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China's New Farm Subsidies

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Abstract

In 2004, China entered a new era in its approach to agricultural policy, as it began to subsidize rather than tax agriculture. China introduced direct subsidies to farmers, began to phase out its centuries-old agricultural tax, subsidized seed and machinery purchases, and increased spending on rural infrastructure. The new policies reflect China's new view of agriculture as a sector needing a helping hand. The subsidies are targeted at grain producers, but they do not provide strong incentives to increase grain production.

Keywords: China, agricultural policy, subsidies, agricultural tax, seed, machinery, grain marketing

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Introduction

During 2004, China introduced a number of policies intended to benefit farmers, a reversal of its centuries-old practice of taxing agriculture. Agriculture was for centuries China's primary source of employment and tax revenue. In the 21st century, China has evolved into an industrial economy in which agriculture accounts for just 15 percent of gross domestic product and less than 5 percent of tax revenue. However, agriculture still employs roughly half of the labor force and rural incomes are just 30 percent of the urban average (Shane and Gale, p. 14). With a widening gap between rural and urban living standards and the threat of political instability in the countryside, Chinese policymakers now see farmers as a segment of society that needs a helping hand.

Policies instituted in the 1950s taxed farm production to subsidize urban consumers and industrial production, but those policies were abandoned by the early 1990s (Tuan, Zhong, and Ke). During the 1990s, China subsidized the procurement, storage, and export of grain, but these policies were very costly and little of this money reached farm producers. After entering the World Trade Organization in 2001, China began exploring ways to directly subsidize farmers, who were believed to be vulnerable to foreign competition (Liu, Ouyang, and Zhang). In 2004, China introduced its first national direct subsidies to farmers, began to phase out a centuries-old tax on farmers, began to subsidize seed and machinery purchases, and increased funding for agricultural infrastructure and research.¹

The Chinese Government has dual, often conflicting, rural/agricultural policy goals. Policies originally intended to raise rural incomes were given a secondary goal of promoting grain production when Chinese authorities became alarmed by rapid increases in grain prices following the fall 2003 grain harvest, the smallest since 1989.² The government is trying to raise rural incomes while also trying to encourage grain production. Grain typically provides relatively low returns to Chinese farmers.

This report describes what is known about China's new agricultural policies and how they will affect rural incomes and agricultural production. The subsidies are spread thinly over the huge agricultural population and have had only a minor impact on rural incomes. While many news reports from China credit the policies with increasing grain production, the design of the subsidies does not appear to give strong incentives to producers to alter planting decisions. High grain prices both in China and world markets during early 2004 were likely the chief inducement to plant more grain. Favorable weather also boosted grain yields. The effectiveness of the policies will become more apparent in years when world grain prices are lower.

¹A recent announcement from China's State Council indicates that policies will continue in 2005.

²China's domestic grain supply situation was also tightened by a drawdown of its grain inventory.

New Policies Benefit Farmers

The Chinese Communist Party issued a “No. 1 Document” in early 2004 that gave top priority to the policy goal of increasing rural incomes. A whole range of policies has been introduced, but the two most prominent are direct subsidies for farmers and elimination of taxes on farmers (table 1). The stated goal of the policies is to raise the income of farmers, but the document also emphasizes the importance of increasing grain production.

Direct Subsidies Paid to Farmers

After several years of experimenting, China introduced its first nationwide direct subsidies for farmers during 2004 (see box, “China’s Evolving Approach to Grain Subsidies”). China’s Finance Ministry reported the total grain subsidies at 11.6 billion RMB (\$1.4 billion) (Jiang). China allocated 10.28 billion RMB (\$1.25 billion) from provincial “grain risk funds” to directly subsidize farmers in 13 major grain-producing provinces.³ Officials in 16 of China’s other provinces, municipalities, and autonomous regions provided an additional 1.3 billion RMB (\$158 million) in subsidies to farmers in grain-producing counties under their jurisdiction.

