005 to over 75% today ... Frankly, I do not know that any of our neighbors have achieved such success. These are record indicators. ... The production of pork has increased 1.5 times. ... Moreover, only recently, many people did not take the suggestion seriously that Russia could be a viable exporter. We were net importers. Nobody believed that we could sell grain abroad. And yet we have managed to do so by bringing in harvests approaching 100 million tons. In 2007, Russia became one of the top three grain exporters in the world. One of the top three.

Some observers have argued that the increasingly common tendency to resort to state intervention under Putin and Medvedev signifies a “a retreat from allowing ‘the market’ to determine transaction outcomes, replacing it with government guarantees” (Wegren 2005c, 114). Land reform under Putin, in this view, has been “illiberal” in that it is “characterized by restrictions on both acquisition and disposal of land” (Wegren 2009a, 102). Though Wegren concedes that “[t]his intervention benefited grain producers”, he predicts that “the increase in

state intervention and regulation could threaten the security of property rights in the future” (ibid., 103).

Though the objective of Putin’s reform agenda was to build a capitalist food economy, they commenced their endeavor at a time when there was essentially no ‘market’ — as understood in the Western capitalist sense — in existence. Indeed, most agricultural producers in Russia were not organized like “market-oriented units” (Serova 2000, 103).

Putin realized — like the Chinese reformers had — that building capitalism and having capitalism requires different methods of governance. The former is possible only if the state imposes market relations on the society. To re-quote the Chinese economist Ma Hong (1982, 311) (cited in the discussion of China’s reform strategy in chapter 4), a market economy requires a series of institutional prerequisites, which only the state is in a position to create: “A number of reforms have to be made in planning, finance, taxation, pricing, banking, commerce, supply, foreign trade, labour and wages to supplement the restructuring of the economic management system.”

Recognizing that the emergence of capitalist production required more than a legal framework and nominal ownership reform, the Putin and Medvedev administrations pursued major government investment and supported the rebuilding of state administrative capacity, which had suffered heavily from the privatization strategies used in Yeltsin reform programs (Hamm, King, and Stuckler 2012). These measures constitute Russia’s ‘second attempt’ at building a market economy, but using a different, more ‘Chinese’ strategy.

The extent of institutional transformation in the food economy during the Putin era is evident from the following review of Russia’s recent agricultural performance, offered by Agricultural Minister Yelena Skrynnik at a government meeting in early 2012. Skrynnik’s assessment highlights the effectiveness of Russia’s state-guided modernization program in the areas of food output, growth, and national self-sufficiency. The criteria used to evaluate the sector’s performance — capital growth, bank lending, and profit margins — moreover demonstrate that food policy under Putin and Medvedev, (despite increased state interven-

tion) has anything but an ‘anti-market’ orientation:

[T]he investment index for fixed capital in agriculture now totals 120%, thanks to the state support agricultural producers received. This is 12 percentage points higher than had been planned for 2011. The banks, accordingly, issued 21% more loans, the total amount of lending reaching 987 billion rubles. ... In crop growing, the profit margin has grown from 13.7% in 2005 to over 18% now. For milk production it has gone up to 18.3%, pork to 22% and for poultry 24%. In 2011, a total of 289 new livestock enterprises opened up and 11 million tonnes of meat were produced. This is 460,000 tonnes more than in 2010. As far as the food security doctrine is concerned, we met its targets in 2011 for grain, sugar, potatoes, vegetables and, for the first time, for poultry.

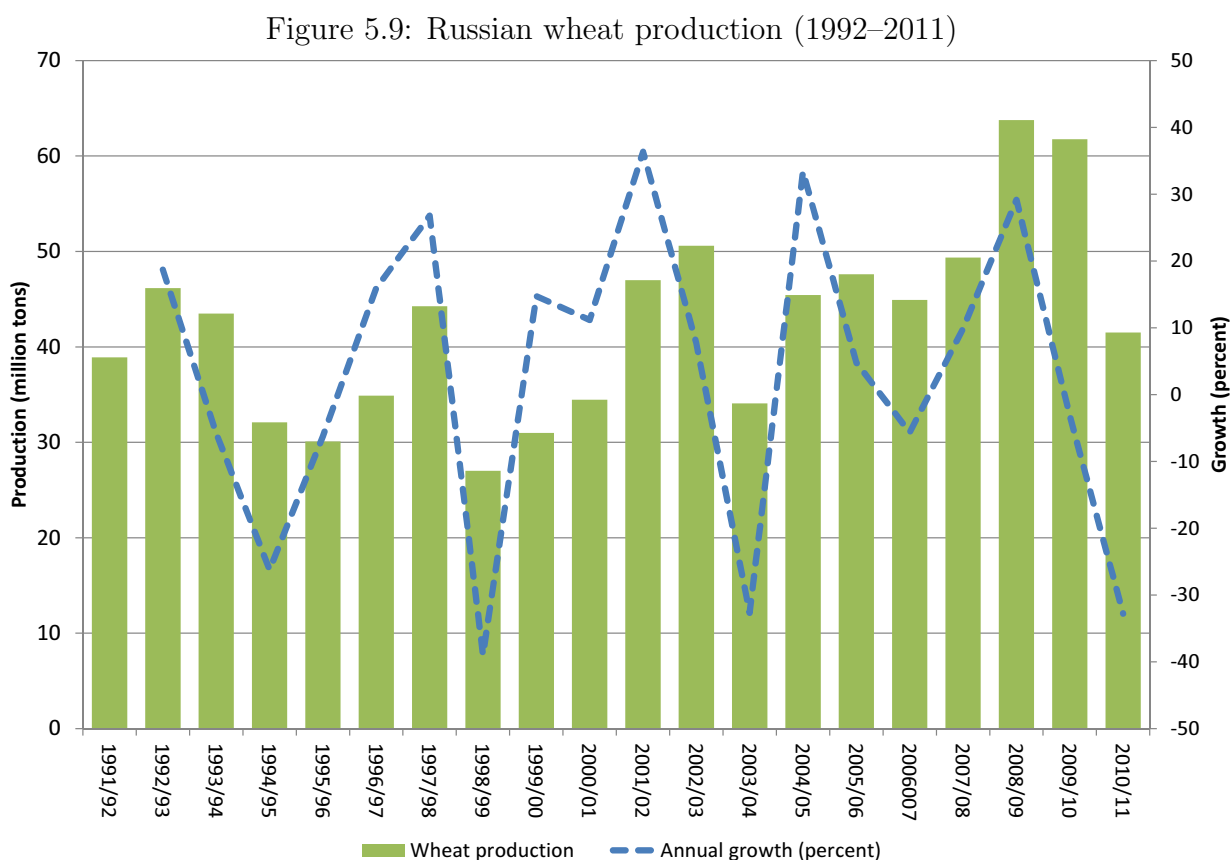
5.4.2 Russia’s wheat production sector

Experts concur that although Russia is one of the largest countries in the world, it is “poorly endowed in terms of agricultural land and climate” with “about four-fifths of cropland [lying] in a zone of risky agriculture”, thus making it “not very suitable for agriculture” (Brebarda 1990, 25). Subject to the whims of “thermal and moisture regimes”, Russia experiences limited year-round precipitation, cool summers, and rather cold winters (Dronin and Bellinger 2005, 1-2). Historical fluctuations in yield and output were partially the result of unpredictable climatic occurrences, such as droughts or frost, which can debilitate Russia’s already short growing season (White 1987, cited in Dronin and Bellinger 2005, 1-2).

At present, different varieties of wheat occupy approximately 25 million hectares of Russia’s cultivated area, with each hectare yielding an average of about 2 tons per year (Cherepanov et al. 2008). Common varieties of both winter and spring wheat are sown throughout the country, accounting for over half of all grain-crop land since the nineteen-seventies (White 1987; Cherepanov et al. 2008). Winter wheat is cultivated predominantly in the northern Caucasus and the central Russian Black Earth Belt, while spring wheat is planted in the black earth regions as well as Siberia, the Urals, and the Volga River region (Cherepanov et al. 2008). The southern parts of Russia, ranging from European Russia to Western Siberia, are the country’s dominant wheat growing regions, accounting for about

two thirds of total output. Wheat processing, especially flour production, is most prevalent in the Altay Territory (Western Siberia), the Chelyabinsk region and several Volga regions.

In 1992, the Russian wheat sector entered a period of rapid restructuring, involving the privatization of farms, the liberalization of prices, and the abolition of government subsidies and procurement. Output followed an erratic pattern over the course of the transition, fueled by price and currency fluctuations, as well as the ongoing restructuring of the farm sector. Though Russia was able to quickly reduce its Soviet-era import dependence, annual wheat production declined during every consecutive year until 1996, when it experienced a good harvest in 1997 and a bumper 1998 harvests, before a major decline (nearly 40 percent) in 1999 (Figure 5.9).



Source: USDA Foreign Agricultural Service (2012c)

The contraction in wheat output did not lead to a major shortage in human consump-

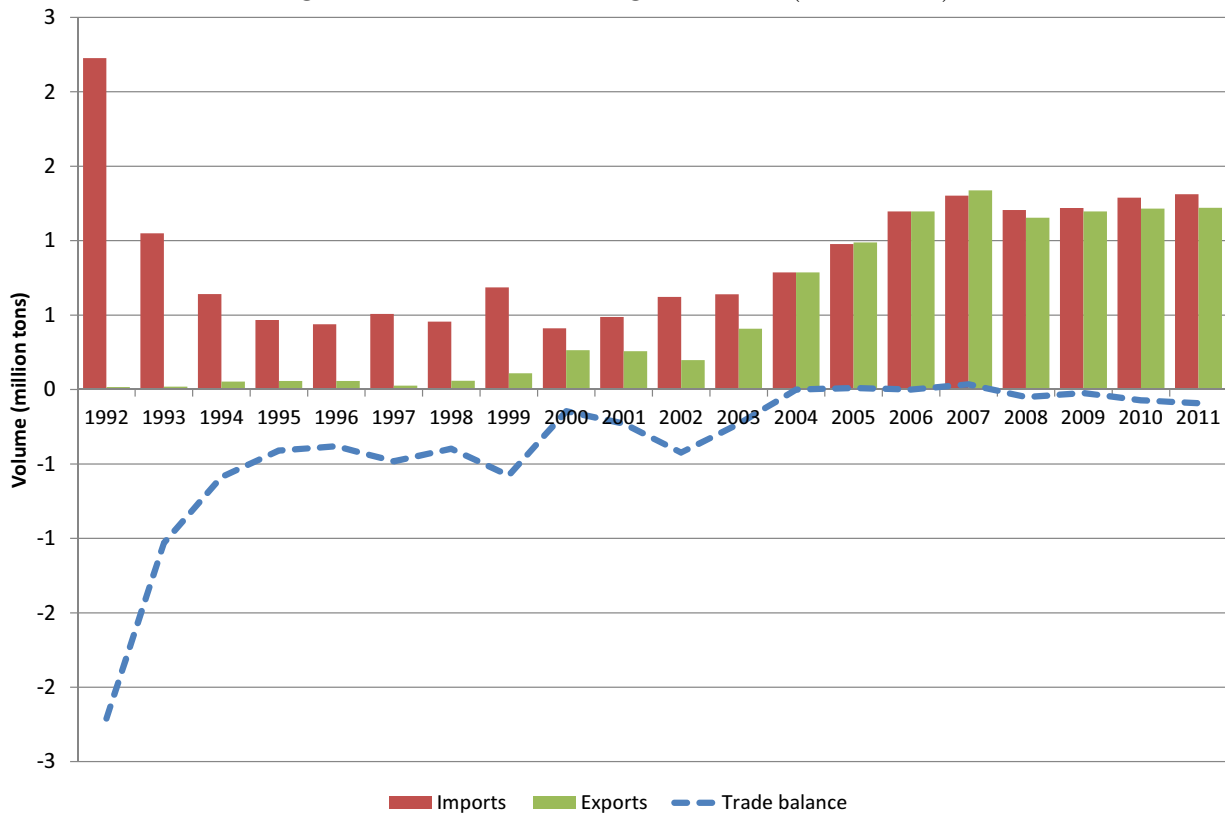
tion, however, due to the simultaneous decline of Russia's livestock sector. As noted in the preceding chapter, the Soviet government under Brezhnev aimed to provide a more diverse diet to the population by promoting meat production capacity, which necessitated considerable feed resources. As with all spheres of the Soviet economy, the feed production sector was subject to the constraints of price-based central planning which failed to factor in an adequate provision of hay and grazing land (Dronin and Bellinger 2005). In regions with insufficient grassland, crop farms were therefore ordered to supply wheat to be used as feed in livestock operations (ibid.). During the late Soviet era, Russia was increasingly forced to rely on imports to meet the feeding needs of the expanding livestock population. With the elimination of subsidies to the livestock sector under Yeltsin, animal numbers entered a period of rapid decline, freeing up resources for human consumption (Figure 5.10; see also Liefert et al. 2003).³⁹

Around the beginning of the 2000 decade, the Russian government under Vladimir Putin fundamentally changed its wheat sector policy, adopting a more state-guided approach consisting of market interventions, government-sponsored modernization programs, and the establishment of a state grain trading corporation. This policy reorientation has led to a strong recovery of domestic production. Since 2004, despite fluctuations in output, production has increased nearly every consecutive year, though droughts and wildfires in summer of 2010 caused a major contraction during the 2010/2011 growing season.

The growth trajectory of Russia's wheat sector is perhaps most apparent from the country's trade profile, as the government realized that that wheat exports were a logical but neglected comparative advantage in the global economy. A mere year into the Putin administration, Russia became a net exporter of wheat (Figure 5.11) and despite fluctuations, the wheat trade balance has since become increasingly positive. More importantly, as a recent analysis by the commodity investment website *AgriMoney.com* observes, wheat export

³⁹Since 2000, Russia has gradually increased its feed exports, following the stabilization of the grain market and the expansion of domestic production capacity under Putin. Today, the government uses its influence over the market to maintain a neutral feed trade balance (Figure 5.10).

