

Riding on self-sufficiency: Grain policy and the rise of agrarian capital in China



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ABSTRACT

Rapid expansion of agrarian capitalism in China has commanded much attention. This paper situates the rise of agrarian capital in the context of fear regarding “Who will feed China?”, demonstrating how the pursuit of grain self-sufficiency in the country has fueled the expansion of agribusiness enterprises and large farms. The policies to increase grain production, including the grain crop subsidy program, the incentive scheme for grain-producing regions, and the policy of nurturing new agricultural units, provide favorable conditions for agrarian capital of both domestic and foreign origins to take root and expand. As a result, the emphasis on self-sufficiency has strengthened the alliance between the state and large capital, and placed small farming households at a disadvantage. The paper draws attention to the interconnections between food politics and rural transformation, and offers an alternative perspective on agrarian capitalism in China.

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1. Introduction

In November 1997, John Holden, the then chairman of Cargill China Ltd., remarked that Cargill was willing to contribute to China's food security (Zhang, 1997). As one of the largest agribusiness corporations, Cargill established its China investments company in 1995, a time when there were few domestic agribusiness enterprises in China, not to speak of foreign conglomerates. In the mid-1990s, the majority of agriculture-related enterprises in China, such as agro-food processors and input suppliers, were small rural enterprises while a few hundred large enterprises were state-owned and originated from the socialist era (1949–1978). These enterprises rarely engaged in agricultural production directly, and land in the countryside was farmed by hundreds of millions of rural households. According to the 1996 rural census, 193 million households were farming land, with 30.3 percent farming less than 3 *mu* (0.2 ha) and 50.1 percent between 3 and 9 *mu* (0.6 ha) (Ministry of Agriculture of China, 1998: 3–5).¹

John Holden's remark was made at a time when China was under intense scrutiny for its food security situation. In 1994, Lester Brown, the president of the World Watch Institute, released a report entitled *Who Will Feed China*, triggering a firestorm of

skepticism over China's ability to feed its population in the future. The Chinese government has been under pressure ever since to assure the world that China is able to produce sufficient food. In October 1996, it released a white paper declaring that China would produce 95 percent of grain that it consumes (State Council of China, 1996). It should be noted that food security is usually referred to grain security (*liangshi anquan* 粮食安全) in China, where grains are broadly defined to include cereals (rice, wheat and corn), coarse grains, beans (such as soybean) and potato tubers.² Grains provide main sources of human food, animal feedstuff and raw materials for processed food products, and thus are essential to food security in China. To avoid confusion, I will use *grain security* when I discuss China's policies and strategies and only employ the term *food security* when the issue appears in the international context. The white paper also laid out specific goals and means to boost grain production. In the key documents issued between 1996 and 1998 the problem of grain security was given top priority.³ The pressure on China over food security in the late 1990s created a

² Soybean is usually classified as an oilseed by international organizations such as OECD and FAO. For more information on the supply and demand of grain in China, see OECD/FAO (2013: 65–104).

³ These documents include *Ninth Five-Year Plan for National Economy and Social Development and the Long-Term Target for 2010* (March 5, 1996), *Report of the 15th National Congress of CPC* (September 12, 1997), *CCP Central Committee's Decision on Major Issues Concerning Agriculture and Rural Areas* (October 14, 1998).

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¹ One mu equals one fifteenth of a hectare.

window of opportunity for agribusiness (for example, Cargill) to lobby for favorable policies by demonstrating their willingness and importance in promoting grain production.

The growth in grain production from 1995 to 1998 partly eased the fear of food shortages. In 1996, China's grain production reached a new height, exceeding 500 million tons. However, the production started to decline in 1999. By 2003, it decreased to only 431 million tons (Fig. 1 below). The decline quickly stirred up fear over food security, forcing the Chinese government to implement a series of policy measures to shore up grain production.

This paper argues that these policies have created favorable conditions for agribusiness and large farms and contributed to their rapid rise in the past two decades. The paper will examine the implementation of three such policies: the grain crop subsidy program, the incentive scheme for grain-producing regions, and the policy of nurturing new agricultural units. The primary goal of these policies is to increase grain production so that China can achieve grain self-sufficiency, and some of the policies, for example, crop subsidies, are aimed to benefit farming households. Ultimately, however, the main beneficiary has been agribusiness and large farms rather than small farming households. The former has received the lion's share of agricultural funds from the Chinese state, and is able to exert a greater control over agricultural production through farmland consolidation and concentration. This has undermined the prospect of small farms.

It should be noted that the grain self-sufficiency policy was not new. China had mainly relied on domestic grain supply in the socialist era (1949–1978) as well as in the early reform period (1978–1995) (Bramall, 2009: 226–231, 339–341; Christiansen, 2009). The difference is that the renewed push for grain self-sufficiency occurred at a time when China sought to further integrate itself into the world economy while accelerating its transition to a market economy through privatization and deregulation. These factors together created a favorable environment for agrarian capital. In addition, this paper is not intended to criticize the goal of grain self-sufficiency but to reveal how it has been used to empower and enrich large agrarian capital. As the most populous country in the world, China should produce most of its grains. However, this does not follow that agriculture and food production must be organized in a way which favors large agrarian capital. The goal of self-sufficiency was achieved through collective farming in the socialist era and household farming in the early reform period.

Scholars paid much attention to both food security and agrarian capitalism in China. However, literature revolving around these two aspects focuses on separate domains. Research on food security in China is centered on the contradictions between food supply and demand, continuing and extending Brown's analysis of China's food problems by taking into account available resources and technologies, growing food demand, international food trade, and overseas agricultural investments (Chen, 2007; Christiansen, 2009; Huang, 2016; Khan et al., 2009; Nath et al., 2015; Piao et al., 2010; Schneider, 2014). There has been increasing consensus that agrarian capitalism expanded rapidly in the Chinese countryside. Past research examined lead agricultural enterprises (called “dragonhead enterprises” in China) in contract farming, ground-up capitalization by large farms, land transfer and concentration, and large agribusiness enterprises in the meat industry (Schneider, 2017; Yan and Chen, 2015; Ye, 2015; Zhang, 2012; Zhang and Donaldson, 2008). A few studies focused on agrarian capital with respect to grain crops. For example, Gong and Zhang (2017) found that a county government in Hunan Province relied on an agribusiness enterprise to promote double-cropping rice. Yan et al. (2016) investigated the decline of soybean farming in China and the dominance of foreign agribusiness in the soybean industry (for example, soybean trade and oil crushing). However, few studies

paid close attention to the interactions between China's grain policy and agrarian capitalism.

