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Price and Subsidy Policy for Grain in China: Performance, Problems, and Prospects for Reform

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Abstract: Based on a case study, this paper analyses China's current price and subsidy policy for grain and discusses some questions relating to the reorientation of this policy. First, the pricing system for the grain market, especially that for the state-run grain marketing agencies, is illustrated. Ways of subsidizing grain and the scale of the subsidy are then analysed. After discussion of the three major problems inherent in the system and a brief look at recent reform efforts, some points to be considered in terms of further reform are examined, including the need to modify the way of deciding priorities among conflicting policy objectives as well as the relationship between the state-set price and the open-market price. Finally, a proposal is made for gradual abolition of the subsidy and an operational cost-efficient approach is suggested.

Introduction

Grain policy is the core of China's agricultural and food policy. In spite of the reform measures of the past 10 years, the grain sector, as with those for a few other farm products, still remains under strong direct government control, accompanied by a heavy burden on the state budget in subsidy payments on the one hand and declining supply and motivation among farmers engaged in grain production on the other hand. The Chinese government has been forced to tackle these and other problems and is seeking ways out of the dilemma. This paper, based on a case study, first illustrates China's current price and subsidy policy system for grain and then discusses some aspects of the reorientation of the policy.

Double-Track System and Subsidy

At present, a so-called double-track system is applied in China's grain market, which means that there are two kinds of trade activities (one carried out according to the state-set plan and the other guided by the market mechanism) two kinds of prices (the state-set price for the first kind of trade and the open-market price for the second) and two kinds of marketing agencies (the state-run grain marketing agencies (SGM) and other marketing enterprises).

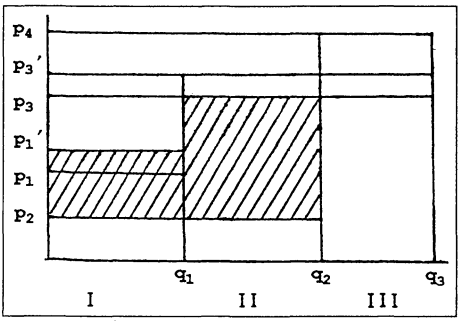
The state-set plan and price apply only to the SGMs. But not all the SGM trading activities are covered by central plan control. The local SGMs, after fulfilling the state plan, also operate according to the market situation, the so-called "negotiated" purchase, and resale at a "negotiated price." This part of the trading activities of SGMs is in fact of an open-market nature, for both the amount traded and the price applied are determined by the market situation, and the decisions involved are made by the local SGMs rather than by the government.

In practical terms, the negotiated price and the free market price are at the same level. Popular opinion regarding the negotiated price as a third type of price in addition to the state-set price and the open-market price is the result of misunderstanding.

The grain subsidy is paid only to the SGMs and only for the trade volume agreed under the state plan and at the state-set price. In practice, there are many kinds of subsidies for grain in China. Theoretically, however, they can be summarized into two categories: a subsidy to cover the "negative marketing margin"[2] or the differential between the state-set farm price and the consumer price, and a subsidy to cover marketing costs. This price and subsidy system is illustrated in Figure 1.

The trade of an SGM thus consists of three elements. The first (Part I) is farmer quota delivery, which is in turn rationed by the SGM to urban consumers. A total deficit of $(p_1'-p_2)q_1$ arises from this element. The same amount of state subsidy is needed to cover it. This would be the total subsidy if the quantity required for rationing were equal to q_1.

The fact is, however, that the quantity to be rationed is larger than q_1, because the farmer delivery quota has somehow been kept constant during recent years, while the rationed amount has expanded continuously due to the growth of the urban population. The increasing gap between q_2 and q_1 is bridged in practical terms by turning some of the SGM "negotiated purchasing" (purchasing on the open market) into "planned rationing." This is the second element of SGM trade (Part II), which also results in a deficit, and further subsidy has to be granted, which should be at least enough to cover the shaded area $(p_3'-p_2)$ (q_2-q_1). For the third element (Part III), which represents purely the open-market trade, no subsidy is granted.



q_1: Quota purchasing at state-set farm price p_1
q_2: Amount needed for rationing at state-set consumer price p_2
q_3: Total amount traded
$q_2 - q_1$: Amount purchased at open-market purchasing price p_3 and rationed at p_2
$q_3 - q_2$: Resale at open-market price p_4 (retail or wholesale price)
$q_3 - q_1$: Open-market purchasing at p_3
$p_1 - p_2$: Negative marketing margin for Part I
$p_3 - p_2$: Negative marketing margin for Part II
$p_1' - p_1 = p_3' - p_3$: Average marketing cost

Shaded area: Amount of subsidy

Figure 1—Grain Price and Subsidy System

A Case Study

A much clearer picture of the subsidy system can be gained by examining the results of a case study of the SGM of Zhengding County, Hebei Province. The major farm products grown there are wheat and maize, together taking up over 90 percent of the cultivated area. The case of wheat is used as an example.