Figure 5.10: Russian feed grain trade (1992–2011)

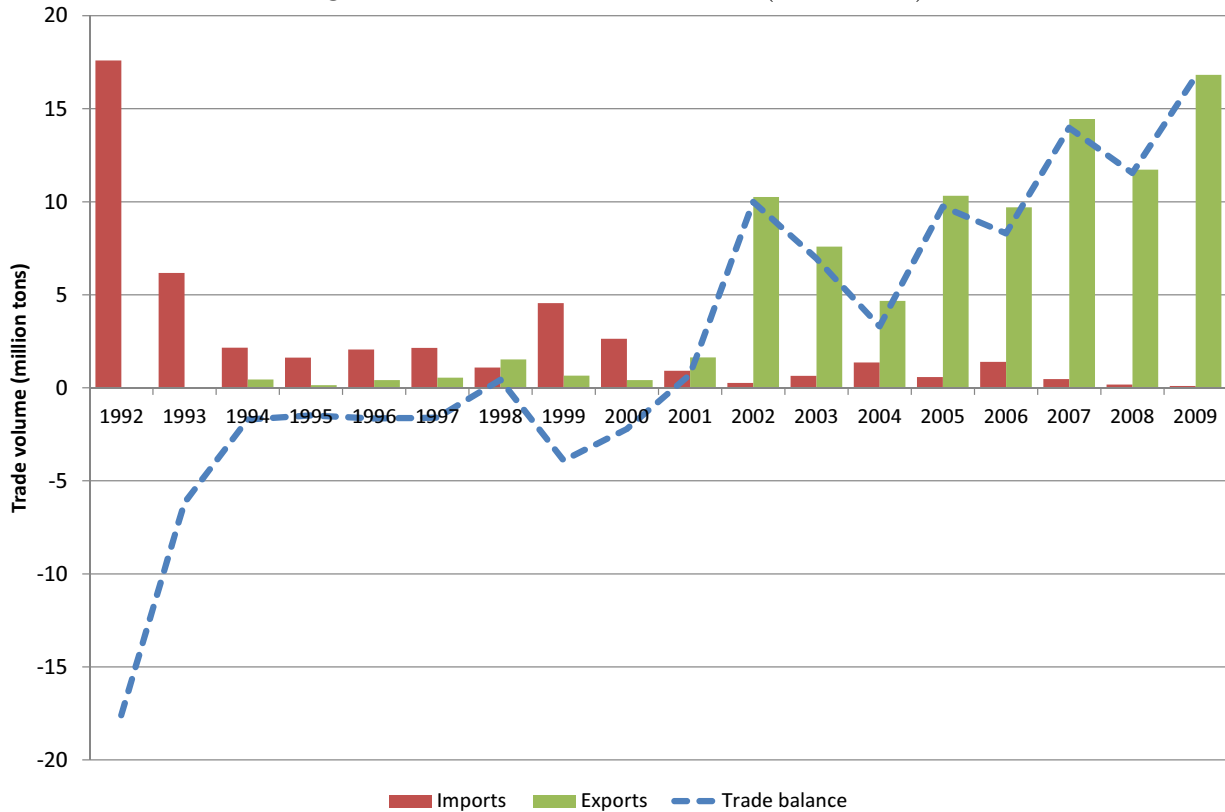


Source: Euromonitor (2012)

can provide “Russia with valuable foreign currency and food security, besides reducing the country’s reliance on oil for exports” (though ‘besides’ might as well be replaced with ‘especially’). Russia, at the beginning of the 2000 decade, had a comparative advantage in wheat exports, due to large production capacity and limited domestic demand, given the small size of its population relative to the available cultivated land. Moreover, Russia’s wheat industry had considerable growth potential. During the Yeltsin years, poor maintenance of land and infrastructure, outdated equipment, and institutional instability had contributed to low wheat yields. The administration under Putin undertook a concerted effort to correct these missteps and develop Russia’s export capacity while maintaining domestic food security.

In order to change the state of affairs, the government first needed to stabilize markets. Since 2001, the state has initiated regular grain market interventions, which (depending on the objective) rely on one of two mechanisms. In some cases, the state sets minimum price

Figure 5.11: Russian wheat trade (1992–2011)



Source: FAO (2012)

floors and guarantees wholesale purchases of grain at these designated prices if market prices fall below the floor levels (Wegren 2010, 204). This has naturally led to greater profitability of farms. In other situations, the state will sell grain through its grain-trading enterprises to adjust prices downward and to keep consumer prices for grain products stable (ibid.)

In addition to intervening in the grain market, the Russian state carried out major investments in the wheat sector as part of its national agricultural modernization program. Government efforts focused on upgrading physical infrastructure, and increasing absolute production capacity by reclaiming unused land. Total harvested acreage subsequently increased by nearly a quarter, growing from 21.3 million ha in 2000 to 26.6 million ha in 2009.⁴⁰ During the same period, Russian producers also made significant gains in yield per

⁴⁰The decline in 2010 is a result of the drought that affected Russia that year and therefore was likely temporary.

hectare, with the average annual yield growing by over 40 percent (Table 5.11). Taken together, these developments have implied an increasingly important role for wheat in total national grain production: its share increased from 53.6 percent in 2000 to over two thirds in 2010 (a 20 percent increase).

Table 5.11: Trends in Russian wheat production (1992–2010)

	1992	1995	2000	2005	2007	2009	2010
Area harvested (million ha)	24.26	21.60	21.35	24.68	23.50	26.63	21.64
Average yield (tons/ha)	1.9	1.4	1.6	1.9	2.1	2.3	1.9
Winter wheat	2.65	1.8	2.23	2.83	2.81	2.9	2.49
spring wheat	1.39	1.17	1.27	1.3	1.56	1.72	1.29
Buckwheat	0.67	0.49	0.69	0.73	0.84	0.9	0.59
Share of wheat in total cereal production (percent)	44.5	48.7	53.6	62.3	61.6	64.6	67.9

Source: Rosstat (2011, Table 15-15)

These improvements in productivity are the result of extensive efforts on the part of Russia’s government to upgrade equipment and technology on Russian farms, namely, the agricultural mechanization drive pursued under the National Priority Project for Development of the Agro-Industrial Complex (2006–2007) and the Program for the Development of Agriculture (2008–2012). As noted above, these programs offered generous subsidies, preferential leasing conditions, and various other incentives to encourage the adoption of modern machinery and production technology.

Over the past decade, the Russian wheat sector has become dominated by large, vertically integrated agro-holdings, which have introduced private investment, technology, and superior managerial and operational practices to the sector (Liefert et al. 2010). Because of the high profit margins in exports, wheat is appealing for large agro-holdings that have access to the requisite land and technology for realizing economies of scale. The government’s agricultural modernization policies have especially focused on large farms, which presently account for around 85 percent of total production (Wegren 2010, 203). While the Russian government would prefer for technological upgrading to be a *domestic* affair — that is, equipment should be manufactured in Russia⁴¹ — agro-holdings frequently opt to im-

⁴¹“Russian agrarians to be offered domestically produced equipment.” *Tatar-Inform*, December 11, 2009.

port advanced equipment, making Russia the fourth-largest market for exports of U.S. farm machinery (U.S. International Trade Administration 2011), and attracting the attention of international manufacturers of agricultural equipment, such as John Deere, Väderstad, and New Holland, which have been expanding their factory capacities in Russia.⁴² The results, which can be seen in Table 5.12, demonstrate that productivity increased even as the amount of equipment and harvesting machinery was reduced. Despite a 63 percent decrease in the number of tractors per 1,000 ha and a 50 percent decrease in the number of grain combines per 1,000 ha, arable land per tractor increased by 156 percent while arable land per harvesting combine doubled.

Table 5.12: Agricultural inputs and mechanization on large farms (1992–2010)

	1992	1995	2000	2005	2007	2009	2010
Fertilizer application on grain fields (kg/ha)	–	16	20	29	35	40	41
Tractors per 1,000 ha of arable land (number)	11	9	7	6	5	4	4
Arable land per a tractor (ha)	92	108	135	181	197	226	236
Grain harvesting combines per 1000 ha of cultivated land (number)	6	6	5	4	3	3	3
Sowed area per grain harvesting combine (ha)	160	173	198	253	291	344	327

Source: Rosstat (2011, Table 15-9)

While Russia’s food and agricultural policy has focused on building up private sector production capabilities in recent years, unlike the Yeltsin administration, the government under Putin and Medvedev has not been not dogmatic about in its adherence to markets and free competition. As the response to the 2010 summer drought illustrates, when *force majeure* necessitates it, the Russian state will deviate from its pro-market course in order

<http://eng.tatar-inform.ru/news/2009/12/11/27620> (accessed May 27, 2011).

⁴²“Deere & Company Announces Additional Investments in Russia.” Corporate press release, November 7, 2011. http://www.deere.com/wps/dcom/en_US/corporate/our_company/news_and_media/press_releases/2011/corporate/2011nov07_corporaterelease.page/ (accessed April 17, 2012).

“Väderstad commitment to Russia.” Corporate press release, 2011. <http://vaderstad.com/en/About-us/News-Press/News-archive/2011/Vaderstad-commitment-to-Russia/> (accessed April 17, 2012).

“First Big Delivery of New Holland Equipment Made in Russia.” *KamazExport.com*, February 9, 2010. <http://kamazexport.com/603.html> (accessed April 17, 2012).

to protect elementary interests, including the provision of a stable food supply. As a result of drought and wildfires, 13 million hectares of crop land — 30 percent of the total grain acreage — were destroyed, affecting 25,000 enterprises in 43 regions of the country and raising average grain prices to over 7 rubles per ton (Rau 2012, 49). This development contributed to a food price increase of nearly 13 percent in 2010; in comparison, overall consumer inflation that year was only about 9 percent (ibid.).

Due to concerns that grain merchants would continue to export wheat despite absolute production declines, thereby threatening the supply available for domestic consumption, the state imposed an export ban on wheat (in force from August 15, 2010 to June 30, 2011) and temporarily suspended import restrictions on major grains (ibid.). As Rau (2012, 49) notes, “[i]n these difficult circumstances, the state timely gave the agricultural sector, including grain farming, all possible assistance, setting in motion all means and mechanisms at its disposal for regulation and support, including foreign trade measures.” During this time of national crisis, the Russian state was even willing to resort to forms of intervention which can only be described as ‘anti-market’. Faced with rising inflation, president Medvedev explicitly directed law enforcement agencies to prevent sellers from engaging in speculative food pricing in September 2010.⁴³

The export ban on wheat had serious consequences for domestic producers. Small farms, in particular, were threatened by bankruptcy, as they found themselves unable to obtain sufficient capital to finance the next production cycle.⁴⁴ This credit shortage, combined with lowered price expectations, led to a 3.8 decline in sowing between the 2010 and 2011 growing seasons.⁴⁵ The Russian government responded with “[a] large and comprehensive arsenal of state regulation and support measures” (ibid., 49). This “complex of . . . emergency measures” (ibid.), which included financial support to the tune of 35 billion rubles, eventually resulted in an production recovery during 2011.

⁴³“Medvedev Warns Speculators After Food Prices Rise.” *Moscow Times*, September 3, 2010.

⁴⁴“Drought May Force Small Farms to Close.” *Moscow Times*, September 6, 2010.

⁴⁵“Russia’s wheat sowing decreased 3.8% this year, Rosstat says”, by Marina Sysoyeva. *Bloomberg*, July 19, 2011.

After taking drastic action to mitigate the impact of the drought in 2011, the state did everything it could to stimulate the resumption of wheat exports in 2011. Following the end of the export ban, the state temporarily suspended its domestic wheat market intervention, even though prices had fallen below the threshold range of 4,650-5,000 rubles (\$165-178) per ton for major wheat products.⁴⁶ Grain merchants, buying wheat at low domestic market prices, were able to recoup the previous year's financial losses by selling wheat at export prices exceeding \$250 per ton to countries such as Egypt (which bought large quantities of Russian wheat in the summer of 2011). In addition, the Russian state offered preferential trade conditions to certain countries to support a recovery in wheat exports, while undercutting global market prices.⁴⁷

More recently, the state has resumed its grain market interventions, signaling a return to the pre-2010 policy regime.⁴⁸ With the state's confidence in wheat exports restored, Russia's domestic capitalists have expressed equal optimism toward the sector's future. Russian billionaire Ziyavudin Magomedov, for instance, intends to acquire a minority stake in the state-owned United Grain Company, a major government trading enterprise, which must be partially divested under WTO accession requirements.⁴⁹

5.4.3 Russia's pig production sector

Pig meat in its various forms, ranging from pork sausages to bacon to ham, constitutes an important part of the Russian diet.⁵⁰ As Liefert (2004, 36) notes, Russians generally have "a traditional dietary preference for live-stock products, such as meat, dairy products, and eggs, which are heavy in fat, protein, and cholesterol." Although these preferences histor-

⁴⁶"No sign of Russia grain intervention as prices dip." *Agrimoney.com*, August 3, 2011. <http://www.agrimoney.com/news/no-sign-of-russia-grain-intervention-as-prices-dip-3433.html> (accessed October 6, 2011).

⁴⁷"Russia targets Asia with cheapest wheat after lifting Putin's export ban", by Maria Kolesnikova and Marina Sysoyeva. *Bloomberg*, August 1, 2011.

⁴⁸"Russia Purchases 10,665 Tons of Wheat to Support Prices", by Marina Sysoyeva. *Bloomberg*, February 28, 2012.

⁴⁹"Billionaire bets on soaring Russian grain exports." *Agrimoney.com*, December 16, 2011.

⁵⁰In Russia, beef was historically the most important meat in terms of both production and consumption, but has more recently been replaced by pork (FAO 2012).