Critical agrarian studies have long been interested in the relationship between food and agrarian capitalism. For instance, the food regime analysis, pioneered by Harriet Friedmann and Philip McMichael, underlined the pivotal role of food in capital accumulation across time and space and examined geopolitical food order in successive periods of historical capitalism (Friedmann, 1982, 2005; Friedmann and McMichael, 1989; McMichael, 2009). Philip McMichael argues (2005; 2009) that a new food regime, which he calls “corporate, or neoliberal, food regime,” has been emerging in the past three decades.⁴ By prioritizing “free” trade and the market supply of food, this food regime has further strengthened the power of transnational agribusiness corporations, resulting in the destruction of small-scale, indigenous systems of food production and distribution. However, China has been ostensibly absent from this critical analysis, though it is among the largest food producers and consumers in the world. This is perhaps because China had been relying on non-capitalist ways of food provision until recently. In the socialist era (1949–1976), rural collectives such as communes, brigades and production teams were main units of food production, and the supply of food in the city was rationed by the state (Bramall, 2009: 213–218). From the 1980s to the mid-1990s, farming was carried out by hundreds of millions of households. However, this has changed over the past two decades. Accession to the WTO in 2001 led to the further integration of China into the world capitalist economy, with its food sectors, from crop growing to food processing and marketing, being opened up to domestic and foreign investments. This has brought China into the orbit of the global capitalist food system.

This paper highlights the interconnections between food politics and agrarian capitalism, and shows how the concern for food security in China has worked to the advantage of large agrarian capital. Specifically, under the pressure from “who will feed China,” the Chinese state adopted a grain self-sufficiency strategy and rolled out a series of policies that aim to increase grain production. It has poured enormous resources into sectors producing and processing grains. Agrarian capital, with its accrued political influence and control of agricultural technology and market networks, has captured most of the benefits. In addition, the Chinese state has adopted a modernist approach toward grain security, which emphasizes large farm size, agricultural technologies and a free-market doctrine. All elements in this modernist approach favor large agrarian capital. In short, agrarian capital has been riding on these grain security measures to a rapid rise.

Data in this paper derive from two sources. The first source is government statistics and documents on crop subsidies, agricultural investment, farm funds, and grain production. The second source is my fieldwork in several provinces including Hunan, Sichuan, Inner Mongolia and Heilongjiang between 2006 and 2016, all of which are major grain-producing regions. I conducted more than 200 interviews with government officials, managers of agribusiness companies, farming households and large farm owners.

The next section reviews the literature on the relations between agrarian capitalism and food security and locates China in the global context. The following two sections examine three grain policies respectively—the grain crop subsidy program, the

⁴ Harriet Friedmann is less certain on whether a new regime has been emerging. She suggests that a “corporate-environmental food regime” might be arising as a response to the pressures by social movements. The new regime represents “a convergence of environmental politics and retail-led reorganization of food supply chains” (2005, 251). It is a consequence of “very specific and unequal compromises among social movements, states and powerful agrofood corporations” (OECD/FAO (2013, 228).

incentive scheme for grain-producing regions and the policy of nurturing new agricultural units.

2. Agrarian capitalism and food security

Food security as a concept was coined during the World Food Conference in 1974 in response to the 1973/74 food crisis. It was initially defined as “the availability at all times of adequate world food supplies of basic foodstuffs” (Mechlem, 2004: 633). However, the meaning of the concept has been evolving, resulting in various definitions. The most commonly accepted definition was adopted in the 1996 World Food Summit, being that “food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 1996). However, this complex encompassing definition has masked the profound shift in the discourse and practices over food security in the past half of a century. Madeleine Fairbairn (2010) shows that the discourse of food security has shifted from one emphasizing macro-food availability and the role of national governments to one highlighting individual purchasing power and the market approach of food provision.

National development was the dominant discourse and practice in the post-war period. To fight hunger and poverty and provide food for industrial workers, national governments funded a large number of infrastructure projects and promoted Green Revolution technologies, often with the assistance of international organizations (Hazel, 2009; Patel, 2013; Postel, 1999: 40–64). In addition, international food flows reflected the geopolitical order of the Cold War. The United States emerged as the world hegemon and the largest food producer. To find new markets/outlets for its grains such as wheat, it utilized food aid both as a means to dispense surplus grains and as a carefully calculated weapon to sustain and expand its power. It prioritized the countries that were positioned at the forefront of containing communism for food aid, technological assistance and project funds (Friedmann, 1982; Friedmann and McMichael, 1989; McMichael, 2009: 141). Against this backdrop, although food security was legitimized by the need to eradicate hunger and poverty, it also served the interest of the agro-food industry in the US.

Nevertheless, agriculture was one of the most protected sectors under state-led development in the 1950s–70s, and the key ways to achieve food security were to increase domestic supply and to shore up the national food stockpile. However, this national food system was questioned in the 1980s as the neoliberal structural adjustment pushed to remove trade protection in less developed countries. The World Bank argued in a 1986 report that self-sufficiency should be abandoned and that nations should allocate their resources to sectors with comparative advantage while relying on the market for food supply (Otero et al., 2013: 267–68). The GATT Uruguay Round, which started in 1986 and laid groundwork for the 1994 WTO agreement on agriculture, also pushed to liberate agriculture from state protection. It called to reduce trade protection, farm subsidies and state intervention. As a result, under the rules of WTO, structural adjustment and neoliberal ideology and policies, a new international food order, which sees food as a market good and food security to be achieved best through trade rather than self-reliance, had risen. Scholars called this new food order a “neoliberal food regime” or “corporate food regime” (McMichael, 2003, 2012; Otero et al., 2013).

Under the neoliberal food regime, food security is turned into a discourse for transnational agribusiness to justify their expansion (McMichael, 2003; Nally, 2015). For example, the control of transgenic technology has elevated the power of transnational agribusiness to an unprecedented level since the late 1990s. A main

assertion from transnational agribusinesses is that transgenic technology can increase grain production and is thus vital to food security. However, technology has not lessened the risk of hunger and food insecurity. In 2009, the undernourished population had surged to 1.02 billion after the financial crisis (FAO, 2009: 11). In addition, small farmers had to pay a hefty price for transgenic seeds and give up traditional ways of seeding due to WTO rules and patent protection. In recent decades, transnational agribusiness corporations have intensified land grabbing worldwide to exert further control over land resources and agricultural production (Edelman et al., 2013; Kloppenburg, 2005; McMichael, 2012). Food security has been employed to justify land grabbing. A World Bank report suggests that there is a wide productivity gap for agricultural land in the Global South, particularly in Africa, which foreign investors can close through the application of advanced technology and new methods of cultivation (Deininger and Byerlee, 2011: xxviii–xxxix). Industry advocacy groups also justify land deals by arguing that they will increase productivity and the yield (Nally, 2015: 343–45). In conclusion, food security, initially adopted as a goal to fight hunger and food shortages, has been turned into an instrument for transnational agribusinesses and their allies to remove the protection of national agriculture, promote the sale of transgenic seeds and grab farmland in the South.