Local authorities were urged to ensure that subsidies reached farmers before the 2004 spring crops were sown. Information about the subsidies was widely published in news media to ensure that farmers knew how much they were entitled to receive.⁴ Each province could set its own method for granting subsidies. The standard practice seems to be to pay farmers a set amount, generally around 10 RMB per *mu* (approximately \$7.33 per acre), for area planted in grain.⁵ The method for calculating a farmer’s acreage base apparently varies from province to province, or even from county to county within the same province. In most cases, the payment appears to be

³Provinces include Heilongjiang, Jilin, Liaoning, Hebei, Henan, Shandong, Jiangsu, Anhui, Hunan, Hubei, Sichuan, Jiangxi, and Inner Mongolia Autonomous Region. Grain risk funds were set up in 1998 in each province to stabilize markets and to cover costs of price support programs. Funds are contributed by both central and provincial governments. According to Chen, at least one-third of the balance in grain risk funds was to be withdrawn and used as subsidies. Higher percentages of the funds were drawn for subsidies in certain key grain-producing provinces. In most provinces, the central and provincial government shares are equal, but the central government contributes a larger share in some important grain-producing provinces (Gale and others).

⁴Central authorities took these measures to ensure that the full amount of subsidies would reach farmers without being skimmed by local officials. Official reports from China indicate that farmers did receive the subsidies promptly, but anecdotal reports suggest that farmers in many areas did not receive them.

⁵A *mu* is the Chinese measure for land area. An acre of land is equivalent to 6.07 *mu*. The Chinese currency, the *renminbi* (RMB) is currently fixed at 8.28 RMB per dollar.

Table 1—Summary of China’s new agricultural policies in 2004

Policy <i>Estimated cost</i> ¹	Description	Probable effects
Grain subsidies <i>\$1.4 billion</i>	Direct payments of roughly \$7.33 per acre planted in grain.	Modest income gains for farmers. Effect on grain production is uncertain.
Agricultural tax reduction <i>\$5-7 billion</i>	Elimination of agricultural tax within 5 years. Elimination of tax on specialty crops (except for tobacco).	Modest income gains for farmers. May encourage planting of specialty crops, somewhat offsetting effect of grain subsidy.
Seed subsidies <i>\$193 million</i>	Subsidies for high-quality grain and soybean seeds of \$7-\$10 per acre planted.	May encourage planting of certain crop varieties.
Machinery subsidies <i>\$5 million</i>	Subsidies for purchase of machinery in targeted areas.	Increased mechanization but little effect on output. Frees labor for off-farm work.
Rural infrastructure spending <i>\$18 billion</i>	Improvement of irrigation facilities, electricity generation, roads, testing facilities, other rural infrastructure.	Improve productivity and marketing efficiency.

¹The Chinese currency is the *renminbi* (RMB) or *yuan*. Dollar values throughout this report are calculated using the official exchange rate, currently fixed at RMB 8.28 = U.S.\$1. See Shane and Gale for a discussion of Chinese exchange rates.

Source: Various news reports.

based on historical production records. In a few areas, payments were tied to actual production or marketings of grain.

The subsidy varied across both regions and commodities (table 2).⁶ For example, in Hubei Province, the subsidy was 10 *yuan* per *mu* (\$7.33 per acre) for early rice (usually a lower quality crop), but 15 *yuan* (\$11 per acre) for summer-sown rice. In Shanxi Province, the subsidy was 10 *yuan* per *mu* for wheat and 5 *yuan* (\$3.67 per acre) for corn. In the relatively wealthy Beijing municipality, subsidies were higher, at 50 *yuan* per *mu* (\$37 per acre), with higher per *mu* subsidies for larger farms. Generally, oilseeds, cotton, and other crops were not subsidized, but Anhui Province did announce subsidies for rapeseed to be planted in fall 2004. Subsidies were not implemented in several poor western provinces or on the island province of Hainan. In some areas, reductions in agricultural tax were given in lieu of cash payments. The subsidies amount to roughly \$2-\$5 per ton of output. The subsidies per farm were also small since the average farm plants only 3-4 *mu* of each crop (table 2).

⁶ERS has not been able to find a complete listing of subsidies by crop and province.

China's Evolving Approach to Grain Subsidies

In the late 1990s, China's government-owned grain bureaus began purchasing grain from farmers at "protection" prices (see Tuan, Zhong, and Ke for details). A protection price for each type of grain was set for each local area, usually above local market prices. Grain bureaus received a modest subsidy from the government to procure grain from farmers at the protection price. Farmers could sell a set quota of grain at the protection price, and above-quota grain could be sold at market prices (usually below the protection price).

The protection price program proved to be very costly. A sharp decline in market prices between 1997 and 2001 left grain bureaus with large stocks of grain they could not sell without taking substantial losses. Much of the stockpiled grain was exported at subsidized prices, auctioned at a loss, or allowed to deteriorate to unsalable quality. Grain bureaus still have large unpaid debts from purchasing grain at protection prices. In recent years, China has eliminated protection prices in many parts of the country. Grain prices are set in free markets. Commercial grain trading has been largely privatized, often by selling grain bureau assets to local managers.