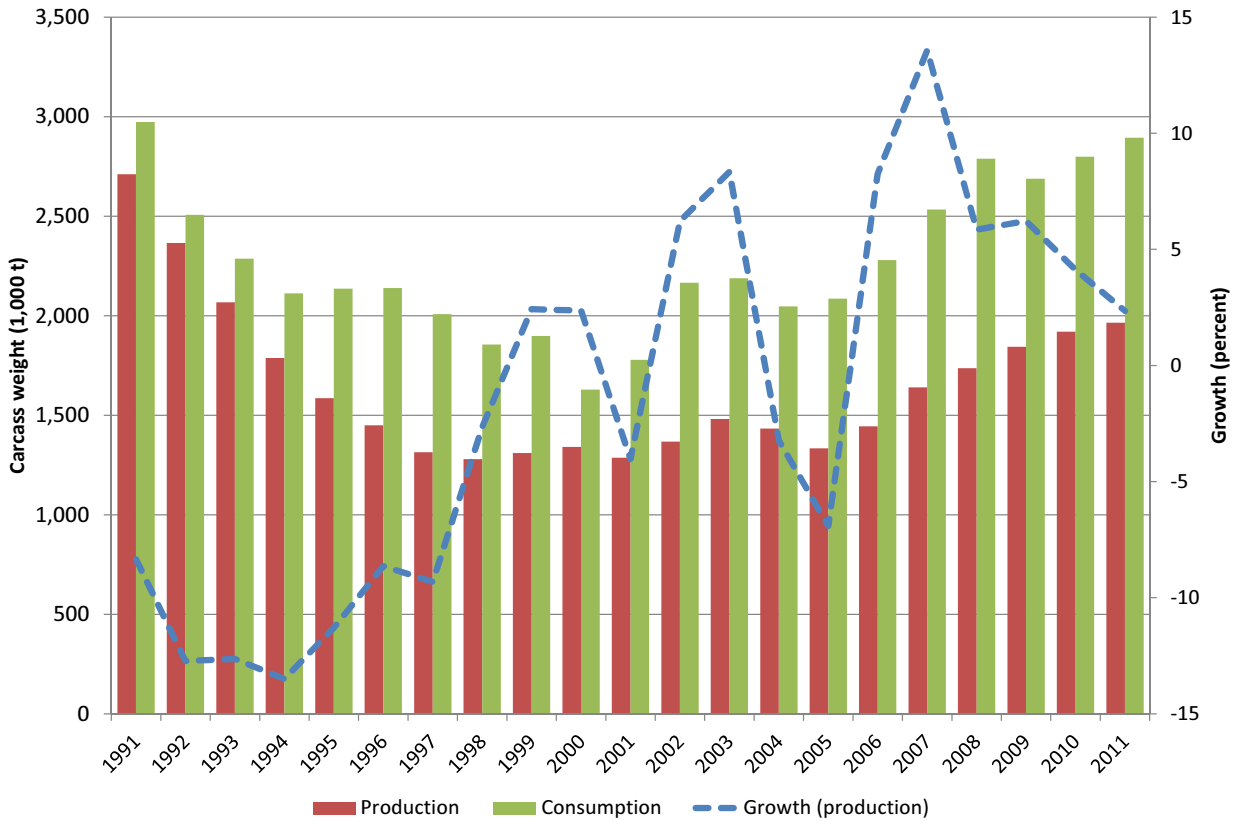
ically predate the socialist era, Soviet “state authorities strengthened [them] by releasing recommended food consumption ‘norms’ heavily favoring livestock products” (ibid.). The Soviet Union, along with the Eastern European satellites, increased both livestock herds and production by 50 percent between 1970 and 1990. Since the intended purpose of the expansion was to “improve living standards by increasing consumption of high-value livestock products”, the state set prices for goods “far below production costs” (ibid.).

During the first years of the transition, Russia’s livestock and meat production sectors contracted severely, due to a series of simultaneous supply and demand shocks induced by the government’s strategy of rapid institutional reform. Producers faced the sudden elimination of government subsidies and a sharp rise in feed and input prices, while real incomes simultaneously plummeted, which led to significantly lower consumer purchasing power for meat products. Russian pig producers were especially affected by these shocks, which caused the output of pork to decline by nearly 50 percent between 1992 and 1998 (Figure 5.12).

Liefert et al. (2003, 958) argue that the decline in Russian livestock and meat production signifies a “move from planners’ to consumers’ preferences” as prices “[jumped] to reflect the high costs of production”, causing “consumers [to switch] their demand away from high value (and cost) foods”. In other words, the essence of market transition in the food economy is that “consumers’ desires for goods have replaced planners’ preferences as the dominant force in determining what goods are produced, consumed, and traded”, thus making the contraction of agricultural output “an inevitable part of market reform” (Liefert 2001, 257-258). In this view, the severity of the decline is a function of “the extent to which agriculture in the pre-reform period was subsidized, [and] planners’ preferences for goods deviated from consumers’ preferences (ibid., 263-264).

If one examines the market for pig meat, however, a different picture emerges. Consumer preferences for meat products were apparently quite consistent (Figure 5.13), and as soon as incomes recovered, Russians bought meat again. The proportion of consumer food spending

Figure 5.12: Russian pork production (1991–2011)

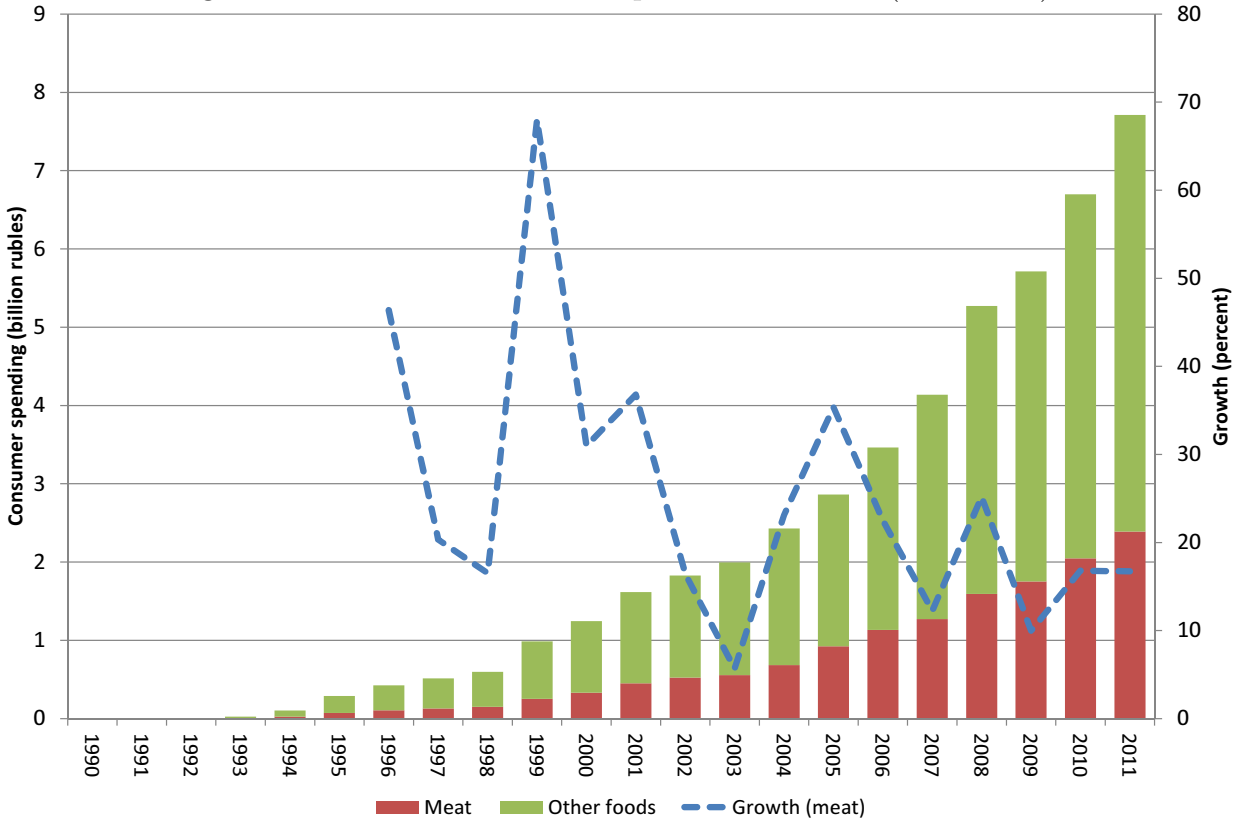


Source: USDA Foreign Agricultural Service (2012c)

devoted to meat increased from about 25 percent in 1995 to over 30 percent in 2010, while total consumer spending on food grew by over 2000 percent — Today, the meat market is at nearly 2.4 trillion rubles (\$81 billion). Given the decline in the domestic pork sector, Russia depended on imports to supplement domestic pork supply (Figure 5.12). The uneven consumption trajectory displayed in the chart reflects fluctuations in the global price of pork, as well as the ruble's exchange rate.

Not only did the state realize that consumer preferences had not changed (i.e., Russians after all still favored meat), but it also recognized that there was a major market, then controlled by more competitive foreign pork importers offering a greater variety of product. Government policy underwent a significant change. The Russian state adopted a coordinated industrial policy with the goal of boosting domestic meat production, and eventually

Figure 5.13: Russian consumer expenditure on food (1990–2011)



Source: Euromonitor (2012)

achieving self-sufficiency in all major meat categories. Yet unlike the wheat sector, which immediately attracted the attention of the Russian state, policy in meat sector did not shift in earnest until 2005 when the government adopted the ‘National Priority Project for Development of the Agro-Industrial Complex (2006–2007)’.

Former Russian president Dimitry Medvedev summarized the rationale of the policies adopted after 2005 in a recent speech on livestock sector development:

We believe that [livestock farming] is a priority for ensuring food security in our nation. We know that this sector suffered a deep decline in the 1990s. As a result, our nation ... has become the biggest importer of meat, and this is bad. This situation needs to be changed. Even knowing that this affects our relations with major trade partners, we must produce enough of our own meat — enough to maintain our food independence (Medvedev 2010).

The program consisted of several “systemic measures” meant to reinvigorate the livestock

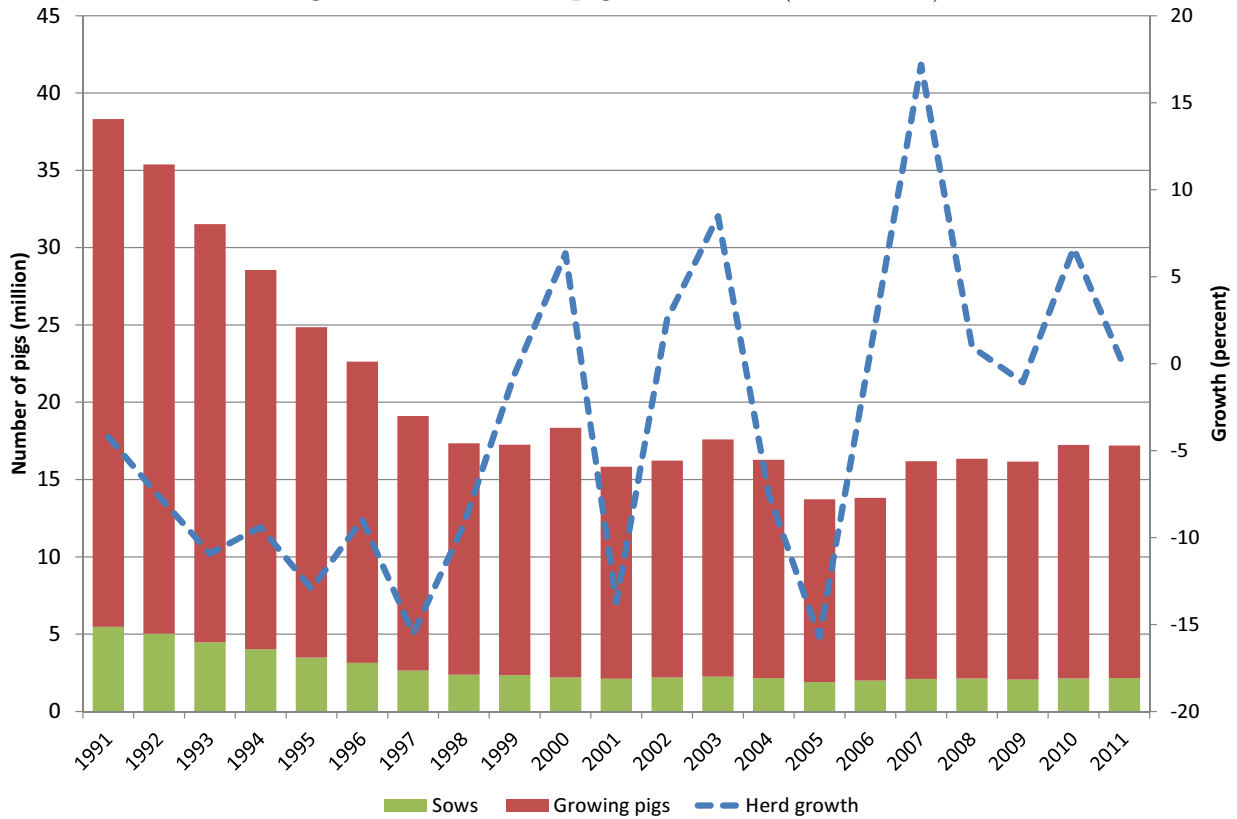
industry (*ibid.*) Policies included long-term financing for the construction of modern livestock complexes and the modernization of existing facilities, as well as subsidies and preferential leasing rates, a reduction of import tariffs on advanced equipment, and importing of high-end breeding swine from abroad (USDA Foreign Agricultural Service 2005, 3). Government financing, along with improvements in the legal and regulatory environment, were aimed at attracting private sector investment, in addition to encouraging public-private partnerships (USDA Foreign Agricultural Service 2005, 3). As Medvedev (2010) noted, the increases in government spending “proved to be fruitful”, seeing that “[i]n the short period of time between 2005 and 2009, production grew by 29 percent. This is a good result, especially given the rather sad history of livestock farming during the Soviet era. . . . [W]hat happened next was nothing short of dramatic.”

Interestingly, while output of pork rose by nearly 50 percent between 2005 and 2011 (see Figure 5.12 above), total pig inventories only increased marginally during the post-2005 period (Figure 5.14). In 2005, Russia’s total pig population was still at its lowest since the beginning of the transition, having fallen below 15 million. There was one noticeable increase in 2007 when total herd size grew by over 15 percent (exceeding 15 million again), but it has since stagnated.

As Figure 5.15 shows, output increases were largely the result of improved productivity in the sector. Average herd productivity, measured in meat per inventory animal, increased over 15 percent, while an average sow produced more than two additional piglets per litter. These developments, naturally, are a direct result of government-subsidized investments in modern technology and housing facilities, as well as the importation of elite breeding animals.