The Chinese experience with food security has been related to this global process, but with salient differences. In the Cold War Era, the US embargo prevented China from access to the US food-aid system, forcing it to rely on domestic food production. Although grain production had doubled from the 1950s–1970s, a significant proportion of the population was living in poverty and at the risk of hunger and malnutrition. In the early 1980s, the rural reform unleashed the productive forces of small farming households and increased grain production substantially (National Bureau of Statistics of China, 2010: 37; Naughton, 2007: 242). Food supply in China had become highly self-sufficient thereafter until the recent hike in food imports. Up to the mid-1990s, agricultural production in China was based on hundreds of millions of small farms, and the presence of agrarian capital was minimal.

However, Brown's report created enormous pressure on the Chinese government (Boland, 2000). This provided a good opportunity for agrarian capital, which already started to muster its force in the 1990s as China pushed in full swing for privatization and marketization. Anxious about its capability to produce sufficient grain, the Chinese government decided in the late 1990s to involve agrarian capital in grain production to a much greater degree than previously, on the conviction that agribusiness enterprises could produce grain more efficiently and use farmland more productively than small farming households. The government promoted the integration of agrarian capital into the production process (*nongye chanyehua*) and the extension of agribusiness companies to rural producers (the model of “company + household”). In addition, it encouraged land transfer between rural households to scale up agriculture (Andreas and Zhan, 2016; Zhang and Donaldson, 2008; Yan and Chen, 2015; Ye, 2015; Zhan, 2017). The government also granted permission to foreign agribusiness companies to run business in China, and as a result, besides Cargill, major global agribusiness corporations such as Bunge and Monsanto started to invest in China (Yan et al., 2016; Zhu, 2005).

The process of neoliberal globalization was also at work. After its market-oriented reform, China was eager to enter the GATT and later, the WTO. To be accepted as a member, the Chinese state liberalized its economy at a much faster pace in the 1990s than previously. For instance, it voluntarily eased restrictions on the investment of foreign agribusiness companies in the mid-1990s. In 1999, it made significant concessions over agriculture in negotiations with the United States (Bhala, 1999; Huang and Rozelle, 2002).

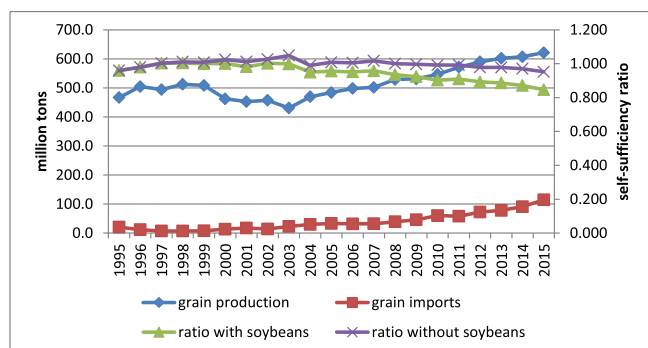


Fig. 1. China's grain production, grain imports and grain self-sufficiency ratio.⁶

Paradoxically, while many other countries in the South had to give up national food self-sufficiency in the neo-liberal food regime, China was under pressure to repeatedly assure the world that it was able to feed itself even after access to the WTO (Schneider, 2014: 619–623). It has basically achieved this goal, though food imports, soybeans in particular, have risen rapidly in the past decade. If soybeans were excluded, China would still be highly self-sufficient on grain, with its rate of self-sufficiency being more than 95 percent in recent years. If soybeans were included, the rate of grain self-sufficiency would decline to 84 percent in 2015, albeit higher than 80 percent required as a UN threshold for food self-sufficiency (Fig. 1).⁵

Fig. 1 also shows that grain production in China increased from less than 500 million tons in 2003 to more than 600 million tons in 2015. This may have improved food security in China. According to the 2015 UN report on food security, the number of undernourished people in China decreased from 289.0 million in 1990–92 to 133.8 million in 2014–16 (FAO et al., 2015: 46). However, it is hard to determine whether the credit should be given to agrarian capital, that is, large farms and agribusiness companies. UN data itself seems to suggest otherwise. The number of the undernourished was reduced by 26.9 percent in the 1990s – from 289.0 million to 211.2 million, when agrarian capital was still in a nascent state, but it was reduced only by 22.7 percent in the first decade of this century, when agrarian capital experienced rapid expansion (FAO et al., 2015). My fieldwork found that agrarian capital may have harmed food security of the rural poor, because its expansion has increased the costs of production and threatened their land rights, as will be shown in the following two sections. Additionally, there has been so far no strong proof that the sizing-up of farms contributed to the increase in grain production. Large farms operated by agribusiness enterprises often concentrated on profitable non-grain crops. A large farm in Chengdu, Sichuan Province I visited in May 2015 was such an example. The farm owner received a large government fund to grow grain crops, but the farm was actually devoted to growing medical herbs, only dotted sparsely with maize.

Nevertheless, the Chinese state believed that an effective way to increase grain production is to rely on agribusiness enterprises and large farms (Schneider, 2017; Ye, 2015). Under the grain self-sufficiency policy, agribusiness enterprises, which are called

dragonhead enterprises in China, have been expanding rapidly, and their number reached 129,000 in 2015 (Ministry of Agriculture of China, 2016b; Schneider, 2017: 6). In addition, large transnational agribusiness corporations such as ADM, Bunge, Cargill, Louis Dreyfus and Monsanto have seized increasing control over China's agricultural inputs (such as seeds, fertilizers and pesticide), food processing and international food trade (Wang, 2011a; Yan et al., 2016). For example, over the past two decades, Cargill has established more than 50 business units in China and extended its business into grain & oilseed processing, animal feed, meat supply, chemical fertilizer, among others. China has become one of its most important markets according to its 2016 annual report (Cargill, 2016).

However, although the efforts to boost grain production have gone hand in hand with the expansion of agrarian capital, the mechanisms that link the two processes are not clear. Agribusiness is usually not engaged directly in grain production in China, and a significant proportion of subsidies and funds have not been allocated to agribusiness but to farming households and rural communities. Furthermore, many grain policies are implemented at the local level, thus it is unclear how a particular policy would benefit agrarian capital without examining policy implementation. The following two sections aim to unveil these mechanisms and examine how the three policies—the grain crop subsidy program, the incentive scheme for grain-producing areas and the policy of nurturing new agricultural units—have played into the advantage of agribusiness and large farms in China.