After the shortcomings of protection prices became evident, authorities began experimenting with various approaches to directly subsidize grain producers (Liu, Ouyang, and Zhang). In 2002, experimental policies were put in place in selected major grain-producing counties of Jilin, Anhui, Henan, and Hubei Provinces. Each of the provinces used a different subsidy method, including fixed subsidies not tied to the current year's production or marketings as well as subsidies that are tied to market prices or production.

Fixed subsidies were based on either (1) historical household deliveries of grain to the government or (2) historical grain production from the household's allocated land based on local tax records. Price subsidies paid farmers the difference between a "protection" price set by government authorities and a market price. One method used the previous year's market price, and a second method used the expected current year's market price. Other subsidies gave farmers a set payment per kilogram of grain delivered to government grain procurement stations. The methods for calculating these subsidies are complex, and they require extensive record-keeping on millions of small farms. As such, they are difficult to implement and administer.

In most areas, the national subsidy program in 2004 appears to have followed the fixed-subsidy model, as the payments were based on historical grain plantings. However, in some areas, subsidies apparently were tied to prices, production, or grain deliveries. Price subsidies or per unit payments possibly could be implemented more widely in future years to give producers stronger incentives to plant grain. China faces no limit on subsidies that fit in the World Trade Organization's "green box" category. Under its commitments as a member, China can pay "amber box" (potentially market-distorting) subsidies up to a maximum of 8.5 percent of the value of its agricultural production. The limit could be as high as \$30 billion based on the value of agricultural production in 2003.

Table 2—Sample subsidy calculations for selected crops, 2004

Region/commodity	Subsidy	Yield	Cultivated area	Estimated subsidy/ton produced
	<i>RMB/mu</i>	<i>kg/mu</i>	<i>mu/farm</i>	<i>Dollars</i>
Hubei Province:				
Early indica rice	10	373	0.7	3.23
Middle- or single-season rice	15	580	2.7	3.12
Late rice*	10	407	.9	2.97
Jiangxi Province:				
Early rice	10	327	2.8	3.70
Middle rice	10	433	1.0	2.79
Late rice*	10	347	3.2	3.48
Shanxi Province:				
Wheat	10	207	4.6	5.84
Corn	5	300	3.0	2.01
Anhui Province:				
Wheat	10	213	3.6	5.67
Rapeseed	RMB 40/ton	100		4.83
Beijing Municipality:				
Wheat	50	347	3.7	17.42

Notes: Subsidy information obtained from China Grain Network. Yields are averages for recent years from China Ministry of Agriculture and National Bureau of Statistics. Area cultivated per farm was estimated by ERS from a 1-percent sample of household data from China's 1996 agricultural census. Many farms in southern China, such as Jiangxi, grow two crops of rice in 1 year. The average areas for early, middle, and late rice are averages taken over all farms in the province with rice area.

Estimated subsidy per ton = (subsidy/mu) x (mu/production).

1 *yuan* = 8.28 dollars. 15 *mu* = 1 hectare = 2.471 acres.

*Subsidies for late rice had not been announced at this report's writing. It was assumed to be 10 *yuan* per *mu*.

The grain subsidies represent a small portion of the value of grain production in China. Grain production figures for China's 2004 harvest were not yet available at the writing of this report, but China's rice, wheat, and corn production are currently forecast by USDA at approximately 400 million tons. At an average farm price of 1,500 RMB per ton, the RMB 11.6 billion in subsidies would be equal to less than 2 percent of the gross value of grain production.

Agricultural Taxes Eliminated

Another highly visible measure intended to increase farm incomes is the elimination of agricultural taxes. China has had an agricultural tax throughout its recorded history, and the current agricultural tax law dates back to 1958 (Aubert and Li). Before 2004, Chinese farmers were typically assessed an agricultural tax based on the normal productive value of their land,⁷ an agricultural specialty product tax, and a myriad of additional local taxes and fees to fund road construction, schools, and various other projects and services undertaken by village and township authorities.⁸ The heavy tax burden on farmers has been the source of widespread dissatisfaction and occasionally outright rebellion by farmers. The government has been calling for

⁷Farmland in China is collectively owned by villages. Each household in a village is allotted one or more plots of land for agricultural production on a long-term lease.