In recent years, much like the Chinese state, the Russian government has focused on building up domestic pig production capacity. As the United States Department of Agriculture surmised in a 2005 analysis, “[t]he policy intent of this project is rather clear: retirement over time of the most undersized of the small, private plots, and transformation of the larger, more commercially oriented of them into bona fide (and most likely, officially registered for

Figure 5.14: Russian pig inventories (1992–2011)



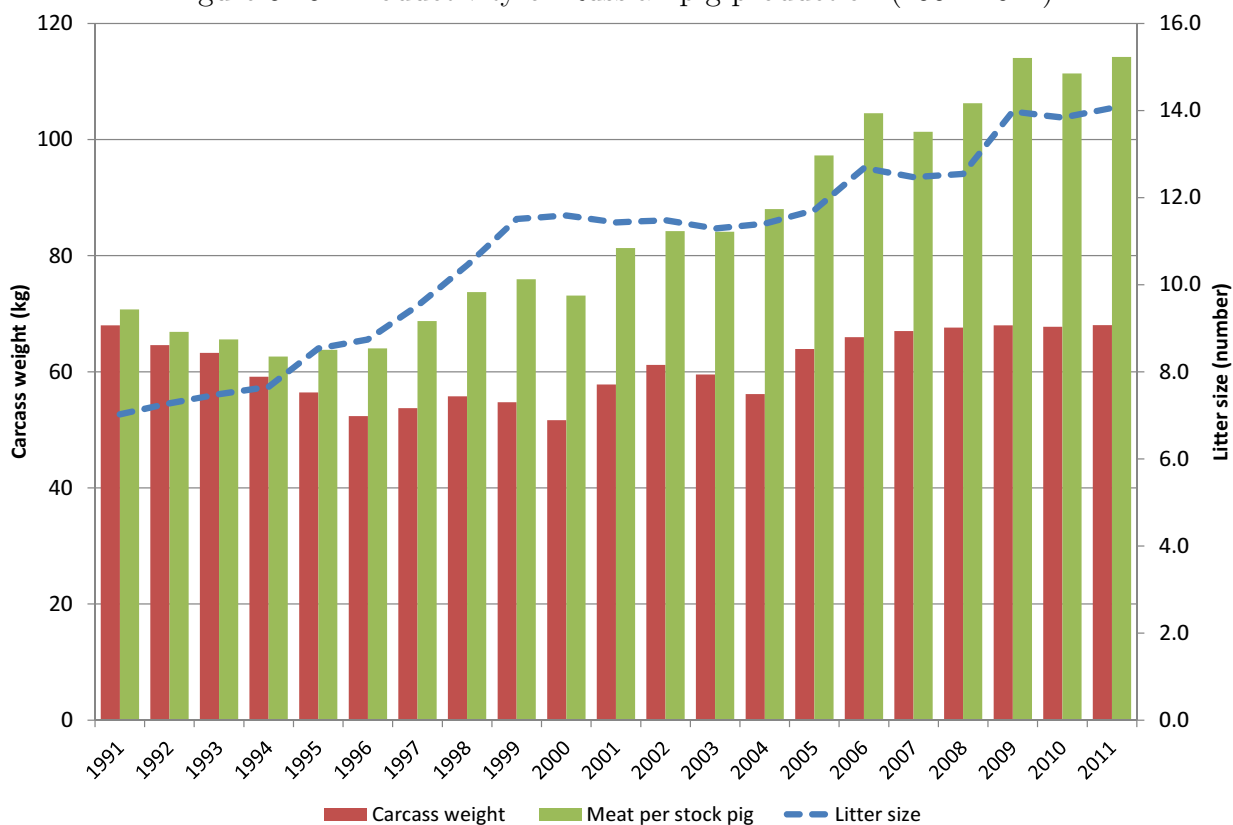
Source: USDA Foreign Agricultural Service (2012c)

tax and statistical purposes) farmers” (USDA Foreign Agricultural Service 2005, 5). Foreign observers were skeptical that this program could succeed, however, arguing that Russia ought to focus on the development of smaller, privately owned livestock farms:

If Russia is to restore its livestock sector, the single most labor-intensive sector of agriculture, it can only do so given the current state of technology by encouraging smallholders, and this is tacitly acknowledged in the provision of funding for smallholders, including for the first time for private subsidiary plot producers. Over half of meat and milk is currently produced by private plot holders and small farmers, yet many (perhaps half) of the private plot holders are of retirement age and thus due to go out of production over the next decade. If meat and dairy production is not to shrink dramatically, it is therefore imperative that this subsector be transformed within the next few years and that profitable, small- to medium-sized production units for livestock be encouraged to emerge (*ibid.*).

Nonetheless, as a result of several years of targeted government support, the structure of Russia’s pig sector has been fundamentally transformed. The share of hogs housed on

Figure 5.15: Productivity of Russian pig production (1991–2011)



Source: USDA Foreign Agricultural Service (2012c)

large farms has increased considerably from 57.2 percent in 2008 to 62.8 percent in 2010. Meanwhile, peasant farms and especially households have seen declines in their pig stock (Table 5.13).

Table 5.13: Russian pig inventories by farm type (2008–2010)

	2008		2009		2010	
	Pigs (1,000)	Share (%)	Pigs (1,000)	Share (%)	Pigs (1,000)	Share (%)
Agricultural enterprises	9,247	57.2	10,598	61.5	10,815	62.8
Household farms	6,121	37.9	5,864	34	5,605	32.6
Private (peasant) farms	794	4.9	769	4.5	798	4.6

Source: Rosstat (2011, Tables 1-13, 1-14)

Large pig-producing farms have made particular gains in productivity. Despite hog holdings of these agricultural enterprises being halved from 23.5 million in 1992 to 10.8 million in 2010, the sector nearly doubled the number of piglets per 100 sows (a measure of average

litter size) over the span of a decade (2000–2010), while more than tripling the meat yield per slaughtered animal since 1995 (Table 5.14).

Table 5.14: Pig production by agricultural enterprises (1992–2010)

	1992	1995	2000	2005	2006	2007	2008	2009	2010
Total livestock and poultry (1,000 t)	5.3	2.9	1.8	2.3	2.6	3	3.4	3.8	4.3
Number of pigs (million)	23.5	14.7	8.5	7.3	8.4	8.7	9.2	10.6	10.8
Piglets per 100 sows (number)	—	—	1,155	1,695	1,824	1,754	2,043	2,255	2,278
Herd turnover (%)	—	—	11.3	10	10.7	12.2	11.7	11.2	11.4
Output of meat per pig (kg)	61	50	62	107	121	120	134	156	159

Source: Rosstat (2011, Tables 15-5, 15-21)

As evidenced by the trajectory of Cherkizovo Group, the government’s strategy has effectively supported the formation of large-scale pig production enterprises. Originally formed through a merger of the Cherkizovsky and Michailovsky agro-industrial groups in 2005, Cherkizovo Group describes itself as the “leading Russian vertically integrated, agro-industrial company with operations spread across the full production cycle” and currently operates several pig and poultry farms, as well as large meat processing facilities, in western Russia.⁵¹ Today, after several years of growth, Cherkizovo is Russia’s largest meat processor and third-largest producer of pigs (Cherkizovo Group 2010). The company’s 2010 annual report, aptly subtitled “an appetite for growth”, describes the firm’s recent trajectory:

Last year was ‘the year of the pork business’ for the group — it was in this segment that we were most active in development and volume growth. In 2010, we acquired two new complexes and started construction on three additional complexes, which will result in installed capacity rising to 150,000 tonnes in 2012. Our increased market share ranks Cherkizovo as one of the top three Russian producers today, and is proof of the group’s successful strategy (ibid., 11).

Between 2006 and 2010, the company invested over \$400 million in the construction of several modern production complexes, which “combine separate breeding, rearing and fattening facilities, all involving state-of-the-art technology” (ibid., 21). As a result, physical

⁵¹“About Cherkizovo.” Cherkizovo Group corporate website. <http://www.cherkizovo-group.com/en/about/> (accessed January 25, 2012).

productivity rose considerably, as reductions in piglet mortality and average fattening periods increased the amount of meat per sow Table 5.15).

Table 5.15: Overview of Cherkizovo Group (2006–2010)

	2006	2007	2008	2009	2010
<i>Financial performance</i>					
Total sales (million \$)	637.3	854.6	1,196.7	1,072.5	1,188.2
Pork division (million \$)	27.8	69.9	112.5	139.9	222.2
Share of total (%)	4.4	8.2	9.4	13.0	18.7
Total profit (million \$)	37.9	71.3	82.4	120.9	152.8
Pork division (million \$)	6.8	23.1	37.5	37.8	69.4
Share of total (%)	17.8	32.3	45.5	31.3	45.4
Total operating profit margin (%)	8.0	10.0	9.0	14.0	14.0
Pork division (%)	26.0	35.0	35.0	31.0	33.5
<i>Pig division productivity</i>					
Average marketable pig weight (kg)	113.0	110.0	111.5	110.0	110.0
Average fattening period (days)	195.0	185.0	183.0	176.0	177.0
Average litter size (piglets)	11.1	11.4	11.7	11.8	11.2
Survival rate (%)	76.0	80.3	79.1	79.0	78.1
Annual pork yield per sow (kg)	2,175	2,273	2,338	2,303	2,090

Source: Cherkizovo Group annual reports.

Due to its rapid growth trajectory, Cherkizovo has become an attractive target for financial investors. The Russian investment firm Rye, Man & Gor Securities describes Cherkizovo in a 2010 report (the first in its now regular coverage), noting that its

[m]argins are strong and rising, and the company has the benefit of strong government support for the agro industry, which give it an effective tax rate of only 5% and an effective interest rate as low as 4%. ... Cherkizovo is an attractive bet in the Russian consumer universe. We find Cherkizovo undervalued and recommend to BUY (RMG Research 2010).

In 2011, Cherkizovo received 382 million rubles in government subsidies, including 168 million for the development of further pork production facilities.⁵² Most recently, in February 2012, the company opened three pork complexes in the Tambov, Lipetsk and Voronezh regions in

⁵²“Cherkizovo welcomes Russian governments measures to support domestic meat producers.” Press release August 15, 2011. <http://www.cherkizovo-group.com/m/en/press-center/news-archive.aspx?news=2325> (accessed October 5, 2011).

central Russia, and plans to add further capacity by 2013.⁵³

Russian president Dimitry Medvedev, in a July 2011 speech, referring to the “integrated meat production facilities” which were created with the support of government investment programs, summarized the accomplishments of the state’s efforts at building a segment of competitive large-scale operators: “Belgorod Region looks like a modern European region in this regard, like our neighbouring nations where these facilities have been developing for a long time” (Medvedev 2010). Vladimir Putin, in a speech on agricultural policy in November 2011, offered an even more enthusiastic assessment: “Look at the livestock farms that we are building. They are a feast to the eye. They don’t make them that good in the West. The West still doesn’t have such farms. You see, we already have something to be proud of” (Putin 2011).

This process has been aided by swine epidemics which have especially affected “vulnerable private households” (USDA Foreign Agricultural Service 2012d, 3). Hog epidemics, such as African Swine Fever (ASF) and Classical Swine Fever (CSF), are a major concern for policy-makers and can undermine the results of government industrial policy. As Russian president Dimitry Medvedev remarked at a government cabinet meeting in July 2010, “an outbreak even in a single region can threaten our entire nation, affecting our domestic production and exports” (Medvedev 2010). Similar to the Chinese government, the Russian state is suspicious of small operators’ safety and hygiene practices, seeing as ASF and CSF mostly affected small private producers. Just as China’s leaders blamed the practice of backyard farming for diseases like PRRS, the Russian president, too, suspects that small private farms are responsible for the spread of swine fever:

We had serious problems with swine cholera [CSF] in the North Caucasus Federal District in 2008, 2009, and 2010, and this showed that the primary focus of infection may be located at private farm holdings, which are not subject to any form of mandatory registration or supervision by veterinary services, but which

⁵³“Cherkizovo Group: Rearing facilities launched at new pork complexes.” *PigProgress.net*, February 29, 2012. <http://www.pigprogress.net/news/cherkizovo-group-rearing-facilities-launched-at-new-pork-complexes-8418.html> (accessed March 3, 2012).

must fall under strict and rigorous control to prevent any such scenarios in the future (Medvedev 2010).

After an estimated 250,000 pigs were destroyed as a result of swine fever between 2009 and 2011 (USDA Foreign Agricultural Service 2012d), the government considered banning pig breeding on private farms altogether in 2011.⁵⁴ Though that course of action was not pursued, the negative consequences of swine epidemics have been felt disproportionately by small household farms as the state has implemented measures aimed at reducing the hog inventories of small private farms. In certain pig-producing regions, private households have been restricted to keeping no more than three pigs (USDA Foreign Agricultural Service 2012d). As a result of these policies and in the wake of the hostile market conditions following ASF, many small producers have gone out of business or reduced the size of their operations. Simultaneously, however, epidemics have actually created new opportunities for large producers. As the general director of a large-scale pork processing enterprise explained in March 2012,

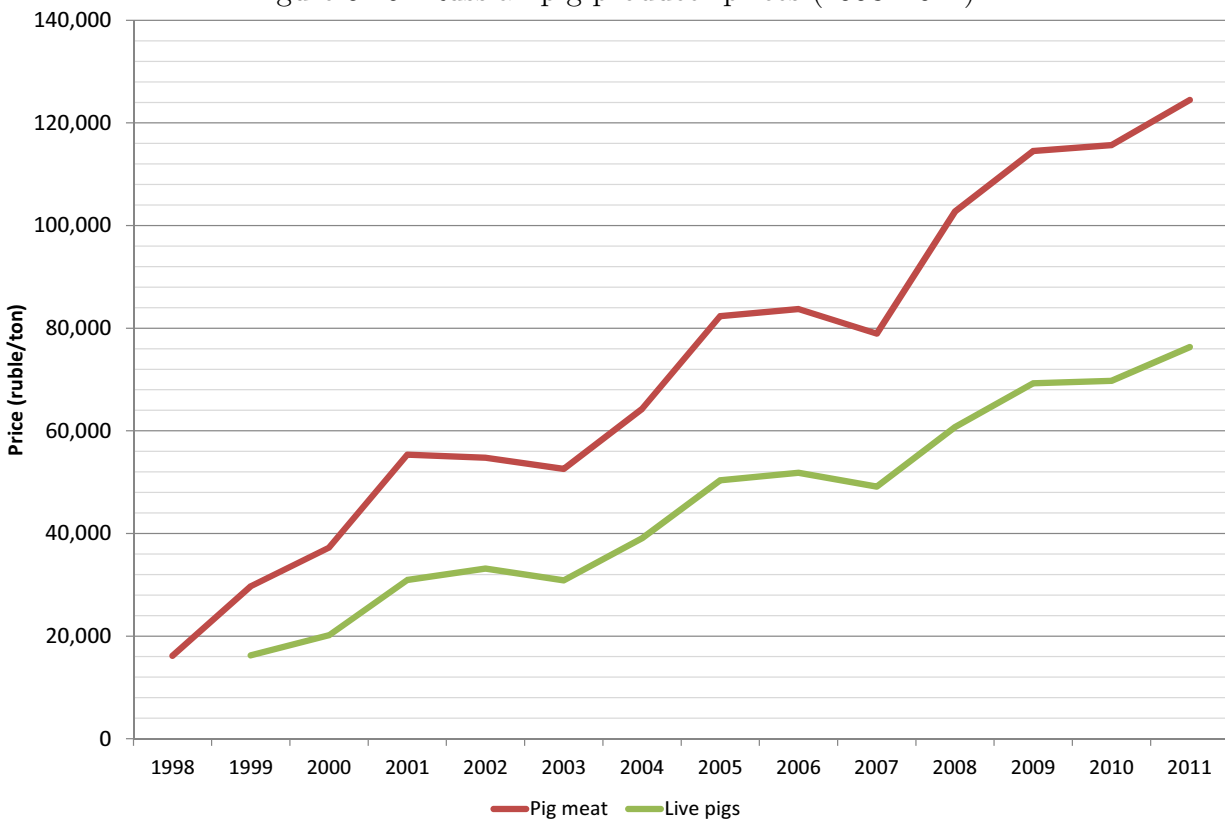
Competition in the market is very low at the moment. . . . New pig facilities have a minimal risk for African Swine Fever (ASF). In addition, the competition on the market in southern Russia is currently very low. ASF dramatically cleared the market: many pig farms closed, private farms reduced the size of their herds, as they can not provide the necessary veterinary security. In short, new complexes will have great prospects for the future.