3. Crop subsidy program: subsidizing farmers, benefiting agribusiness

Agricultural subsidies have been employed in many countries to increase production and encourage agricultural exports (Dorward and Morrison, 2015). However, it is argued that heavily subsidized commodity grains from developed countries depressed food prices and bankrupted small farmers in less-developed countries. In addition, agricultural subsidies are usually given to large corporate farms or agribusiness, thus placing small farms and peasants at a disadvantage (Babcock, 2015; McMichael, 2003: 175; Wender, 2011). Agricultural subsidies in China appear different since a significant proportion of subsidies are paid directly to hundreds of millions of farming households.⁷ The program has won acclaim for its alleged positive effects on the rural poor (Ahlers and Schubert, 2009; Gale et al., 2005; Yu and Jensen, 2010). However, this section will show that the real beneficiary of the crop subsidy program is agribusiness enterprises that supply agricultural inputs such as seeds, fertilizers and pesticides. Although farming households received the subsidy payment, its effect was nearly offset by the rising costs of the inputs.

The decline in grain production in China between 1999 and 2003 prompted the central government to offer subsidies to farming households in 2004 onwards. By 2015, the subsidy program comprised four subsidies: direct grain subsidy (*liangshi zhijie butie*), inputs subsidy (*nongzi zonghe butie*), quality seed subsidy (*liangzhong butie*) and agricultural machinery subsidy (*nongji butie*) (Huang et al., 2013). In 2015, total subsidies amounted to 165.2 billion yuan (25.8 billion US dollars), and each of the four subsidies accounted for 8.5 percent, 64.8 percent, 12.3 percent and 14.3 percent respectively (Ministry of Agriculture of China, 2015b). The first three subsidies were paid directly to rural households' bank

⁵ It should be noted that grain self-sufficiency does not mean food self-sufficiency. Schneider (2014: 622–625) made this distinction due to growing demand for industrial meat in China. Indeed, one of the main purposes of soybean and corn imports is to provide feedstuff for animal farms. This paper adopts a broad definition of grains, which include some main sources of animal feedstuff, and thus its findings can also shed light on meat consumption. The declining rate of grain self-sufficiency in Fig. 1 has been mainly due to growing meat demand in China.

⁶ Data sources: Chinese Statistical Yearbooks 1997–2016.

⁷ The subsidies paid to rural households accounted for one quarter to one third of the central government's spending on agriculture between 2010 and 2015 (Ministry of Agriculture of China, 2016a: 75, 2013: 77).

accounts based on the size of their land holdings, regardless of whether they farmed the land or whether the land was used to grow grain crops (Huang et al., 2013). The machinery subsidy is paid to reimburse the expense after an actual purchase is made. It is estimated that one *mu* of land (one-fifteenth hectare) received about 80 yuan (12 US dollars) for subsidies in 2014.⁸ An average household that farms seven *mu* could thus receive 560 yuan.

The subsidy program, along with the abolition of agricultural taxes, has been hailed as a boon to small farmers. Farmers expressed a similar view. In 2006, I co-led a research study on rural poverty, which conducted fieldwork in 12 villages in six provinces in China and produced more than 300 interviews with farmers.⁹ It revealed that farmers held a very positive view on the subsidy program. In 2013, my interviews in Inner Mongolia and Hunan Province continued to show their approval of the program.

However, the subsidies were largely eliminated by the rising costs of agricultural inputs. Between 2004 and 2014, the total cost of seeds, fertilizers, pesticides and use of machinery for one *mu* of grain crop increased from 136 yuan to 352 yuan, up 216 yuan or 158.8 percent (Fig. 2). As noted above, the subsidy payment was only 80 yuan per *mu* in 2014, far less than the increase in the cost. Fig. 2 shows that fertilizers and the use of machinery made up the lion's share, 75.7 percent of the total. The cost of machinery had grown fourfold while the costs of seeds and pesticides/herbicides more than doubled.

Farmers lamented the rising costs of agricultural inputs. Mr. Liu, 41 years old and a farmer in Chifeng Prefecture in Inner Mongolia, complained to me in 2006, stating that “Subsidizing agriculture is no doubt a good policy, but the prices of fertilizers and pesticides are growing too fast. At the end of the day, it is as though the government only helped me buy three bags of chemical fertilizers.”¹¹ Rising input costs undermined rural households' incentive in farming, particularly in provinces where the size of landholding is small. In Tranquil County in Hunan Province, a household of four members farmed about five *mu* of land in 2013 on average.¹² Due

to growing costs of agricultural inputs, a farmer could only earn 600 yuan (94 US dollars) from one *mu* of rice, including the farmer's labor contribution. As such, an average household could only receive an income of 3000 yuan a year from the land, which was only about a month of wage income from a local off-farm job. Mr. Zeng, who was 63 years old and just widowed at the time of interview, farmed 5.4 *mu* of rice.¹³ He complained that the cost of farming was so high that he could only earn 500 yuan from one *mu* of rice. “This is why people who farm the land are all old folks. It is not economic for young people to stay home farming.” Mr. Zeng has three children, two sons and one daughter. The elder son worked in a nearby large city as a military serviceman. The younger son found work in an oil field in Heilongjiang Province while his daughter was working in a factory in Guangdong Province.

The rising costs of agricultural inputs undercut the profits of grain farming. If the costs of land and labor were taken into account, the profit from one *mu* of grain crop would decline from 196.5 yuan in 2004 to 124.8 yuan in 2014, down 36.5 percent (National Development and Reform Commission of China, 2015: 3–5).

While high input costs hurt farming households, it benefited agribusiness companies that supplied these inputs. Between 2004 and 2014, the sales of seeds in China increased from about 20 billion to 79.4 billion yuan, nearly quadrupled. The size of seed enterprises also expanded. In 2003, only seven seed suppliers achieved sales in excess of 100 million yuan, but the number rose to 136 in 2014, of which seven amassed more than one billion yuan in sales (Zhu, 2005: 5; Ministry of Agriculture of China, 2015a). Over the same period, the sales of chemical fertilizers grew from 173.8 billion yuan to 819.8 billion yuan, more than quadrupled, and the profit jumped from 10.7 billion yuan in 2004 to 42.9 billion yuan in 2012 before it declined to 20.2 billion yuan in 2014 (China Chemical Industry and Engineering Society, 2007: 312–13; Chanya Xinxi Wang, 2015). The consumption of chemical fertilizers increased from 19.1 kg in 2004 to 24.1 kg per *mu* in 2014, up 26.2 percent. However, due to the price hike, the cost of chemical fertilizers grew from 71.4 yuan to 132.4 yuan, up 85.4 percent. The industry of pesticides/herbicides also expanded rapidly. The sales increased from 46.9 billion to 300.8 billion yuan between 2004 and 2014 while enterprise profits jumped from 1.9 billion to 22.6 billion yuan (China Crop Protection Industry Association, 2005: 1–3; 2015: 1–6). The subsidy program had facilitated the price hikes of agricultural inputs and become an indirect way to finance input suppliers. Another study found that fertilizers suppliers captured at least 70 percent of the input subsidy (Li et al., 2014).