⁸Farmers are also taxed via obligations to work without pay on local public works projects.

local governments to reduce excessive fees and taxes and has carried out experimental reforms since 2001.⁹

Agricultural taxes were assessed differently in each locality, but the typical arrangement was to collect 7 percent of the normal value of production from a household's land, based on each family's allotted land area and an historical average price and yield. An additional surcharge of 20 percent was assessed to fund village administrative expenses, bringing the total tax to 8.4 percent. Some additional taxes were allowed, notably a tax on nongrain specialty crops and a "herding tax" on grazed livestock in grassland areas (Tuan, Zhong, and Ke).

In 2004, the "No. 1 Document" stipulated that the agricultural tax would be eliminated in 5 years.¹⁰ The tax was reduced by 3 percentage points in 2004 and an additional 1 percentage point per year in subsequent years. China also eliminated the specialty crop tax (with the exception of tobacco) and taxes on grazing livestock. China's State Council singled out Jilin and Heilongjiang Provinces for complete elimination of the agricultural tax in 2004. Provincial authorities were given the go-ahead to cut taxes even faster, if possible. Five other wealthy provinces and municipalities (Beijing, Tianjin, Shanghai, Zhejiang, and Fujian) eliminated the tax in 2004, and Tibet eliminated its grazing tax. Later in the year, the government decided to speed up elimination of the agricultural tax and announced in January 2005 that 25 of China's 31 provinces, municipalities, and autonomous regions would eliminate the agricultural tax in 2005.

In 2003, the National Bureau of Statistics reported revenue from the agricultural tax at RMB 33.6 billion (\$4 billion), specialty crop taxes at RMB 9 billion (\$1 billion), and herding taxes at RMB 149 million (\$18 million), a combined total of RMB 42.7 billion (\$5 billion). Other news reports indicate that agricultural tax revenues totaled RMB 60 billion (\$7 billion) before the tax-elimination policy was implemented. These figures are equal to just 2-3 percent of all taxes collected in China. However, many rural local governments depend heavily on agricultural taxes to finance basic education and other local government activities. News reports indicate that the central government will transfer funds to local governments to make up for lost tax revenue, but no details have been announced about how this transfer is to be accomplished.

Agricultural Inputs Subsidized

Seeds and agricultural machinery also are subsidized under new policies. Subsidies for high-quality seeds, including high-oil soybeans, special-use corn and wheat, and high-quality rice varieties, are paid to seed supply companies, which are expected to pass on the subsidies to farmers. Targets of 10 million *mu* (1.65 million acres) of acreage planted in high-quality seeds were set for each of 13 provinces (the same provinces receiving direct subsidies for farmers). In Heilongjiang Province, the subsidy for improved corn and soybean seeds was set at 10 *yuan* per *mu* and the subsidy for rice seed was 15 *yuan* per *mu*. According to a Xinhua News Agency report in August 2004, 1.6 billion *yuan* (\$193 million) in seed subsidies had been paid since October 2003.

China also allocated an additional 40 million *yuan* (\$5 million) to subsidize purchases of farm machinery in 66 large grain-producing counties of 16 provinces. Subsidies can cover up to 30 percent of the purchase price.

⁹Recent rural tax reforms consolidated various taxes and fees into a single standardized agricultural tax based on the value of a typical year's agricultural production (Tuan, Zhong, and Ke).

¹⁰News reports in late 2004 indicated that the timetable for eliminating the agricultural tax would be shortened to less than 5 years.

Farmers pay the subsidized price. After the sale, dealers collect the subsidy from provincial government offices overseeing farm mechanization.

Prices Set By Markets

Over the past several years, China has been abolishing procurement of grain at “protection prices” (support prices at which government-sponsored marketing bureaus procure a set quota of grain from farmers), a policy introduced during the late 1990s when market prices for grain were falling from historical highs reached in 1996. By 2003, protection prices remained for only grain in important production areas, and most of those were eliminated in 2004. In 2004, the government maintained minimum “protection prices” for only rice, spurred by concerns about rising rice prices and spot shortages of rice in 2004. The setting of protection prices for rice reflects the political sensitivity of rice, the staple food grain throughout much of China. However, market prices rose 40-50 percent between 2003 and 2004 to levels well above the protection price. Grain prices are now mostly set in open markets, and government procurement prices appear to be following market prices.