Although pork prices have fluctuated as a result of swine epidemics, producers have generally enjoyed a favorable market environment. Indeed, as Figure 5.16 shows, the prices for pigs and pig meat have been consistently rising in recent years and have contributed to the growing profit margins of large operators. Coupled with government protection of trade, rising prices have created highly favorable conditions for domestic producers. As described in a recent analysis on a meat industry website,

⁵⁴“Russia: Private farm breeding may be banned.” *PigProgress.net*, July 7, 2011. <http://www.pigprogress.net/news/russia-private-farm-breeding-may-be-banned-7539.html> (accessed October 3, 2011).

Russian hog producers are in a wonderful place. Market hogs with good genetics are bringing about \$325 US dollars per head or around \$1.40 US a pound live weight. In a meeting with one producer we said you must be making \$150 US per head, he corrected us it is \$190. Imagine that wouldn't fill an equity hole and to think some 12 pound pigs in the US are \$10 each. Now there are still many poor producers in Russia. One we met said his hogs take 300 days to reach 220 pounds (100kg), 14 pigs per sow per year. 35mm (1 1/2 inch) back fat. They also receive about a \$40 per head discount for poor quality. We calculated the difference in production cost and market price received was a minimum \$100 per head less. The joke is they still were making \$50 per head. It's a fool's paradise though, as this will not last forever. They are dead men walking unless they upgrade their technology.⁵⁵

Figure 5.16: Russian pig producer prices (1998–2011)



Source: Rosstat (2012a)

As in China, the process has not followed a uniform geographical pattern. In western regions of Russia, such as the Central Federal District (especially the *oblasts* Belgorod,

⁵⁵“Pork Commentary: A Week in Russia”, by Jim Long. *ThePigSite.com*, August 10, 2011. <http://www.thepigsite.com/swinenews/27247/pork-commentary-a-week-in-russia> (accessed October 3, 2011).

Voronezh, and Yaroslavl) and the Northwest Federal District, large farms accounted for 86.1 and 86.8 percent, respectively, of total pig inventories in 2011, whereas the share of large-scale operators was below 50 percent in Siberia and the Russian Far East (Table 5.16). This discrepancy reflects a focus of government policy on Russia's western, more industrialized regions.

Although Medvedev stated that the positive results and “world-class technologies” of western Russian pig producers could serve as “an example to be used in other regions” (Medvedev 2010), the emphasis on developing large farms in Russia's more accessible western regions has another objectives, namely, turning the nation into an exporter of meat. While Medvedev acknowledges that “[n]aturally, our priority is domestic consumption”, he sees opportunities in international trade:

Current forecasts predict a significant growth in meat consumption throughout the world — mainly in poultry and pork. Russian meat is already exported on a regular basis to countries like China and Vietnam. . . . These are relatively small volumes for now, but we need to start somewhere. In this case, new opportunities open up for Russia to become a major player in the international food market. Therefore, we need to work on balancing the situation domestically and deal with our export opportunities, because without exports, we will not be able to create properly functioning livestock farming. We need to do everything necessary to reach this strategic goal: we must create financial mechanisms, infrastructure, and a legal framework (ibid.).

At present, Russia continues to rely on trade protection while further increasing investments in the livestock sector, allocating approximately 6 billion rubles of annual support to pork production alone for a period of three years.⁵⁶ As an analysis by the United States Department of Agriculture puts it (with a rather dissatisfied undertone, one might add): “Russia continues to impose on foreign suppliers prior to its WTO commitments coming into force” (USDA Foreign Agricultural Service 2012d, 1). Most recently, the government considered banning all imports of pork and live pigs from the European Union, citing violations of veterinary requirements, after already restricting Chinese imports in 2011.⁵⁷

⁵⁶“WTO accession forces Russia to spend billions on pig industry.” *PigProgress.net*, March 5, 2012.

⁵⁷“Russia considers banning all EU pork - not only pigs.” *PigProgress.net*, March 7,

Table 5.16: Regional distribution of pig production in Russia (2010–2011)

	Herd size (1,000 heads)		Meat production (1,000 t)	
	2010	2011	2010	2011
Central Federal District	5239.4	5993.8	941.4	1035.8
Volga Federal District	4144.7	3714.9	735.9	723.3
Siberian Federal District	3039.7	3050.6	528.4	552.2
Southern Federal District	2142.8	1946.7	454.9	425.4
Ural Federal District	1201.6	1162.2	199	212.9
Northwest Federal District	693.1	737.4	110.4	125.5
North Caucasus Federal District	464	418.3	72.8	74.5
Far Eastern Federal District	292.5	309.1	43.1	46.5

Source: Rosstat (2012b, Table 10)

The result of these measures, of course, is protection of domestic industry from foreign competition. Significantly, however, this does not preclude the Russian state from once again liberalizing trade when it proves expedient in the future (after domestic producers have been allowed to become more competitive). Similarly, when exports were given preference over domestic farm revenues, the state tolerated low prices to increase attractiveness of wheat exports and stopped to abide by its previous regime of grain market interventions. In other words, seemingly drastic ‘anti-market’ measures, such as a ban on European pork imports, which accounted for over 50 percent of pork imports in 2011, are temporary industrial policies, as opposed to permanent shifts away from market regulation.

5.5 Discussion

Today, China and Russia have succeeded in establishing market-oriented agricultural and food sectors, which — in the case of Russia, increasingly — fulfill their government’s expectations of feeding their populations without supply disruptions or import dependence. Both states are in the process of entirely subjugating their economies to the laws of capitalist production as a source of national success and state power. As the above country and sector studies have shown, both states view (domestic and international) markets as an effective and therefore suitable means of attaining both food security and economic growth. In order to achieve this, both countries first constructed a physical and institutional infrastructure, modernized the means of production, and ensured that its domestic producers were competitive before opening their economies to international trade (by joining the WTO).

In the case of Russia, this strategy only took shape under the leadership of Vladimir Putin and Dmitry Medvedev, who reasserted the role of the state in national economic development. The shape and organization of the agricultural sectors of Russia and China thus only

2012. <http://www.pigprogress.net/news/russia-considers-banning-all-eu-pork-not-only-pigs-8452.html> (accessed March 11, 2012).

“Russia bans pork imports from China.” *PigProgress.net*, September 15, 2011. <http://www.pigprogress.net/news/russia-bans-pork-import-from-china-7803.html> (accessed March 11, 2012).

converged during the early 2000 decade. At different points in their development trajectory, both states resorted to active industrial policy to shape the structure of their agricultural sectors and to ensure the emergence of globally competitive agricultural producers. This was accomplished by forcing small farmers to exit the market, while subsidizing larger companies and encouraging the formation of conglomerates. Still, whenever there emerged a conflict between food security, social stability, and the development of the market economy, Russia and China always gave the former concern precedence over the latter.

Indeed, both Russia and China have demonstrated their willingness to suspend the ordinary operation of markets when reasons of state necessitate this. For example, during the severe drought of 2010, the Russian government imposed an export ban on wheat to prevent grain merchants from selling their product abroad (at higher world market prices), thereby threatening domestic food security. Similarly, the Chinese state has repeatedly intervened in wheat and pork markets to ensure a stable supply of food for popular consumption. The implementation of a program of market reforms and the establishment of a capitalist economy are thus ultimately subordinate to the goals of national success and state power.

The reshaping of society according to market principles implied a qualitative change in the relationship between state and economy. Whereas under socialism, the state performed the role of a ‘national collective capitalist’, it now relies on the profit appetite of private businesses to secure the supply of all products, including basic goods such as food. The state, however, does not simply leave these businesses to their own devices, but assists them in accumulating capital and producing profits by providing cheap credit, building and maintaining a modern public infrastructure, and organizing the conflict between capital and labor through legal regulation.

One of the central prerequisites necessary for capitalist accumulation to proceed smoothly is the establishment of a private monopoly on land. Both Russia and China effectively accomplished this, albeit through different means: Russia implemented a system of private property (with certain limitations), while China created a *de facto* private ownership system

through the institution of long-term usage rights. Thus, even though some “illiberal” (Wegren 2009a, 102) limitations to the exercise of land ownership rights exist both countries, farmers and agricultural enterprises now have the objective material incentive structure of private entrepreneurs.

As noted above, the Chinese state in particular has been dissatisfied with the structure of land tenure, and has a preference for larger farms and agricultural organizations. Still, in order to preserve social stability — land ownership is a form of social insurance for returning migrant workers (Lohmar and Gale 2008) — the Chinese government has been careful not to permit excessive land concentration. As far as the ownership structure of agricultural land is concerned, Russia has advanced farther toward implementing a full capitalist market economy by allowing the mortgaging of land — something that China has been slower to implement.

As has been argued extensively, the prevalence of market relations in the agro-food industries of Russia and China does not imply a passive role for the state. Rather, the governments of both countries ensure that the production of food takes place in accordance with national interests through active guidance and systematic interventions. In particular, the comparison between Russia and China demonstrates that the establishment of formal market institutions does not necessarily lead to sustained capital accumulation. The comparison further shows that the institution of a market economy can take place without uniform organizational practices and sectoral structures, as actors operating in diverse organizational and sectoral contexts adapt their operating procedures to capitalist principles of production. Even within sectors, diversity exists, as is evident from the co-existence of small farms and agricultural conglomerates — yet even small operators have increasingly become integrated into vertical production chains.

The fact that Russia and China have not established the exact same institutions, and have taken somewhat different paths toward the implementation of a market economy, does not indicate the presence of fundamentally different ‘varieties of capitalism.’ Rather, when

examining the economic development of the two countries, and in particular the institutional structure, there appears to exist a convergence toward similar principles of organization. In the case of both China and Russia, building a capitalist food and agricultural economy required a major effort by the state, as farmers and agricultural organizations had to be strongly incentivized (if not outright coerced) into adopting principles of market production.

Irrespective of whether the reforms have resulted in an improvement of food security for the population, new problems have emerged from the perspective of the state. These problems are in fact a necessary consequence of the implementation of market reforms, as they follow from the logic of capitalist production: In a capitalist economy, producers are always seeking to maximize profits, and thus necessarily to minimize costs, leading to compromises concerning the quality and safety of products. Since the state has an interest in ensuring its population with a safe and nutritious diet, as well as other goals that are separate from (and more or less compatible with) the accumulation of capital, it has to regulate the market accordingly.

5.6 Conclusion

Throughout this chapter, I have consistently referred to Russia and China as capitalist economies. Based on the analysis presented, however, one might object that their food-producing sectors exhibit some rather prominent differences from those found in the ‘archetypal’ capitalist economies or the North Atlantic region. In particular, household plots (sometimes tiny) and small-scale family farms play a significant role in the agricultural systems of Russia and China, respectively. Further, neither country displays a trend toward consolidation of land ownership or displacement by domestic agri-businesses. This is strikingly different from, say, the organizational structure of farming in the United States, where the output share, as well as the absolute number, of family-operated farms has been in decline for decades.

The persistence of small agricultural operators should not, however, be misinterpreted as an indicator of ‘partial’ or ‘incomplete’ transition simply because they do not fully utilize capitalist economies of scale and scope. As my analysis has revealed, farmers and food enterprise in both countries are profit-oriented and behave like capitalist operators, despite their size and given the structural constraints they face. In both countries, agricultural products are sold at market prices and state intervention is the exception rather than the norm. Farms rely on credit to finance future production and investments in technology. Further, just as the West has seen vertical integration of large-scale agribusinesses, contract farming with agri-business and large-scale operators have emerged in the food sectors of both Russia and China.

The introduction of profit-oriented governance had far-reaching implications for the production of food in Russia and China. Instead of having to fulfill government quotas, suppliers of food now sell their goods at market-determined prices. The organization of production is subordinated to the profit calculations of individual entrepreneurs, who struggle to adopt new technologies and marketing strategies to gain an edge over their competitors. Whether their products find a buyer — that is, whether there was sufficient market demand to warrant production, can only be determined in hindsight, however. Farms and food enterprises may produce for the market, but they do so “regardless of the existing limits of the market or of [human] needs backed by the ability to pay ” (Marx 1968b [1863], 535; author’s translation). In other words, different operators each have the expectation to grow their market shares but make their calculations and production choices without knowing whether they will prevail in light of their competitors’ efforts to do the same.

Nonetheless, from the standpoint of both Russia and China, the reforms effectively addressed food security, significantly increasing production of both grain and meat products and even allowing the two nations to become major exporters in certain product categories. These accomplishments notwithstanding, markets require constant regulation and policy attention to ensure short-term stability for producers (and to a lesser extent, consumers) while

creating institutional conditions for long-term accumulation. Thus, even though capitalism eliminated the immediate basic food security concerns which had threatened popular reproduction in both countries, new challenges requiring permanent policy attention have now emerged.

Because both the Russian and the Chinese government subordinated their food economies to the criterion that the production and distribution of food must be profitable for farms and businesses, problems such as food safety, quality of nutrition, and environmental destruction have emerged. When the state permits private economic activity, farmers and producers become economically self-reliant and compete against others in the market. Within a given sector or industry, market players can compete through price and quality of their products. As it turns out, producers of food are quite willing to compromise on the quality of products when their bottom line is at stake (e.g., by relying on poisonous chemicals to promote faster plant or animal growth or by housing and feeding animals in a manner that promotes diseases). Though undesirable from the standpoint of the state, these challenges are a direct result of reform decisions, which must be mitigated with compensatory policies. The state does so only to the extent, however, that undesirable outcomes might threaten the foundations of economic reproduction. For instance, the state may have to ensure through grain price interventions that privately controlled production and distribution do not mean that poor segments of the population cannot afford basic foodstuffs.