Although the high prices of agricultural inputs as well as ballooning enterprise profits should be partly attributed to general economic growth and market demand, it also had much to do with the growing power of agribusiness under the strategy of grain self-sufficiency. The privatization and deregulation of input industries in the late 1990s and early 2000s enabled the suppliers to set prices on their own (Wang, 2011b; Zhu, 2005). As the Chinese state pushed to produce more grains (Gu, 2014), it raised the expectation in the market that the consumption of agricultural inputs would increase, thus lending the suppliers an excuse to raise prices. The Chinese state also hoped to increase crop yield through modern technology (particularly biotechnology) and provided much support for agribusiness to develop new inputs such as new seeds and powerful fertilizers and pesticides. This gave these enterprises much leeway to raise prices (Zhu, 2005).

In summary, under the policy framework of grain self-

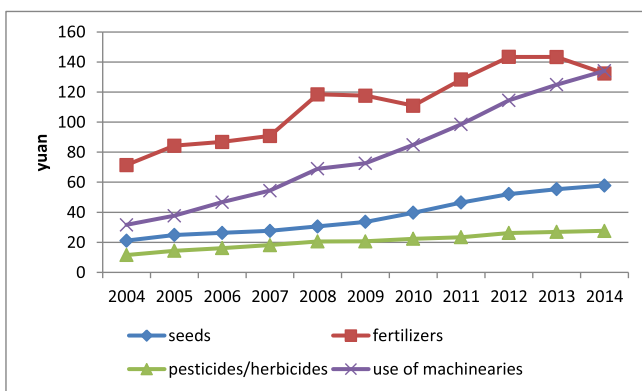


Fig. 2. Costs of agricultural inputs for one *mu* of grain crop in China: 2004–2014.¹⁰

⁸ The Chinese government reported a subsidy payment of 49 yuan for one *mu* of farmland in 2008 when total annual subsidy payment was 103.0 billion yuan. I thus estimated the payment to be 80 yuan per *mu* in 2014 as the total subsidies had increased to 170 billion yuan. See National Development and Reform Commission of China (2009: 3).

⁹ The six provinces are Inner Mongolia, Gansu, Sichuan, Yunnan, Jiangxi and Jiangsu. The findings of the study were published in Wang and Ma, eds. (2009).

¹⁰ Data sources: National Development and Reform Commission of China (2005–2015).

¹¹ Date of Interview: March 23, 2006.

¹² The names of counties in this paper are pseudonyms.

¹³ Date of interview: May 16, 2013.

sufficiency, the power of agribusiness has been greatly enhanced. The subsidies that were paid to farmers were converted into the profits of agribusiness, while farmers must shoulder the growing costs of agricultural inputs. This has undermined small farmers' incentive to participate in agriculture, especially that pertaining to grain production. The governments' solution to this contradiction is to scale up agriculture and allow agrarian capital to engage directly in grain production. This leads to the other two policies to be examined in the next section: the incentive scheme for grain producing regions and the policy of nurturing new agricultural units.

4. Grain self-sufficiency and land concentration

Crop farming under the land tenure system is arguably the last sector that the Chinese state wants to open for the influx of large capital because the sector provides livelihoods for hundreds of millions of rural residents. Any policy that undermines the livelihood of such a large population would be tinder for sparking potential social upheavals, which the Chinese Communist Party fears most. The land tenure system in China is called the Household Responsibility System (HRS), which was established after 1978 to replace collective farming. Under the HRS, farmland is contracted to individual rural households on a relatively equal basis. However, the households only hold the use rights of the land, not the ownership, which is held collectively by the village. Thus when transferring land to other parties, rural households can only transfer use rights of land (Ye, 2015; Zhang and Donaldson, 2008).

In the late 1990s, the Chinese government promoted the involvement of agribusiness in agriculture in the form of contract farming. The literature of contract farming shows that agribusiness can exploit farmers and maximize profits by setting the terms of input supply and produce purchase even though it does not control agricultural production (Key and Runsten, 1999; Little, 1994). However, two factors may distinguish contract farming in China from others. One is the land tenure system, under which land cannot be traded because farming households only hold the use rights of land. The other is the wide availability of jobs in non-farm sectors that compete with the farm sector for rural labor. If agribusiness does not meet the terms that farmers expect, the latter can withdraw from contract farming and opt for labor migration or nonfarm business (Zhang, 2012). As a result, farming households in China not only hold some power vis-a-vis agribusiness but are also able to disrupt the production of agribusiness by withdrawing from farm contracts.

To take more control of agricultural production, agrarian capital including agribusiness desires to rent farmland from households or work with large farms that mainly derive income from agriculture rather than nonfarm employment. However, the Chinese government has been very cautious to take away land rights from small farmers for fear that it would cause social disruptions. In the late 1990s and early 2000s, it only allowed land transfer between farming households.¹⁴ In the mid-2000s, it resisted repeated calls from agribusiness and scholars to privatize farmland (He, 2010, 319–322). However, the issue of food security has given agribusiness companies a powerful cause to lobby for a change in land policy. The argument goes that small household farms are inefficient and unproductive in farming and cannot meet the challenge of producing sufficient grain for food security. In the following

segment, I will examine how the incentive scheme for grain-producing regions and the policy of nurturing new agricultural units would drive households out of agriculture.

4.1. The incentive scheme for grain-producing regions

A major challenge to food self-sufficiency in China is the encroachment of industrialization and urbanization on farmland. In coastal provinces such as Zhejiang and Guangdong, large tracts of farmland were converted into industrial and urban land. These provinces have changed from grain exporters to importers in the past three decades (Chen, 2009; Zhong and Qin, 2010). To produce sufficient grains, the Chinese government identified major grain-producing regions, which are mostly located in northern and inland provinces, and provided more funds and supportive policies for these regions to maintain and even increase grain production. This paper calls these policies *the incentive scheme for grain-producing regions*, which includes two major policies: the supportive policy for major grain-producing provinces (*liangshi zhuchanqu zhichi zhengce* 粮食主产区支持政策) and the policy of awarding major grain-producing counties (*chanliang daxian jiangli zhengce* 产粮大县奖励政策).