Grain Marketing Liberalized

In addition to agricultural subsidies and tax reduction, China is privatizing the domestic grain marketing system, making large public investments in agricultural infrastructure, stepping up efforts to prevent loss of agricultural land to urban uses, and encouraging rural financial institutions to loan more money to farmers.

China is encouraging better market infrastructure. In 2004, China resumed futures trading of corn (it had been suspended in the late 1990s), introduced a new futures contract for imported soybeans (futures contracts for domestic soybeans have been traded for a number of years), and began cotton futures trading at the Zhengzhou commodities exchange. In June 2004, China announced new regulations designed to liberalize grain markets by reducing the dominant role played by government-sponsored enterprises in domestic grain trade (Xinhua Domestic News Service). These regulations seem to be the culmination of a steady rollback of the monopoly power of government-sponsored grain bureaus that had been under way for several years.

While the marketing regulations appear to promote open competition, the key players in grain marketing are former government grain bureau procurement stations that were privatized by selling them to their managers. They still have close ties to government. These companies have access to government-directed grain procurement loans and government-owned storage and processing facilities, while small private grain traders have difficulty obtaining bank loans and have limited storage capacity (Zhong). The regulations stipulate that the government can intervene in grain markets when prices are rising rapidly and that government departments have responsibility to ensure that grain supply and demand is balanced (the “governors’ responsibility system” introduced in 1995).

Early assessments by observers report that grain markets are more competitive and open. Private and individual grain merchants are playing a greater role in grain procurement, state-owned enterprises are improving service and working with village brokers to purchase grain, and farmers have more

alternatives for grain marketing (Hebei Rural Survey Team; Heilongjiang Rural Survey Team, November 11, 2004).

Rural Infrastructure Investment Increased

China is also working to improve the livelihoods of agricultural producers by increasing agricultural-related public investments. The government planned to increase its financial support for agricultural infrastructure in 2004 to 150 billion RMB (\$18.1 billion), up from 120 billion RMB (\$14.5 billion) in 2003. Projects include spending on infrastructure, such as improved irrigation facilities, rural roads, methane production facilities, rural hydroelectric plants, pasture enclosures, research, and construction of agricultural high technology parks. The Ministry of Water Resources reported investment in irrigation projects of RMB 58 billion (\$7 billion) during the 8 months from September 2003 to May 2004, an 11.7-percent increase over the previous year (Xinhua News Agency). Research has shown that such investments have been the most important source of China's agricultural productivity growth (Huang and Rozelle; Fan, 1997).

Historically, little of China's infrastructure expenditure has actually reached farmers. A survey by the Development Research Center of China's State Council found that only 30 percent of funds appropriated for agriculture are spent on agricultural production (Liu, Niu, and Duan). In the past, much of the expenditure on agriculture was used for operating expenses by various levels of government to purchase automobiles, pay for banquets, or otherwise misappropriated.

More Loans for Farmers

China is also seeking to boost farm investment by making more small loans to farm households through its vast system of 35,000 rural credit cooperatives (RCCs). During the 1990s, farm loans were frequently squeezed out by loans to rural factories and local governments. RCCs are now under pressure to make more loans to farm households. Many rural communities have adopted a micro-loan classification system that evaluates all households in a village and classifies each household into one of four or five loan-eligibility categories (Gale and others). Government reports indicate that new RCC agricultural loans totaled \$23.4 billion during the first 9 months of 2004, an increase of 27.8 percent from year-earlier amounts. These loans are small, nearly all under \$2,500, and short-term (mostly 3-6 months). They are used for input purchases as well as modest investments, such as well-digging, livestock and fertilizer purchases, planting orchards, and greenhouse construction.

China's state-owned policy banks are also increasing loans to agricultural processing companies that meet criteria for size, management, facilities, and technology set by national or provincial governments (Gale and others). These "dragon head" enterprises receive favorable loan terms from state banks with the expectation that they will provide farmers with profitable outlets for farm products. The Agricultural Development Bank of China (ADBC) launched a specialized lending program targeted at "dragon head" agricultural enterprises in 2002, and lending grew to RMB 40 billion (\$4.8 billion) in 2003. The China Development Bank, Agricultural Bank of China, and RCCs also make preferential loans to these enterprises, but the total amount is not known (Xinhua News Agency).