Social scientists studying the institutional logic of state socialism have long predicted that such contradictions could emerge. The ‘Cambridge School’ economist Joan Robinson, for instance, observed in 1972 (remarking on the possibility of ‘market socialism’): “Breaking out of [the rigidity and overcentralization of Soviet-style planning] can no doubt produce striking immediate improvements, but ‘market socialism’ seems to run into a fundamental objection ... The difficulty is connected with the determination of prices. When the enterprise has the right to fix the prices of its own products, much of the waste and irrationality of the market must follow — imperfect competition, advertisement, catering to the tastes of

the higher-income families and neglecting the needs of the poorer ones” (Robinson 1974, 49). The Chinese reformers clearly had an inkling of this possibility, passing the nation’s first food safety law in November 1982. The promulgation of the law coincided with the dismantling of People’s Communes, suggesting that reformers had every reason to believe that private economic actors would engage in such practices as selling “foods that can be injurious to human health because they are putrid or deteriorated, spoiled by rancid oil or fat, moulded, infested with insects or worms, contaminated, contain foreign matter or manifest other sensory abnormalities” (Art. 7.1). Since 1982, the government issued a series of food safety-related regulations, including three major laws (see Table 5.3 above). Despite this high degree of policy attention, the prevalence of food that is unsafe for human consumption has drastically increased over the course of market transition. According to a 2011 survey by AsiaInspection, an international quality control service provider, over 50 percent of food inspections conducted in mainland China in 2011 failed; one in five incidents involved critical defects or contamination (AsiaInspection 2012).⁵⁸ This development constitutes a major concern from the standpoint of the government, given rising popular pressure for safer food, and fears over reduced attractiveness of Chinese foodstuffs as export commodities.

The post-socialist transition is often described as a process of state-economy separation. As the sector analysis and the preceding chapter have demonstrated, this paradigm is also applicable to the agro-food economies of Russia and China. Both the wheat and pig sectors were decollectivized and nowadays consist of private enterprises (or state firms behaving like private enterprises), while the state retreated from directly influencing economic life. This is not to say, however, that state involvement is no longer needed *per se*. As case discussions have shown, nothing could be further from the truth. Today, in both countries, the state is not simply less involved in the food production sectors. More vs. less, together vs. separate, and similar measures of degree fail to capture the qualitative nature of the post-socialist transformation. As my analysis, and especially the Russia-China comparison shows, the state

⁵⁸ The inspection failure rate for non-food products was found to be only 30 percent (AsiaInspection 2012).

is crucial to both the introduction and institutional maintenance of a capitalist economy. To be sure, the presence of the state is less visible nowadays, and its perceived presence in economic life has been reduced:

[T]he state in a capitalist economy has less power over the economy than does the state in a redistributory one. In the latter the state controls the great bulk of the economic resources and also decides what rules to follow; in a capitalist economy the state has the power only to set the rules and to channel certain resources from one point in society to another, not to decide how economic resources are to be used for purposes of production” (Swedberg 2005, 23-24).

The role of the state in a market economy extends significantly beyond the provision of regulatory parameters, however, and includes the maintenance of a system of economic, financial, regulatory, enforcement, planning, and research institutions, which permit and facilitate profit-oriented production and exchange.

Chapter 6

Conclusion

One of the principal questions which this dissertation set out to answer is whether food people in Russia and China are better off as a result of the transition to a market economy. The research presented in the preceding three chapters permits two answers to this question, depending on what is precisely meant by the notion of a *consumer*. As far as people's average food intake is concerned, the answer is clear: People are better off. Today, Russians and Chinese have more to eat, enjoy a wider variety of foods in their diet, and even among poorer segments of the population hunger is increasingly uncommon. Both states have largely resolved the question of national food security, as the Chinese and Russian strategies for modernizing food production have resulted in a reliable and expanding overall supply of food, rendering the famines and shortages of the socialist era (especially in China) and the post-reform period (under Yeltsin in Russia) a phenomenon of the past. This is especially significant for China, where many people alive today still have vivid memories of the suffering and deprivation of the Mao years.

As food consumers in a newly established market economy, however, Russians and Chinese primarily function as sources of purchasing power and domestic demand. As the following definition from an economics textbook elucidates, there exists an important difference between desire and demand:

In ordinary speech, the word *demand* is used rather loosely, and is often confused with desire. Desire is the wish to have something or to enjoy a service. But demand implies more than mere desire. It means that the person is willing and able to pay for the object he desires. Thus, conceptually, the term *demand* implies a *desire* for a commodity backed by the ability and willingness to pay for it. . . . If a man is willing to pay but he is unable to pay, his desire will not become demand. . . . The knowledge of demand for a commodity is very essential for the running of any commercial enterprise. . . . In the absence of demand, production becomes unwarranted. On the other hand, if the demand is very high the firm may have to work hard to produce the required quantity of output (Reddy and Saraswathi 2007, 47; emphases in original).

One might argue that, invoking a Sichuanese proverb frequently cited by Deng Xiaoping, ‘It does not matter if it is a yellow cat or a black cat, as long as it catches mice’ — in other words, that today’s absence of hunger is preferable over the deprivation of the past.¹ Yet as my research has indicated, it does make a considerable difference whether a producer of *food* is intending to satisfy consumer *needs* or is producing to capture consumer *demand*. This difference is easily appreciated if one reads the inside flap of the study *China: The Consumer Revolution*, published by the management consulting firm Deloitte & Touche in 1998:

For centuries China’s doors remained firmly closed while governments schemed, plotted and fought for access to its golden market. At last, the barriers have been removed — China is open for business. As China searches for a new identity, its people find themselves bombarded with countless consumer products and services from around the world. *But what do they want to buy? What is their spending power? What are their aspirations? How do they spend?* (Li 1998; emphases added).²

¹This quote has been widely interpreted as a reflection of Deng’s pragmatism regarding China’s economic reforms after 1978. In fact, the quote was used as early as 1962, when Deng invoked support for household plots after the Great Leap Forward at a time when market reforms were decidedly not on the table. The stated rationale for their adoption in 1962 was, however, already quite similar to the arguments advanced at the Third Plenum 16 years later, as Deng claimed that “we shall have no hope of success unless we make every effort to arouse the initiative of the masses” (Deng 1992c [1962], 296).

²The view that China constitutes a giant market, available for Western interests to exploit, has existed for some time. Already in 1974, a mere two years after Nixon’s visit to China and the normalization of Sino-American relations, an article in a U.S. corporate strategy publication noted,

“[E]very planner who is responsible for planning a corporate strategy for a company purporting or intending to be a substantial factor in its industry, world wide, should be concerned with the China market” (van Patten 1974, 28).

In *Selling to Newly Emerging Markets*, also published in 1998, Russia is depicted as an even greater commercial opportunity:

Russia, with a population of 148 million people and an area spanning eleven times zones, presents *an emerging market of historic proportions*, which is still relatively undeveloped. The population of China is considerably larger than Russia's, but China is more dependent on agriculture, while Russia is more highly industrialized. . . . The greater industrial concentration contributes to *higher individual purchasing power*. . . . The combination of greater industrialization and a more concentrated urban population creates a more accessible market structure in Russia than is available in China (*Miller 1998, 167*; emphases added).

In order for an economy to be considered an 'emerging market', it must be an attractive investment destination, which in turn presumes the existence of developed market institutions and a potent base of consumer purchasing power. As is evident from the above statements, by 1998, the international business community had concluded that conditions in the Russian and Chinese consumer retail markets were not only suitable for Western investors to risk their money, but in fact constituted unprecedented economic opportunities.

After several decades of reforms, the Russian and Chinese food economies today more than satisfy these criteria. The food retail sectors of both nations have become effectively commercialized over the course of the transition. As a result of rising average incomes and growing demand for processed consumer foods, especially among the urban middle classes, food retailers account for a significant share of total retail sales, averaging 54 percent (Russia) and 49 percent (China) between 1999 until 2009 (Euromonitor 2012).³ This share has increased over time in Russia, while gradually declining in China (*ibid.*). Per capita expenditure on food, measured in real terms, more than doubled in both nations between 1990 and 2009, growing 117 percent in Russia and 133 percent in China (*ibid.*). More importantly, commercial purchase has become the dominant mode of obtaining food in both countries. Russia's fast-growing supermarket sector is characterized by the presence of large chains, both foreign and domestic (Dries et al. 2004). The same holds true for China, where su-

³The category 'food retailer' includes hypermarkets, supermarkets, discounters, small grocery retailers, food/drink/tobacco specialists and other grocery store formats (Euromonitor 2012).

permarkets already control over 30 percent of the urban food retail market (Hu et al. 2004, 557). Family farms (in China) and household plots (in Russia) remain a source of subsistence for people in the countryside, but commercial vendors are making inroads into the rural economies of both countries. Gale et al. (2005), for instance, document a rapid shift in consumption from self-produced to purchased food in the Chinese countryside (see also Popkin 2008).

The implications for consumers are varied. Today, food retailers in both countries carry an increasingly large variety of products, offering consumers a considerable degree of choice — especially in comparison to long lines and regular shortages under socialism. This development is frequently depicted as an expansion of people’s personal freedoms. Davis (2000, 2-3), for instance, observes that in China, the “rapid commercialization of consumption did more than simply increase consumer choice and raise the material standards of living. It also broke the monopolies that had previously cast urban consumers in the role of supplicants to the state.”

Still, this newly acquired autonomy is subject to various forms of constraints imposed by the principles of market exchange. While food retailers offer a large variety of different products, these goods, at the point of sale to the consumer, have been fully commodified and are therefore distinguished by their *price* (exchange value) rather than their particular *nutritional quality* (use value). From the standpoint of a retailer whose objective is profit maximization, selling a can of beans is the same as selling a pound of beef. A consumer, conversely, may have a preference for certain foods (e.g., meat over vegetables) but experiences the purchase price as an objective constraint whose magnitude grows in inverse proportion to his income. Differences in *income* thus constitute the principal determinant of nutritional outcomes in Russia and China today. In other words, since access to food is now regulated through the market, possession of money determines which products an individual can consume — or whether an individual can afford to purchase any food products at all. Accordingly, although people in both China and Russia today are (on average) far better

off from a physiological and nutritional standpoint than during socialist times, this does not mean that everyone has enough to eat. The introduction of markets has brought with it manifest (and necessary) absurdities, such as the co-existence of obesity and malnutrition not only in the same country and province, but often within in the same county or city.

This observation may not be in and of itself original. After all, Marx (1968a [1867], 498-499) already debunked as an “illusion” the notion that “the purpose and driving motive [of the capitalist mode of production] is consumption, as opposed to the realization and capitalization of surplus value” (author’s translation). Similarly, Weber (1923, 16) notes that an “accumulation-oriented economy is principally characterized by autonomy of the economic sphere, geared only toward economic orientation and calculatory rationality” (author’s translation). The implementation of this orientation as the dominant principle of economic governance in the food economies of Russia and China does, however, constitute a novelty — and one with far-reaching consequences for consumers and producers. This dissertation has examined how these reforms have transformed the criteria according to which food is *produced* in China and Russia today.

Food producers, in particular, tend to have little regard for the dietary needs or desires of consumers in a market economy. As Michman and Mazze (1998, 4) note in a study of product marketing in the global food industry, “[t]he goal is to find a profitable way to satisfy a target market segment. Marketers are highly involved in analyzing the profit potential of different marketing opportunities.” Yet whereas ideologues like Michman and Mazze (ibid.) are convinced that “[p]rofitability and consumer satisfaction go hand in hand”, my analysis in the preceding chapter has demonstrated that this is generally not the case.

In the contemporary food economies of Russia and China, the coordination of production choices and consumer needs is mediated through markets. Precisely because the entire production chain is market-integrated, food production and food distribution each operate as functionally autonomous economic spheres, *within* which profit-oriented economic actors compete for (limited) market shares. All economic planning and decision-making thus takes

place on the organizational level, albeit within the legal and regulatory constraints imposed by the state.

Coordination between production decisions and consumer needs in a market economy happens indirectly, with producers relying on (estimated) consumer purchasing power as a gauge for *demand*, rather than ascertaining actual *desires*. Instead, producers as well as processors make autonomous planning decisions concerning the quantity, quality, and price of agricultural output and food products. In the sphere of production, coordination varies by organization type as direct producers do not have the same target markets as food processing enterprises — unless, of course, the two are combined in a single, vertically integrated agro-business conglomerate. Small-scale primary producers, such as households or small private farms, sell their products (the share that is not consumed on the farm) to wholesale enterprises or secondary processors and are increasingly relying on permanent delivery contracts with food manufacturing enterprises.

Thus, agricultural producers, whether of the small-scale household or the large-scale vertically integrated variety, do not enter into direct economic transactions with consumers, except on increasingly rare local (farmers') markets. Food processing and manufacturing enterprises also do not interact with the consumer but instead target the retail, restaurant, and hospitality sectors with their products, creating a further level of market mediation between the primary producer and the final consumer. Lastly, the food distribution sector is yet another autonomous economic sphere, in which retail operators and other consumer outlets compete for market shares in different consumer market segments. (The food retail sector was not examined in this dissertation due to reasons of parsimony, but constitutes a logical subject for further investigation.)

Capitalist planning decisions do not take into account the actual dietary needs of consumers, neither on an individual (qualitative nutrition requirements) nor on a social (aggregated consumption needs) level. Consumers do, however, enter producers' calculations insofar as they are (potential) customers and possess the purchasing power which food pro-

ducers hope to attract with their products (illustrating the aforementioned difference between desire and demand). Whether or not a given product is ‘needed’ in a market economy is only ever ascertained in hindsight, after market competition has determined its economic demand (see Marx 1969 [1863], 534-535). Similarly, whether somebody may access the food needed for their survival is decided by the market based on that individual’s ability to pay the requested price.

In aggregate, consumers do of course have the ability to influence producer behavior, both economically (through widespread refusal to purchase certain products) or politically (by exerting pressure on the government through petitions or protests). In China, for instance, consumers have responded to food safety concerns by increasingly turning to retail stores for meat purchases, and reduced their reliance on local markets.⁴ Still, the nature of these responses is always *reactive* to producer and retailer behavior, and assumes that consumers are at all aware of food toxicity (which is oftentimes difficult, given that this typically requires cases of death or widespread sickness for the media and authorities to become alerted to the use of toxic chemical substances), and second, that consumers are able to mount a coordinated response (e.g., an effective boycott).

That these problems are a necessary consequences of private interests in the food economy is evident first and foremost from the fact that the state treats them as permanent features of economic life: As I noted in the conclusion to chapter 5, the Chinese state adopted a law on food safety as early as 1982 in anticipation of producers who would minimize costs (as envisioned by the reformers) without regard to product safety and consumer health.

⁴Purchases of pork products, in particular, recently shifted to supermarkets, after countless reports emerged of local ‘wet’ markets selling pig meat that had been treated with harmful chemical additives to save costs at various points in the production process (Lohmar and Gale 2008). The effectiveness of this response is moreover debatable, since many retailers have their own history of food scandals; most recently, in 2011, the CEO of Wal-Mart China was forced to resign after it had emerged that low-quality pig meat had been deliberately mislabeled and sold as high-end organic pork (“Wal-Mart China CEO quits after pork scandal.” *Reuters*, October 17, 2010.)

6.1 Theoretical implications

Apart from these general observations concerning the relationship between market-oriented food production and human welfare, the analysis presented in the preceding empirical chapters permits several conclusions pertaining to the role of the state in capitalist development and the role of food security in government policy.