The Chinese government identified 13 provinces as main grain-producing areas (*liangshi zhuchanqu*), out of a total 31 provinces in the mainland.¹⁵ In 2014, these 13 provinces accounted for 75.8 percent of grain production. These provinces are concentrated in the Northeast (Heilongjiang, Jilin, Liaoning and Inner Mongolia), the North China Plain (Hebei, Henan and Shandong), the Middle Yangtze Region (Anhui, Jiangsu, Hunan and Hubei), in addition to Jiangsu and Sichuan province (Fig. 3). To further target grain-producing regions, the Chinese government identified 800 counties, out of a national total of 2,860, as grain-producing counties. Of these, 680 are located in the 13 provinces and 120 in the others. In addition, the government has selected about 200 counties as major grain-producing counties, of which the top 100 counties are designated as super grain-producing counties. These counties are concentrated in the northeast, the North China Plain and the Middle Yangtze Region.

The policies that support grain-producing regions include the following.

- The allocation of national funds to improve agricultural infrastructure in major grain producing provinces and counties.
- The offering of no-strings-attached financial awards to major grain-producing counties. The central government has increased the amount of award funds every year since the award was set up in 2005. In 2016, it reached 39.4 billion yuan (about 6 billion US dollars). Between 2005 and 2016, the awards totaled 270.5 billion yuan.¹⁶
- The provision of financial and technological assistances for grain-producing regions to develop the local economy.
- The offering of tax exemptions and bank credits to grain-producing regions.
- The offering of minimum purchasing prices for some grains, mainly including rice, wheat and corn.¹⁷

¹⁵ The guideline document is entitled “Guojia liangshi anquan zhongchangqi guihua gangyao 2008–2020 (Medium and Long-term Plan for National Grain Security, 2008–2020),” which is accessible at http://www.gov.cn/jrzq/2008-11/13/content_1148414.htm.

¹⁶ The total amount is calculated based on news releases by the Ministry of Finance of China (<http://www.mof.gov.cn>).

¹⁷ The minimum purchasing prices for corn were abolished in 2016 due to the overstocking of corn (Hornby, 2016).

¹⁴ The central government released a document to restrict land transfer to agribusiness enterprises and urban residents on December 30, 2001. The document, whose serial number is Zhong Fa [2001] No.18, is entitled “CCP Central Committee's Notification on the Transfer of Use Rights of Household Contract Farmland.” The document is available at http://news.xinhuanet.com/zhengfu/2002-11/05/content_618438.htm.



Fig. 3. Major grain producing provinces in China.

However, the benefits deriving from the incentive scheme were mostly captured by local governments and construction companies that built infrastructure projects. Farming households benefited to a much less degree. Of all the abovementioned measures, only minimum purchasing prices benefit farming households directly. However, the rising prices of agricultural inputs have largely eliminated this benefit. This is particularly the case in regions where the size of landholding is small, such as the Middle Yangtze Region, Sichuan Province and Jiangsu Province.

Tranquil County in Hunan Province is a good example. The county has been recognized as a major grain-producing county since 2006. In some other years, it was also recognized as a super grain-producing county. The total area of farmland in the county is 76 thousand hectares, of which 72 thousand are rice paddies. According to official statistics, its grain production has appeared to be stable over the past decade, about 850 thousand tons. With a population of 1.4 million, the county could export a surplus of 290 thousand tons of grains a year, 30 percent of the total.

According to my fieldwork in the county in 2013, the title of a super grain-producing county had brought enormous benefits to the local government. Tranquil County was awarded 60 million yuan in 2012. In addition, it was given priority when it applied for other development and infrastructure funds. According to local officials, the recognition brought the county at least 400 million yuan in 2012. Thus the local government has a strong incentive to maintain the title.

However, the title has brought relatively little benefit to farming households. As noted above, one mu of rice could generate only 600 yuan, much less than the income from nonfarm employment. The monthly rate of wages near the county was approximately 2500 yuan on average in 2013. Thus, farmers are unwilling to devote much effort to rice farming. Tranquil County is a place where farmers have grown double-cropping rice for over a century. However, as economic returns declined, more and more farming households switched from double cropping to single cropping. The

single cropping rice is intended for self-consumption rather than for sale in the market. The switch would significantly reduce grain production. To counter this trend, the local government provided subsidies for farmers to keep growing double-cropping rice. However, my research found that this had little effect because the subsidy was only 50 yuan per *mu* while the daily wage in the county was 150 yuan. It makes much more economic sense for farmers to work as wage labor than to grow double-cropping rice.

Mr. Cui, 49 years old at the time of my interview, had worked as an agricultural technician for 29 years in the county. He remarked, "Farmers do not pay much attention to farming because it cannot generate economic returns. For example, the switch from double-cropping to single-cropping rice is a very serious problem in Tranquil County. In the past, all farms were planted with double-cropping rice. In recent years, single-cropping rice has expanded rapidly and accounts for 50 percent of the farmland."¹⁸ The production of single-cropping rice is about 60 percent of that of double cropping. If 50 percent of farmland was switched to single-cropping rice, grain production in Tranquil County would decline by at least 20 percent. That is to say, the county government had probably over-reported grain production to maintain the title of super-grain producing county.

To promote double-cropping rice, the local government of Tranquil County started to transfer farmland from farming households to large producers including agribusiness. In addition, it provided more subsidies for large farms in hopes that these farms would grow double-cropping rice. The rationale behind this policy is easy to understand. As the size of farm increases, the returns to the farm owner will also increase, even though the return for per unit of farmland remains low. For instance, a household that cultivates six mu of land can only make 3600 yuan a year given the return for each mu is 600 yuan. However, a large farm that

¹⁸ Date of interview: May 10, 2013.

cultivates 100 mu (6.67 ha) can earn 60,000 yuan (about 9400 US dollars), a decent income for a household. If a company cultivated 3000 mu (200 ha), it could make a profit of 1.2 million yuan, given that one mu generated a profit of 400 yuan (the enterprise must cover labor cost). According to the county's Bureau of Agriculture, there were 19 farms larger than 1000 mu and 35 farms between 400 and 999 mu in 2014. In the same year, farms that are larger than two hectares accounted for 10,000 ha, 13.2 percent of all farmland. In the past two years, the government was pushing in full force for land transfer and the scaling-up of farms. Most farming households would be driven out of farming in the next 10 years if the current policy continues.