Minor Impacts on Income and Grain Production

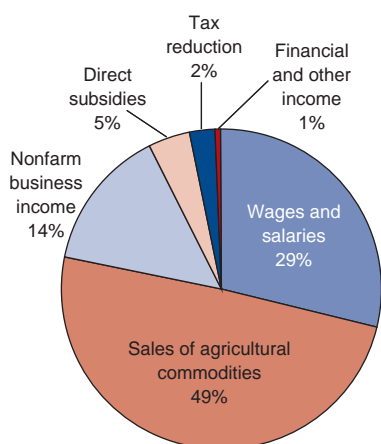
China's direct agricultural subsidies and tax reduction are symbolically important as a reversal of its historic taxation of farmers, but they only provided a modest increase in rural incomes. Xu reported that the subsidies and tax reduction were worth a combined RMB 30.2 billion (\$3.6 billion) to China's farmers, equal to about RMB 41 (\$5) per rural household member, or 1-2 percent of the 2003 average per capita rural household income of 2,622 RMB (\$317).¹⁰

Chinese news reports credited the subsidies with raising grain production and rural incomes, but careful analysis of household income and farm production cost data shows that subsidies and tax reduction were only minor factors. Strong prices at planting time and rising off-farm income were more important factors.

Rural per capita income rose 6.8 percent during 2004, the fastest increase since 1997 (Li), but subsidies and tax reduction accounted for only a small portion of the growth in income. A breakdown of the increase in rural cash income for the first 6 months of 2004 by Fan (2005) showed that only 5 percent of the increase in income was due to direct subsidies (including grain and seed subsidies) and 2 percent was due to decreased agricultural tax payments (fig. 1).¹¹ About half of the increase in income was due to increased sales of agricultural commodities, 29 percent to increased nonfarm wage and salaries, and 14 percent to nonfarm business income. Fan (2005) reported that all of the increase in agricultural sales was due to higher prices because the amount of agricultural commodities marketed fell

Figure 1

Components of growth in rural per capita household cash income, 2003-04



Note: Chart shows the components of growth in per capita household cash income during January-June 2004, compared with year-earlier amount. Cash income rose from 1,159 *yuan* for January-June 2003 to 1,345 *yuan* during the same period of 2004.

Source: China National Bureau of Statistics; Fan (2005); and authors' calculations.

from the previous year. Price indexes show August 2004 prices for rice were up 50 percent, wheat, 45 percent, and corn, 26 percent from year-earlier levels. The analysis reported by Xu suggested that rising prices increased rural incomes by 60 billion *yuan*, twice the gains realized from subsidies and tax reduction.

Grain production also rose sharply in 2004, but careful analysis again suggests that subsidies and tax reduction played a minor role. Statistics released by China's National Bureau of Statistics in January 2005 indicated that China's grain production rose 9 percent in 2004, reaching 469.5 million metric tons, the highest level since 1999. This increase was a remarkable turnaround from previous years. Rice, wheat, and

¹⁰Per capita calculations in this section are based on 200 million rural households and an average of 3.7 people per rural household calculated from China's 2000 population census.

¹¹Subsidies and agricultural tax reduction may have had larger impacts on income in northeastern China. Grain and seed subsidies per rural household member were as high as RMB 55.5 (\$6.70) in Heilongjiang Province, about RMB 30 (\$3.63) in other northeastern provinces, and RMB 10-15 (\$1-2) in several other major grain-producing provinces (National Bureau of Statistics, Rural Survey Organization).

corn area combined had fallen 15 percent between 1999 and 2003 as area was planted in more profitable alternative crops like vegetables, cotton, or fruit orchards or diverted to nonagricultural uses.

While many news reports credited the subsidies with raising grain production, the subsidies themselves do not appear to provide farmers with strong incentives to increase grain plantings. The subsidies are not large enough to make planting grain as profitable as planting alternative crops, such as cotton, vegetables, or fruit. In most places, the grain subsidy is apparently based on the area planted in previous years, so the incentive to increase plantings is small unless farmers believe that this year's plantings will increase future subsidies by enlarging their acreage base. The subsidies do not provide strong incentive to increase yields because they are based on the area planted in grain. Seed subsidies are focused on "high-quality" seeds, which are not necessarily high yielding. The reduced agricultural tax lowers production costs slightly, putting more cash in the farmer's pocket. The reduced tax does not appear, however, to provide an incentive to plant more grain since farmers pay less agricultural tax whether they produce grain or not.