Contrary to the claims of neoclassical and neoliberal ideologues, all activity in a market economy is fundamentally premised on the regulatory presence of the government. Any economic transaction that occurs in a market economy takes the form of a contract between two legal persons, even in cases of verbal commitment. In many ordinary exchanges, the essential property of a contract — the option of legal recourse — is not consciously acknowledged by the participants, since each party can reasonably assume that the other will fulfill their contractual obligations. Yet even when someone purchases groceries at the local store, the transaction that occurs functionally presumes the legal and executive apparatus of the state — simply because a piece of private property is exchanged for a sum of money. The accuracy of this observation is quickly confirmed if one considers what happens if a hypothetical grocery customer leaves the store without paying: the shop owner calls the police, and the offender, assuming he can be apprehended, will be tried in court for theft of property from a retail establishment. This logic can be extended to any and all market-based transactions: they only take place because the state uses its monopoly on violence to guarantee the security of legally owned private property (within the territory under its sovereign control).⁵ Weber (1978, 337), for instance, argues that modern capitalist firms require a law that “is guaranteed by the strongest coercive power”, that is, there must be a high likelihood of enforcement in case legal rules are violated.

⁵One might object that black markets and other spheres of unregulated exchange operate without reliance on the court system or the police. Yet from the standpoint of the transacting parties, this absence technically speaking constitutes a deficiency, as they are forced to organize their own means of violence, instead of relying on the existing institutional infrastructure provided by the state. In practice, the illicit or illegal nature of most black-market transactions necessitates the explicit evasion of any form of government attention, yet their ultimate dependence on a credible threat of violence remains unaffected by this need for avoidance.

Yet as my examination of industrial policy and economic organization in the Russian and Chinese food economies has shown, the above insights concerning the operation of an established capitalist order do not apply to a system that is still under construction.⁶ To be sure, building market economies in Russia and China was not simply a matter of the state “retreating” (EBRD 1999, 167) from the economy, as Western policy advisers recommended to Russian reformers following the dissolution of the Soviet Union. To the contrary, a complex set of institutional conditions first had to be established to render possible the pursuit of profit by private actors. During the early stage of market reforms, many of the institutions necessary for profit-oriented economic activity did not exist in Russia and China. In particular, both countries had no propertied class with the financial resources to make profitable investments in the agro-food sector (or elsewhere). To the extent that institutions such as banks, enterprises, and limited markets existed under socialism, these served as instruments of state planning rather than as means of private accumulation and therefore had to be repurposed for profit-oriented governance (Held 1992a; Dillmann 2009). Economic reformers in both countries were hence forced to build capitalism not *on* the ruins of socialism but *with* the ruins of socialism (Stark 1992; 1996).

More specifically, I have argued throughout this dissertation that state-guided intervention and development accounted for China’s successful transition, while explicit “state withdrawal” (Wegren 2005c, 62) under Yeltsin led to economic chaos in Russia. Whereas China’s development was characterized by strong state guidance from the onset of reforms, a precondition for Russian recovery was the reassertion of state power which only occurred under president Putin. More recently, both countries have taken active steps toward further developing their industrial infrastructure and modernizing the means of production in their simultaneous pursuit of domestic food security and economic growth through participation in global markets. As Russia adopted this strategy relatively late, its food production and

⁶This finding echoes Polanyi’s writings on nineteenth-century British capitalism, in which he observed that the creation of markets required a considerable increase in the state’s infrastructural and repressive powers (2001 [1944], 81-89; see also Block (2003)).

policy regime only began to resemble China's around the middle of the 2000 decade.

Many of the improvements in Russian and Chinese agricultural output and food production are the consequence of the implementation of modern production methods. In a sense, they do not immediately follow from the establishment of a market economy, as both states (though more obviously China) used their legal and policy apparatuses to fund and otherwise support the physical infrastructure and technological upgrades needed for a more productive food economy. Both modernization and mechanization of agricultural equipment, as well as the industrialization of the agricultural production process, are conducive to increasing the total output of products — ‘use values’ — in any kind of economic system. In other words, the increase in the physical output of agricultural and food products was not the consequence of a market economy *per se*, but of the active establishment of market institutions, the upgrading and modernization of the means of production and the physical production and distribution infrastructure, and the careful management and regulation of their necessary (and sometimes contradictory) consequences.

Many of the benefits that market reforms brought to China and Russia were thus not due to ‘the market’ itself, but were rather the result of deliberate state action. As I have shown in chapter 5, the governments of both countries needed to actively intervene in the economy to effect the adoption of modern (rational) technologies among profit-oriented producers, a process that did not follow from any ‘law’ of economics. Rather, in an established capitalist economy, producers (of food or of any other good), be they farmers or agricultural enterprises (with incentivized management), will require sufficient money in order to make any investments, regardless of how profitable they may appear. Without capital, there can be no capitalists, and no capitalism either. Second, even when a capitalist does have sufficient money to use as capital — that is, to invest it with the expectation of profit —, he must be able to recoup sufficient returns on his investments in order for it to pay off — either through cost-saving or through absolute expansion of production. Without the expectation of profit, capitalists will not invest their money in improving production efficiency, but will instead

resort to buying U.S. Treasury bonds or similarly reliable and secure financial instruments that guarantee stable (if only modest) returns.

In the Chinese and Russian food economies, these conditions had not yet been fulfilled. In order for aspiring agro-entrepreneurs to invest their money into anything, there had to be an expectation of a reasonable return on investment. If the state expected the capitalists to implement new technologies, to adopt certain production methods, to produce certain goods — to do anything at all — it would need to establish and support conditions of profitability in the food economy. China, and more recently, Russia, have adopted various measures to this effect, the first and most fundamental of which is the provision of subsidies to producers. As a result of economic self-reliance and exposure to competitive markets, every single decision that a modern farmer makes is ultimately predicated on a cost-revenue analysis aimed at maximizing return on investment: will it be more profitable to use old and outdated machines rather than purchasing new equipment, or to use chemical substances (such as fertilizers and veterinary medicines) rather than purchasing non-toxic (but perhaps more pricey) alternatives? Any commercial food producer who is (still) in business will carry out these types of calculations; the same operational logic applies to any other area of agro-business activity. To effect that producers adopt any given practice or engage in any given behavior, the state needs to either make this profitable, or rely on non-market means (such as fines and other penalties) to threaten an economic loss.

As demonstrated by my analysis of state industrial policy in the wheat and pork production sectors, the governments of Russia and China did not go through the long, arduous, and resource intensive process of establishing and managing a capitalist food economy (including the promulgation of a plethora of laws, and the establishment of an elaborate administrative enforcement apparatus) simply to provide food to their populations. Rather, for both states, the agricultural and food production sectors also — if not primarily — represent a means of achieving national economic success. Agricultural commodities represent a vast source of economic value, in particular when a country turns into a *net exporter* of food, permitting

a positive balance of trade and net inflow of capital. Participation in global food markets presumes, however, that domestic enterprises and organizations in the agro-food economy are highly productive and globally competitive, which in turn requires economies of scale and scope, modern machinery and production facilities, the availability of sufficient investment capital, and a stable and favorable institutional environment. In practice, this means that both China and Russia have behaved, and continue to behave, in ways that are frequently regarded as antithetical to the successful operation of a market economy.

There is another aspect to national agricultural and food policy. As observed above, capitalist states encourage, sustain, and ensure the continuous accumulation of capital only insofar as it does not interfere with other, more fundamental state objectives. One of the universal requirements for national success is a relatively healthy, motivated, and actionable population that can be used for economic development, and — if needed — serve as human material in armed conflicts. In this regard, a state's agriculture and food policy is not primarily concerned with feeding the population as such, but with the maintenance of a well-nourished population as a precondition for national development. In order to ensure a steady and reliable supply of food to its population, both Russia and China have established sophisticated grain management systems, and have shown their willingness and ability to intervene in agricultural markets — or to even suspend them temporarily — when necessary. Examples from the recent past include Russia's export ban on wheat following the drought of 2010 and China's decision to intervene in domestic pork markets, as a reaction to spiraling inflation and the resulting threat to social stability (as discussed in chapter 5). Rather than adhering to free market ideology and ideologues, according to whom the state merely guarantees property rights and contracts in order to facilitate exchange relations, Russia and China have taken an approach of actively managing and regulating their newly established capitalist food economies.

6.2 Contribution

China and the Soviet Union previously constituted the two principal cases of *actually existing socialism*, and were therefore a frequent subject of social scientific study (e.g., Bell 1958; Millar 1981; Nove 1986 for the Soviet Union; Donnithorne 1967; Eckstein 1977; Howe 1978 for China). As alternative (or even competing) varieties of socialism, they were routinely compared and contrasted (e.g., Rostow 1955; Treadgold 1967; Bertsch and Ganschow 1976) — especially as the national interests and ideological orientations of the two countries diverged after 1960.

Today, the social scientific landscape appears rather different. Three decades after China's turn toward markets and profit-oriented governance, and some twenty-five years after Gorbachev's initial experiments in reform socialism, there is a dearth of systematic comparisons of how the economic systems of the two countries have evolved since the end of central planning. Among social scientists, both countries are now considered to be capitalist or at least in the process of transitioning toward some variety of capitalism. One consequence of this shift has been unequal scholarly attention, as the economic performance of the two countries diverged sharply. China recorded high levels of economic growth, at times in the double-digits, attracted billions of dollars worth of foreign investment, and recently surpassed Germany to become the world's third-largest economy. Russian reforms, after 1991, initiated a period of deindustrialization, hyperinflation, and (ultimately) sovereign default. Given this differential performance during the initial transition years, it might not come as a surprise that the two countries were not equally appealing as objects of study. After all, success is more interesting than failure, especially when this success is unexpected, as it was in the case of China. Thus, publications attesting to and explaining China's 'spectacular' and 'amazing' growth have abounded; Whyte (2007) even opined that so many factors have been plausibly suggested as explanations of China's growth that its success appears entirely over-determined in hindsight. Russia, at the same time, generated only a fraction of China's

scholarly interest.⁷

The majority of studies comparing Russia and China during the post-socialist period have consisted of investigations into the determinants of economic success or lack thereof. In this regard, the two countries have been routinely used as evidence in debates over the viability or impracticability of one ‘model’ or ‘approach’ to post-socialist development. The analysis presented in this dissertation has decisive implications for several of these debates.

‘Shock therapy vs. gradualism’

One of the oldest and most ardently debated questions regarding the transition to capitalism concerns the speed and sequencing with which reforms took place (see Hamm et al. 2012 for a review). In this context, China’s gradualist transition strategy has been presented, oftentimes explicitly, as an alternative to Russia’s “shock therapy” reforms (e.g., Burawoy 1996; Rawski 1999; Woo 1999; Buck et al. 2000; Popov 2007b). Similarly, in debates over the institutional arrangements most suitable for promoting economic development, studies have highlighted the advantages of China’s experimental approach to reform over Russia’s attempt to build capitalism from neoliberal blueprint (e.g., Jefferson and Rawski 1994; Amsden et al. 1994; Nolan 1995; Stiglitz 2000), even if the outcome of China’s experimentation ultimately still resembles a neoliberal vision, as Huang (2008) contends.

My research, especially the analysis presented in chapter 5, conclusively demonstrates that differences between Russia and China today are no longer appropriately characterized as path-dependent outcomes of early transition policies, be they gradualist or radical. In fact, as my discussion of industrial policy in the wheat and pig sectors has shown, the development strategies of the two countries have been converging. China, and more recently Russia, have taken approaches toward capitalist development that strongly resemble those of ‘late-developing’ nations, such as the United States, Germany, Japan, South Korea and a

⁷The relative lack of attention paid to Russia likely has reasons beyond the country’s economic performance, as is suggested by the fact that even when Russia’s economy did grow after 1999, it did not receive the same degree of attention as China.

handful of other advanced industrial economies. In all of these cases, state policy was a crucial factor in promoting and maintaining an environment conducive to rapid industrialization, and in setting the pace of industrial development through targeted market interventions (Gerschenkron 1962; Amsden et al. 1994; Evans 1995; Chang 2007). These states all employed an arsenal of measures to ensure competitiveness of key industries, including the building of physical infrastructure and the modernization of the means of production, as well as the gradual implementation of a legal system and an administrative enforcement apparatus. These states also relied on direct and indirect subsidies to domestic producers, protectionist tariffs and quota systems, and large-scale investments in research and technology. Similar features can now be readily discerned in the development trajectories of Russia and China, suggesting that it is only when a state actively oversees the establishment of a capitalist economy — assuming it possesses the wherewithal to do so — that market reforms will benefit its economic development.

In this context, it is noteworthy that many scholars have traced China's success to strong state guidance during the transition, and blamed the hands-off approach of Yeltsin's government for the economic decline and social chaos of post-Soviet Russia (Stiglitz 2002; Kotz 2005), yet only a few have attributed Russia's post-1999 economic resurgence to more effective state direction under Putin. Exceptions include Lane (2008, 177) who termed Russia a case of "state-led capitalism", and Ferdinand (2007, 663), who went so far as to call Russia a "developmental state."

'Capitalism from above vs. capitalism from below'

Russia and China have also served as case studies in scholarly debates over whether capitalism was introduced 'from above' by political elites and with the intention to "convert political office into private wealth" (Eyal et al. 1998, 119), or by pressure 'from below', be it from farmers or from budding entrepreneurs. The explanatory value of spatial-directional metaphors in the study of political economy aside, the analysis presented in the preceding

chapters strongly supports the notion that the capitalist transition in the Russian and Chinese food economies was, in fact, initiated ‘from above’. That is, markets were established by state edict, sometimes explicitly (see chapter 4) and more importantly, both China (since Jiang Zemin) and Russia (since the Putin-Medvedev era) have made the development of agriculture and food markets a matter of law and have designated the parameters according to which the state and its subsidiary branches are to proceed in carrying out institutional reforms and economic modernization.

A particularly contested issue in the debate on the origins of Chinese capitalism concerns the use of household plots by peasants in Anhui province in 1978. Proponents of the view that capitalism emerged ‘from below’ argue that peasants acted unilaterally in the adoption of individual plots and that due to mounting pressure, the state was forced to make a concession (as it were). Irrespective of the historical accuracy of this claim, the peasants in question did not advocate the introduction of private property and agricultural commodity markets, but rather demanded freedom from authorities who dictated the terms of what to plant, how to produce it, and most importantly, where to deliver it (Vogel 2011). It is, therefore, inaccurate to characterize the desire to cultivate individual plots as a request for capitalism ‘from below’. Moreover, the introduction of household plots was not in and of itself a novelty. Peasants presumably recalled the benefits of planting on their own small private fields from the post-Great Leap ‘readjustment and recovery’ years, when the Chinese government had tolerated this practice to elicit production increases and prevent further mass starvation. More importantly, Deng Xiaoping had actively promoted the use of small household plots in 1962 (and was subsequently purged as a suspected ‘capitalist roader’) and in 1978 again advocated “bold experiments” (ibid., 438) in agricultural production, such as those carried out in Anhui province.