Two sources of agrarian capital are involved in the running of large farms in the county. One is specialized rural households that have accumulated enough capital, and thus are able to rent farmland, purchase large amounts of agricultural inputs, and invest in agricultural machinery. My fieldwork shows that it is rare that farming households can accumulate enough capital to run a large farm because of the low returns of farming. Most of the specialized households came from those who successfully accumulated capital by running nonfarm business or working as migrant workers. These households are usually from local communities and have social and political connections in the county. They represent what Yan and Chen (2015) calls "capitalism from below," but capital is not accumulated through farming but from nonfarm sources. The other source of agrarian capital is agribusiness. As noted previously, the Chinese government discouraged land transfer to agribusiness in the early 2000s for fear that it would lead to land concentration and social disturbance. However, the concern for food security has overridden the fear of land concentration. The central government has permitted and now encouraged agribusiness to engage in agricultural production directly (Ye, 2015).¹⁹ In Tranquil County, a rice enterprise, which was recognized as a national dragonhead enterprise, rented more than 666.7 ha of farmland from rural households within a township in 2009 for 18 years and hired dozens of rural laborers to work on the land. As a result, 2278 households transferred land rights to the enterprise. The enterprise grew double-cropping rice and received substantial government support in land transfer and marketing.

To summarize, the government of Tranquil County has been replacing farming households with large farms in an effort to maintain the area of double-cropping rice. The goal is to maintain the title of super grain-producing county and receive large sums of central funds and other forms of support. That is to say, under the strategy of grain self-sufficiency, the need to produce more grains has led to the local government forcing small farmers to giving up land use rights. It should be noted that many farmers have leased out their land voluntarily to concentrate on nonfarm employment (Ye, 2015; Zhang and Donaldson, 2008). However, these leases were usually of short term and they could return to farming if they no longer find satisfactory wage jobs. However, the mandatory leasing forced upon them by the local government has taken away this flexibility and undermined their power (Zhan and Huang, 2013). The result is that the farmland is concentrated on large-scale farms and agribusiness. Farmers, particularly those aged between 40 and 65, have to migrate to the city or remain unemployed in the countryside due to the loss of land rights.

4.2. Nurturing new agricultural units

What is occurring in Tranquil County is not an exception but a national trend. Gong and Zhang (2017) showed that promoting double-cropping rice was a major factor in the expansion of agrarian capital in another county in Hunan Province. Other studies also found that local governments pushed to scale up agriculture and concentrated farmland in the hands of large farms or agribusiness (Andreas and Zhan, 2016; Ye, 2015; Zhan, 2017). In recent years, the central government sanctioned the concentration of land on large farms, and called to nurture new agricultural operational units (*xinxing nongye jingying zhuti*) (henceforth *new agricultural units* or *new units*).²⁰

These new agricultural units are defined in contrast with small farming households, which the Chinese state views as traditional and inefficient in grain production. First, a new unit cultivates farmland on a large scale, as opposed to the traditional household that only farms small plots of land. Second, a new unit must employ modern technology and agricultural machinery, as opposed to the traditional household that is considered backward in the application of technologies and machineries. Third, a new unit specializes in a single crop, as opposed to the traditional household that mixes different types of crops and nonfarm activities. Last, a new unit farms for the market with a high degree of commodification, as opposed to the traditional household that farm for both self-consumption and the market.

The new agricultural units that the Chinese state promotes comprise family farms, specialized large-scale farming households, agricultural cooperatives and agribusiness enterprises. There are no substantive differences between family farms and specialized households. The term of "family farm" suggests that the Chinese state hopes to follow the American Model that a family can run a very large farm. The second term describes a model of highly commercialized monoculture, in which a household specializes in a single crop and produces for the market. Agricultural cooperatives are designed to be a middle way that preserves small farms but cultivates farmland on a large scale. The number of registered agricultural cooperatives in China reached 1.53 million at the end of 2015 (Fang, 2016). However, the cooperatives are often used by large farms and agribusiness as a disguise to receive government funds and benefits (Hu et al., 2017). For example, the rice company in Tranquil County registered rural households that it rented land from as an agricultural cooperative.

The promotion of the new units creates a favorable platform for agrarian capital to expand. As noted previously, the state has allocated substantial funds to support agriculture in the past decade. Most of the benefits arising from these funds have been captured by large farms and agribusiness, though some funds were allocated to farming households directly. In recent years, the central government declared explicitly that it would favor the new agricultural units in fund allocation. The reason is that the new units will produce more grain than traditional households. The slogan reads, "The government supports whoever produces more grain" (Zeng, 2016). In 2015, it started in a few provinces a new subsidy policy, which took 20 percent of the existing subsidies as extra bonus for the new units. In 2016, the government made it a national policy.²¹

²⁰ The term was first used in the keynote report of the 18th Party Congress on November 8, 2012. In the 2013 No.1 Document, the term refers to specialized households, family farms and agricultural cooperatives. In the 2014 No.1 Document, dragonhead enterprises were also added to the category.

²¹ The policy, titled "Notice on Fully Implementing the Reform on Three Agricultural Subsidies," was issued jointly by the Ministry of Finance and the Ministry of Agriculture on April 18, 2016. It is accessible at http://nys.mof.gov.cn/zhengfuxinxi/czpjZhengCeFaBu_2_2/201604/t20160425_1964825.html.

¹⁹ The 2013 No.1 Document, issued jointly by the CCP Central Committee and the State Council in the beginning of the year, had for the first time stated explicitly that dragonhead enterprises will be encouraged and supported to rent and farm agricultural land on a large scale. The document can be accessible at http://www.gov.cn/gongbao/content/2013/content_2332767.htm.

In addition, the central government promised to further increase subsidies, but small farming households will be excluded from this increase. Under the new policy, it is anticipated that small households would be further forced out of agriculture as the subsidies for them are curtailed. The central government also abandoned the cautious attitude in land transfer, and encouraged local governments to transfer farmland from households to the new units including agribusiness enterprises.

As a result, the pace of land concentration has accelerated in the past few years. The central government suggested that land concentration should be moderate, with the optimal size of new farms to be 10 to 15 times that of a traditional household.²² However, I found that local governments showed little interest in controlling swelling farm sizes. The concentration of land not only took place in the Middle Yangtze Region where the size of landholding is small but also in the northeast where it is relatively large.

Prosperity County, which is located in the northeast of Heilongjiang Province, has a population of about 250,000, of which 70 percent is rural residents.²³ The average size of landholding in the county is three hectares per household, six times of the national average. Unlike most of the areas in the North China Plain where water shortage constrains agricultural production, the irrigation system in the county is in good conditions owing to two dozen rivers flowing through the county and generous irrigation funds from the central government in the past decade. Thus the county is an ideal place for grain farming. The major grain crops grown in the county are rice and corn. It used to grow soybeans in the 1990s, but the farming of soybeans declined precipitously in the 2000s due to large imports (Yan et al., 2016).