The steep increase in grain prices during 2004 had a much larger impact on farmers than did the subsidies and tax reduction. We illustrate the contributions of subsidies, agricultural taxes, and other factors to changes in farm profitability during 2004 with hypothetical calculations shown in table 3. We used survey-based average grain production costs and returns from 2003 to compute the expected changes in grain profitability derived from changes in prices, yield, production costs, subsidies, and tax reduction in 2004. The "2003 actual" column of the table shows costs and returns per *mu* (6.07 *mu* = 1 acre) for Chinese grain production in 2003 published by China's National Development and Reform Commission. The "2004 estimate" column estimates costs and returns for 2004, based on trends derived from National Bureau of Statistics price indexes and production statistics for 2004. The 2004 calculation assumes grain output prices rose 30 percent and yields rose 6.6 percent from those of 2003. Chinese farmers also faced rising input prices during 2004, so we assumed that production costs (fuel,

Table 3—Cost of production and profit per *mu*, three major grains, actual 2003 and estimated 2004

Item	Unit	2003 actual ¹	2004 estimate	2004 effect on profit ²	Assumptions for 2004 ³
Yield	kg	344	367	+27 <i>yuan</i>	6.6-percent increase in yield
x Price ⁴	<i>yuan</i>	1.19	1.55	+132 <i>yuan</i>	30-percent growth in output prices
= Gross revenue	<i>yuan</i>	411	570		
+ Subsidy	<i>yuan</i>		10	+10 <i>yuan</i>	10- <i>yuan</i> -per- <i>mu</i> subsidy introduced during 2004
- Production cost	<i>yuan</i>	291	320	-29 <i>yuan</i>	10-percent growth in input costs
- Tax	<i>yuan</i>	24	16	+8 <i>yuan</i>	Agricultural tax reduced by one-third
= Profit	<i>yuan</i>	97	244	+147 <i>yuan</i>	

Note: figures are per *mu* for corn, wheat, and rice. 1 hectare = 15 *mu*. 1 acre = 6.07 *mu*.

¹Survey estimates published by National Development and Reform Commission.

²Components of change = $[P_{03} \times (Q_{04} - Q_{03})] + [(P_{04} - P_{03}) \times Q_{04}] + (Cost_{04} - Cost_{03}) + Subsidy - Tax$, where P_i is grain price, Q_i is yield, and $Cost_i$ is production cost. Components do not add to total change due to rounding.

³Assumptions based on National Bureau of Statistics price indexes, preliminary production estimates, and policy announcements for 2004.

⁴Price is the sum of primary product and byproduct prices.

Source: National Development and Reform Commission and authors' calculations.

electricity, fertilizer, and seeds) rose 10 percent. The “2004 effect on profit” column shows the 2003-04 change in each component, adds a subsidy of 10 *yuan* per *mu*, and assumes that the agricultural tax was reduced by one-third in 2004.

The estimated profit per *mu* rises dramatically from 97 *yuan* to 244 *yuan*, an increase of 147 *yuan*. However, in this calculation, the subsidy and agricultural tax reduction account for only 18 *yuan* of the 147-*yuan* increase. Most of the increase in profit (132 *yuan*) is due to the assumed 30-percent increase in grain prices. The assumed 6.6-percent yield increase contributed 27 *yuan*, which is offset by a 29-*yuan* increase in production cost. Elimination of the agricultural tax contributes 8 *yuan*, and the subsidy contributes 10 *yuan*. Based on these calculations, we can conclude that the increase in grain prices was the primary factor that increased grain profitability and farm income in 2004.

Implementation of Policies Is Difficult

Land Issues

An article published by the Heilongjiang Rural Survey Team (April 29, 2004) describes some difficulties in implementing the direct subsidy policy, one of which is the issue of “black land” cultivated by farmers but not reported to authorities. In previous years, it was in the interest of village authorities to underreport farmland because taxes were based on land cultivated. Now that subsidies are being paid based on land area planted, farmers and local authorities want to get subsidy payments for the “black land” they cultivate. The Heilongjiang Rural Survey Team surveyed three counties and estimated that black land amounted to nearly 200,000 acres, which ERS calculates to be over 30 percent of the grain production area in these counties.¹² No subsidy payments were received for this black land in the first round of subsidies. The black land problem seems to be present in other provinces as well. Apparently, black land was previously cultivated but not reported to authorities. The appearance of black land also calls into question the accuracy of China’s estimates of sown area, which were never revised following the 30-percent upward revision of cultivated area statistics in 1996. Questions about the accuracy of sown area also call into question the accuracy of reported crop yields.