If one considers the trajectory of Chinese reforms during the first decade of transition, the notion that markets emerged ‘from below’ becomes even less plausible. As I documented extensively in chapter 3, China’s reformers had decided to pursue the modernization of

their country's socialist food economy through a program of gradual price liberalization and private utilization of public property and land. The reformers' attitude toward markets is well summarized in the 1985 'No. 1 Document', entitled 'On Ten Points of Policy Concerning Further Invigorating the Rural Economy':

[A]fter breaking 'eating from the same big pot' in the collective economy, we must further reform the managerial system of the rural economy, expand the role of market regulation under the guidance of the state planning, so as to make the agricultural production adapt to the market demand, promote the rationalization in rural industrial structure and further invigorate the rural economy (CCCPC and State Council of the PRC (1985, 1-2)).

Nee and Oppen 2012, in a forthcoming volume entitled *Capitalism from Below*, argue on the basis of survey data from a sample of manufacturing enterprises that the Chinese state often adopted new policies only after the proposed innovations had already been implemented in practice by entrepreneurs, thus retroactively sanctioning market practices. Yet although the government may have legitimated habits and institutions initially established by those below, following the lead of entrepreneurs and farmers hardly contradicts the argument presented in this dissertation. After all, when the goal is to build a capitalist economy, it seems only logical that a state should look to its budding entrepreneurs for best practices. Similar observations can be made concerning the evolution of capitalism in Western Europe during the nineteenth century. As Marx (1962 [1879], 377) describes the emergence of "contracts for the commercial acquisition of goods",

first there is *commerce*, and from that a *legal order* develops. I demonstrated in the analysis of commodity circulation that in developed barter trade the exchange participants tacitly acknowledge one another as equal parties and as owners of the respective goods that are to be exchanged. They *do* so already while offering each other their goods and agreeing to enter into an exchange. This *factual* relation, which emerges only through and in the exchange itself, is later given the *legal* form of a contract . . . , but this form neither creates its own content, the exchange, nor *the existing relationship between the parties which it describes*, but vice versa (author's translation; emphases in original).

Similarly, Rozelle and Swinnen (2004, 448) conclude in a comparative study of market tran-

sition in the agricultural sector that when building “institutions that create and maintain property rights” or ones that “facilitate exchange”, a government’s “policies should accommodate institutions that are flexible. Flexibility is needed because transition is so uncertain and because there are many constraints that still are binding.”

Capitalism in China’s food economy was not built up from below against resistance from above. That said, it is plausible that there would be instances in which individual farmers or business interests were contradicted by the state. Such practices merely indicate that the Chinese state is gradually evolving into an “ideal collective capitalist” (Engels 1947, 338) — that is, a state taking regular and comprehensive measures to encourage growth in specific sectors and in the overall national economy, even if the interests of individual capitalists suffer on occasion. Such was the case in Russia when the state temporarily suspended its habitual grain market interventions in 2010, thereby depressing domestic prices and increasing the profit margins of wheat exporters, while diminishing those of domestic farmers.

‘Hybrid capitalism’

China, and to a lesser extent Russia, are sometimes referred to as having ‘hybrid’ economic systems. Whether known as “politicized capitalism” (Nee and Oppen 2007), “hybrid capitalism” (McNally 2008; *inter alii*), or “capitalism with Chinese characteristics” (Huang 2008), the unifying feature of these theories is their emphasis on the continued existence of strong state involvement and a sizable state-owned sector (in the Chinese economy). Wilson (2007, 240) argues that China’s economic transformation has been characterized by a “distinctive, and arguably dysfunctional, dualism . . . [which] indicates less the development of some hybrid form of capitalism Chinese-style than the uneasy existence of two separate economic policies pursued by the government.” McNally (2008, 120), too, refers to “the Chinese state’s continued dominance over crucial aspects of the economy” as evidence of a duality resulting in “a unique form of capitalism, incorporating aspects of network capitalism, the new global capitalism, and state-led capitalist development.”

By defining an economic system as a non-specific amalgamation of different (and potentially incompatible) institutional elements, the ‘hybrid’ specification is bound to yield misleading results. Authors working under this paradigm typically evaluate the economic institutions of Russia and China according to an endpoint or ideal-type derived from the ‘modern’ capitalist nations of the North Atlantic region, even though their economies differ substantially from those in the advanced industrial world. As a result, observed phenomena and problems are attributed to deviations from this systemic ideal, and often coupled with the recommendation that these institutional deficiencies be remedied by continuing the reform process.

Among proponents of the ‘hybrid capitalism’ perspective, there exists a widespread consensus that state interference in the economy, as practiced regularly by the governments of Russia and China, is undesirable, seeing as it violates “the fundamental precepts of the market as an autonomous regulator” (Wilson 2007, 255). Nee and Oppen (2007, 93) describe market liberalization and ownership reforms in China as “unfinished” and point to state actors who “remain directly involved” (ibid.) in guiding firm level transactions, a legal system still under communist party control (106), and a banking sector “still dominated” (109) by state-owned banks. Ideally, for Nee and Oppen, the state would thus seek to minimize its economic role, for government interventions are associated with “negative effects” (122) on firm performance. Though the “sustained intervention” (93) and “dilemma of state involvement in guiding economic life” (122) appear likely to persist, Nee and Oppen argue that progress toward a free market economy is ultimately only possible if China rids itself of its “outdated Communist Party dictatorship” (123), the most pressing obstacle to development:

It would take [political] reform for China to move decisively beyond politicized capitalism to emerge as a mature East Asian developmental state, where the state and its bureaucrats operate within the framework of an independent legal system, which guarantees clear and distinct state-firm boundaries where private actors are shielded against arbitrary state interference (ibid.).

My analysis of China’s policy and reform trajectory in the food sector has demonstrated

that the question of state involvement in the economy is largely a qualitative one. Frequently evaluated according to the remaining share of state ownership in the economy, or the prevalence of state-owned enterprises in a given sector, China's economy has been described as suffering from the "grabbing hand of the state" (Huang 2008, 281), which is characteristic of an "increasingly self-serving" (ibid., 282) political system. In the agro-food economy, however, the state has played a significant role in market development, using both direct and indirect means to advance the development of economic institutions and to facilitate economic growth. Contrary to the claims of 'heavy-handed' state involvement in the food economy, these policies are by no means anti-business. While individual measures may certainly sometimes harm particular interests (e.g., those of farmers, small businesses, etc.), the policies overall indicate a consistent interest in building a competitive capitalist economy.

Importantly, even to the extent that the Chinese state participates directly in economic life through state-owned enterprises, these organizations are economically self-reliant and behave according to the criteria of competitive governance (even as they may derive 'unfair' advantages from their special ownership status). Thus, when state agents behave as if they were private economic actors, then formal ownership — which today is administered through state asset holding companies — is increasingly inconsequential from an institutional standpoint.

Finally, while the notion of 'hybrid' institutions was appropriate during the early years of market construction, the organizations and practices subsumed under this label were, for the most part, transient and resulted from business adaptation to an environment that had not been reformed. As Rozelle and Swinnen (2004, 447-448) elucidate,

[I]n several transition countries, 'hybrid' farm organizations have emerged that seem to *address the need for institutions* that allow both better incentives and labor governance and create organizations that can capture scale economies. . . . In Russia the most successful household farms refrain from registering as "private farms," instead choosing to remain connected in some fashion to large farm enterprises. Such producers use their connections to gain access to inputs, marketing channels and other services in an environment where traditional markets, if any,

function poorly (emphasis added; see also O'Brien, Dershem, and Patsiorkovski 2000).

They conclude by observing that “nascent markets” oftentimes “have many hybrid characteristics”, adding that “some of the most successful transitions have not gone straight from planning to decentralized market-based exchange”(Rozelle and Swinnen 2004, 448).

'Capitalism and the rule of law'

The consensus among social scientists is that the rule of law constitutes a necessary institutional prerequisite for the operation of a market economy. Proponents of this view have applied this logic to transition economies, recommending the establishment of a legal system as a foundation for a successful transition (EBRD 1996, 1999, 2002; Åslund 2007).⁸ Initially, rule of law advocates believed that “some progress [had been] made both in the Soviet Union and in Russia between 1987 and 1991, most importantly with the adoption of joint-venture legislation, an albeit rudimentary regulation on joint stock companies, regulations on securities markets and investment companies, new principles of civil law, and even a law on privatization” (Sachs and Pistor 1997, 7). As the Russian economy failed to recover, these analysts increasingly pointed to the lack of an adequate legal environment as the culprit — Russia has also consistently received low scores in the EBRD's annual ‘Law in Transition’ survey (EBRD 2012).

Apart from the fact that the absence of a feature cannot account for the existence of another — a nonexistent welfare state, for instance, does not explain the presence of poverty in a country —, my analysis indicates that the rule of law thesis should — to invoke a phrase associated with Marx's critique of Hegel — be ‘turned on its head’. Indeed, the trajectory of Russia's food economy demonstrates that the creation of a sphere of dynamic and self-generating accumulation must precede legal institutions, and cannot be accomplished merely through the establishment of a system of formal legal regulations. In fact, the Gorbachev

⁸For a comprehensive review of this literature, see Murrell (2001).

and Yeltsin administrations promulgated a plethora of laws pertaining to the creation of private property and market exchange — yet, as Russia’s post-1999 trajectory indicates, the conditions for sustained capital accumulation cannot be created on paper but had to be implemented and enforced by the state and its agencies.

This is particularly clear in the case of China: although the Chinese state relied heavily on laws and legal means in the modernization of its agro-food economy, the nature of these laws was fundamentally different from the kind envisioned by rule of law advocates. As demonstrated in the third empirical chapter, China’s 1992 Agriculture Law more closely resembled an industrial modernization program than a framework for regulating agricultural markets. The Chinese state created a legal mandate for itself and its subsidiary branches to gradually build the institutional and infrastructural foundations of a capitalist agro-food economy. The 2003 amendment of the Agriculture Law retains much of this character, although (as noted in chapter 5) it introduces several additional sections dealing with newly identified governance and regulatory issues, indicating that the objective of the original law — the building of a market economy — had been (partially) realized by the beginning of the 2000 decade.

Since the Russian state decided to adopt a more state-guided approach to development, it implemented its own agricultural modernization law in 2006, while its institutional and industrial policies increasingly resemble those of China. The recent trajectories of both countries moreover show that the successful administration of a capitalist food economy requires the occasional suspension of law-based market regulation. When facing the contradictions imminent to the accumulation process (e.g., food price inflation leading to social unrest) or exogenous shocks (e.g. natural disasters threatening domestic food security), both states have tended to intervene and suspend existing regulatory frameworks to ensure state power and systemic survival in the long run.

'Capitalism and nature'

Finally, this dissertation contributes to a small but growing body of literature on the contradictions between capitalism and nature. Authors subscribing to this paradigm have argued that there exist irresolvable tensions between the principles of profit-oriented governance and the natural and biological foundations needed to sustain economic reproduction. Foster (2007, 9) termed this conflict the 'second contradiction' of capitalism, one based on "the idea that capitalism, in addition to its primary economic contradiction stemming from class inequalities in production and distribution, also undermines the human and natural conditions (i.e, environmental conditions) of production on which its economic advancement ultimately rests."

This literature also questions the possibility of 'sustainable' agricultural development (Altieri 2000) and the viability of 'green' technologies as a remedy for the world's growing environmental problems (Foster 2002). Because natural resources are freely available 'public goods', profit-oriented actors have no objective interest in ensuring the longevity of the environment. Indeed, as Perelman (1977, 229) notes, farmers are

highly efficient in maximizing profits. They carefully apportion fertilizer, pesticides, labor and all other inputs according to their relative prices in the market. The market dictates the spraying of toxic chemicals, even though the full extent of their effects is not yet known. The market demands the adoption of technologies which squander resources ... When social benefits do occur, they are incidental to the mad rush for profits.

The present analysis of Russian and Chinese food production lends further support to this paradigm. As noted in chapter 5, for example, one (of several) reasons why the Chinese government gradually extended the duration of land contracts and strengthened the property rights of peasants was in response to the alarming prevalence of soil degradation and erosion due to the intensive land use practices of farmers, who not only faced time pressures due to short lease terms but were moreover subject to occasional reallocation of land parcels within a village, both of which lowered their incentive to preserve or improve the

quality of agricultural land. Likewise, as noted above, although sustainable and ecologically friendly production techniques exist, they are not (widely) adopted because the high price of acquisition conflicts with the cost-minimizing efforts of agro-entrepreneurs, who already face narrow profit margins. The consequences of this dynamic was recently documented by China's first official national pollution census, which found that agricultural fertilizer and waste constitute a greater source of water pollution than industrial effluents.⁹

While the contradictory relationship between capitalist production methods and the natural environment was previously documented by nineteenth-century authors, including Marx,¹⁰ their causal connection generates little scholarly interest today, although environmental degradation is becoming more pervasive as nearly all countries and regions have been integrated into the global capitalist division of labor.

The relationship between capitalism and nature, therefore, constitutes an important area for future research. As with food production, transition economies make for a promising natural laboratory for studying the effects of markets on the environment, as pollution of air and water threaten the health and sustainability of those living in former transition economies, including China and Russia.

6.3 Future research

Although the research design of this dissertation is largely self-contained, a logical avenue for future research emerges from the findings and, in particular, from the discussion presented in the present chapter. Given that my study has been limited to food production, it would be sensible to extend the scope of investigation to encompass the food retail and distribution sectors. From an empirical standpoint, a comparison of these industries between Russia and China is highly relevant because unlike wheat and pork production, food retail has followed a

⁹“Chinese farms cause more pollution than factories, says official survey”, by Jonathan Watts. *The Guardian*, February 9, 2010. <http://www.guardian.co.uk/environment/2010/feb/09/china-farms-pollution/> (accessed April 24, 2012).

¹⁰See the volume *Marx and Ecology* by Foster (2000) for a review of Marx's lesser-known writings on nature and the environment.

broadly similar performance trajectory in both countries, and the respective sectors moreover share a greater institutional resemblance. In addition to offering further insight into the relationship between institutional organization and nutrition outcomes, a comparison of the Russian and Chinese food retail sectors could thus serve as a ‘control’ case for the present comparisons of the wheat and pork industries, which were characterized by initial divergence and, more recently, strong convergence in terms of institutional organization and economic performance.

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