Land in the county used to be farmed by small farming households, with each household cultivating three hectares on average. In recent years, however, the local government started to push for the concentration of land. According to data collected from the county's Bureau of Agriculture, the proportion of farmland that was transferred rose to 28 percent at the end of 2015, about 32,000 ha. The local government planned to increase land transfer 10 percent a year over the next five years. The policy to support the new agricultural units has created an opportunity for agribusiness to exert direct control over agricultural production. My research of an agribusiness enterprise - The Golden Rice Company - reveals how agribusiness has taken advantage of the policy.

The company was established in 2006, and its main business is to purchase grains from rural households and sell them to state-owned storage houses or the market after processing. The company is a subsidiary of a large national dragonhead company headquartered in Harbin, the capital of Heilongjiang Province. The dragonhead owns 51 percent of its shares. Up to 2013, the Golden Rice Company had only engaged in grain purchasing and processing. It entered contracts with rural households but did not engage in agricultural production directly. In 2013, the company started to rent land from households and farmed it directly. I visited the company in June 2016, and discovered that it had rented 960 ha from two townships in the county. In each township, it established a grain crop cooperative and an agricultural machinery cooperative under the names of local villagers. The company then hired some members of the cooperatives as the employees for farming. In this manner, the company is eligible to receive all funds from the

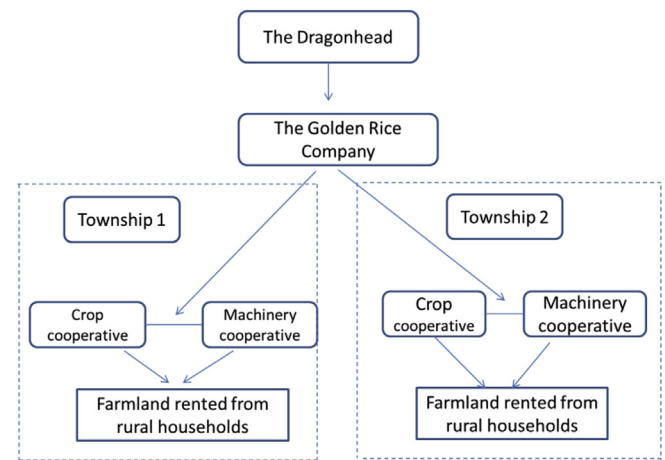


Fig. 4. Operational structure of the Golden Rice Company. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

government that are aimed for rural cooperatives. Fig. 4 shows the operational structure of the company.

The Rice Company hired approximately 10 full-time workers to work on the farm in each township (in addition to two dozens of seasonal laborers). The size of each farm is about 500 ha, and thus farming must rely on the use of large agricultural machines. The cooperative of agricultural machinery was established in 2014 to allow the company to receive machinery subsidies from the state. The total cost of the machineries was eight million yuan, of which 4.8 million yuan was subsidized by the state. In addition, the company received millions of government funds to consolidate fragmented farm plots into a large farm as well as millions of infrastructure funds on irrigation and other agricultural facilities. In total, the company had received no less than 20 million yuan from the government. At the time of my fieldwork, the company was applying for another large government fund to promote internet-based marketing.

The company and the cooperatives it established have been promoted as a model of new agricultural unit in Prosperity County. With strong support from the government, the company planned to rent in more land in the future and further expand the scale of its grain production. In addition, the local government has been pushing to establish more large farms under the policy of nurturing new agricultural units.

The expansion of new units has accelerated land transfer, with or without the consent of rural households. By 2014, 403 million *mu* (26.9 million ha.) of farmland had been transferred, accounting for 30.3 percent of all farm land that was distributed to rural households. Of the transferred farmland, 39 million *mu* (2.6 million ha.) was transferred to agribusiness enterprises, making up 9.7 percent. The rest was transferred to other rural households (58.3 percent), rural cooperatives (21.8 percent), and other organizations and individuals (10.2 percent) (Zhou, 2016).²⁴ Although agribusiness companies received only approximately 10 percent of the farmland in statistics, they controlled a much larger share of land through rural cooperatives and specialized households. Based on my field research, a conservative estimate would put the land directly controlled by agribusiness at 20 percent of all transferred land at least.

²² This was first raised in a 2014 policy to promote land transfer. The policy, titled "On guiding the orderly transfer of land use rights and developing agriculture on a moderate scale," was jointly issued by CCP Central Committee and the State Council of China on November 20, 2014. It is accessible at http://www.gov.cn/xinwen/2014-11/20/content_2781544.htm.

²³ I conducted fieldwork in the county in late May and early June of 2016.

²⁴ Other organizations and individuals may include urban citizens and non-enterprise urban organizations such as schools. The transferred farmland was increased to 447 million *mu* in 2015, 33.3 percent of the farmland contracted to rural households (China News, 2016).

5. Conclusion

Grain self-sufficiency appears to be a legitimate goal for China. As Brown (1994) warned, whether China can feed itself matters not only for food supply in China but also for food security in the world. Under both international and domestic pressure, the Chinese state has taken strong measures to promote grain production since the mid-1990s. However, this study has shown that the pursuit of grain self-sufficiency in China has fueled the rise of agrarian capital in the past two decades. The crop subsidy program provided direct subsidies for farming households, but these benefits were mostly reaped by agribusiness enterprises that market agricultural inputs such as seeds, fertilizers and pesticides. The incentive scheme for grain producing regions aimed to motivate local actors to produce more grains, but it deprived rural households of flexibility in making livelihood decisions, ultimately facilitating the transfer of land from small farms to large farms and agribusiness. The policy of nurturing new agricultural units in recent years also pushed to replace farming households with large farms and agribusiness in agricultural production.

However, there is no certainty that replacing farming households with large farms and agribusiness would improve food security. As is shown in this paper, the change has increased the costs of production and forced many small farmers to give up land rights, and this would harm food security of the rural poor. Worldwide, the expansion of large agribusiness corporations in the neoliberal era might have exacerbated food insecurity, particularly for the poor (FAO, 2009; McMichael, 2003). As a good example to counter the discourse of justifying the expansion of large agrarian capital in the name of food security, the rapid increase in grain production in China in the 1980s and 1990s was achieved by millions of farming households. In the past decade, farming households continued to demonstrate their adaptability to modern technologies and changing market conditions, and played a major role in grain production. As the Chinese state pushed to replace farming households with large farms and agribusiness, a growing number of poor and low-income families had to depend on the market for food supply, which is controlled by large agribusiness. This has heightened their risk of food insecurity.

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