Problems also arise where farmers have leased the use of their land to other farmers. Farmland in China is owned collectively by villages, which grant farmers the right to cultivate certain plots. Rules vary from village to village, but many farmers now lease their land to others. The rules for granting subsidies do not specify whether the subsidy should go to the farmer who holds the rights to the land or to the farmer who actually cultivates it.

Local Government Financial Stress

Local governments at the county and township level, many of which are already facing severe financial difficulty, are also being stressed by tax reduction and subsidy policies. Agricultural-related taxes were once a major source of China’s tax revenue, but they now account for less than 4 percent at the national level (Aubert and Li). However, these taxes still provide a large share of the funds to support local governments. While many rural areas in China have a diversified tax base, many others still depend heavily on agriculture for income and tax revenue. Various estimates cited by Ni find that agricultural taxes constitute 18-25 percent of all tax and fee assessments on China’s rural population. Thus, agricultural tax elimination could mean the loss of up to 25 percent of tax revenue for local governments. The lost revenue will be made up by transfers from the central government, increased public debt, or assessment of other rural taxes and fees (Ni). Xu reported that the central government transferred 20 billion *yuan* (\$2.4 billion) to compensate local governments for lost tax revenue. Rural tax reform is also reportedly pushing rural governments to cut costs by consolidating layers of government, merging small village governments, and paying severance fees to redundant officials (Kwan).

¹²The percentage was calculated by ERS using 1999 statistics on grain-sown area by county reported by the China National Bureau of Statistics (2000).

At the same time, local governments must take on the responsibility of distributing cash subsidy payments. The distribution and oversight of subsidies require local governments to devote resources to this activity, requiring greater funding to pay salaries and other costs.

The loss of an important revenue source combined with increased demands associated with cash subsidy distribution appears likely to squeeze local governments. The new financial flows suggest a major adjustment in local public finance relationships between central, provincial, prefectural, and local governments (Ni). The stress could speed up reforms, such as consolidation of township and county governments.

Policy Will Continue To Evolve

China's agricultural policy is evolving rapidly, and its policymakers face difficult, critical choices. Like many other industrializing countries, China is abandoning taxes on agriculture as it gains more income from taxes on industry and urban incomes. Most developed countries have not only reduced taxes on agriculture but have also extended significant subsidies to agriculture to address growing rural-urban income inequality, maintain food production capacity, and preserve a "way of life" that most countries associate with their cultural roots. China appears to be heading in this direction.

In 2004, China, for the first time, implemented a concerted national policy of subsidizing farmers and reducing their taxes. The policies have symbolic value but only marginal effects on rural incomes or grain production. The subsidies and tax reductions provide benefits equal to 2-4 percent of the value of agricultural production. The increase in grain production during 2004 was due primarily to a 30-percent increase in grain prices. In addition, given fiscal constraints and reliance of local governments on agricultural tax revenue, the fiscal sustainability of these policies is unclear.

Rapid economic growth is creating multiple imbalances that policymakers are trying to address through various policy measures (Shane and Gale). Consequently, Chinese policymakers face difficult choices as they try to attain multiple objectives that often conflict with one another. Inducing farmers to plant more grain conflicts with the goal of increasing rural income because grain earns little income, compared with cotton, vegetables, fruit orchards, and other specialty crops. Raising rural incomes might be best achieved by allowing massive migration to cities, but Chinese authorities worry that this would lead to social instability. Heavy use of chemical fertilizer, pesticides, and ground water and cultivation of marginal cropland to maximize grain production conflicts with other objectives of achieving environmental sustainability and reducing chemical residues on food.

China's agricultural policy will evolve further in coming years as its policymakers try to balance these multiple objectives and fine-tune the policies. A new "No. 1 Document" released in January 2005 announced that the subsidy and tax reduction policies would continue. China has indicated that it will speed up the phaseout of the agricultural tax and limit increases in input prices. Grain prices began falling in late 2004, and policymakers announced protection prices (support prices) for corn for 2005. The 2005 announcement placed greater emphasis on raising grain yields by improving plant breeding and other infrastructure investment. Adjustments to its subsidy methods are possible as well. Its 2004 subsidies were based on historical grain plantings, but China has also experimented with price- and production-linked subsidy policies in limited geographic areas, and such policies could be introduced nationwide if policymakers believe that farmers need stronger incentives to produce grain.

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