Quantity relationship. As shown in Table 1, the traded volume of wheat in 1989 totalled 42,200 t, of which trade on the open market accounted for 40 percent at the purchase level and 25 percent at the resale level. The three elements of SGM trade account for 60 percent, 15 percent, and 25 percent, respectively.[3]

Table 1—Wheat Trade of the SGM in Zhengding (1989, 1000 t)

Purchase	Ration	Open Market	Total
Quota	25.4 (I)	—	25.4 (q_1)
Open market	6.3 (II)	10.5 (III)	16.8
Total	31.7 (q_2)	10.5	42.2 (q_3)

Price relationship. The corresponding prices are presented in Table 2. The negative marketing margin was large; 88 percent of the rationing price in the first element and 282 percent in the second. This means that the same high degree of government subsidy is required. There was also a great price disparity in the double-track system. At the farm level, the open-market price was twice as high as the state-set quota prices, while at the resale (retail or wholesale) level, the open-market price was more than four times the state-set rationing price.

Subsidy. It is relatively easy to calculate the subsidy needed to cover the negative market margin; i.e., 257 yuan/t for Part I and 827 yuan/t for Part II. The subsidies to cover marketing costs, however, are much more complicated. The major features of this kind of subsidy are listed in Table 3.

Table 2—Prices for Wheat in Zhengding (1989)

	State-Set Price		Open-Market Price		Negative Marketing Margin	
	Purchase	Retail	Purchase	Resale	I	II
	p_1	p_2	p_3	p_4		
Yuan/t	550	293	1,120	1,200	257	827
Percent	188	100	382	410	88	282

Note: p_2 is derived from the price of flour (366 yuan/t) with an 80 percent processing ratio; p_4 is the wholesale price.

Table 3—Subsidy to Cover Marketing Costs of Wheat to the SGM in Zhengding (1989)

Operating costs of retailing	30.00 yuan/t
Operating costs of storage	33.00 yuan/t/year
Capital (measured as the value of stored wheat) costs	
(derived from a subsidy rate of 0.0042 yuan/t month)	27.72 yuan/t/year
Total (assuming an average storage time of 6 months)	60.36 yuan/t

To sum up, the average subsidy was 820 yuan/t for Part I and 890 yuan/t for Part II. The subsidy to cover the negative marketing margin was the major part of the total subsidy, making up 80–90 percent of the total sum.

To give an overview, the whole situation for wheat is displayed in Figure 2(a). Using the same method, the situation for maize is shown in Figure 2(b). The price relationships and the degree of subsidy for maize were similar to those for wheat. The major difference is that the share of Part III was much larger for maize than that for wheat, i.e., 70 percent for maize and 25 percent for wheat.

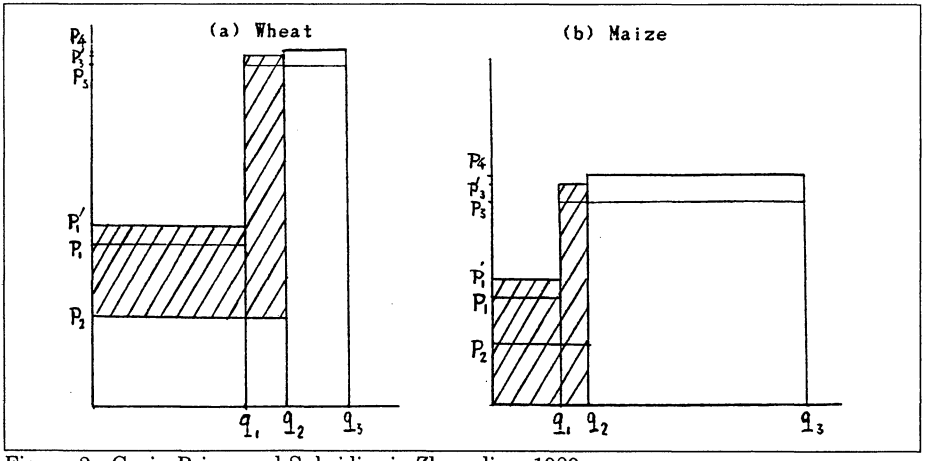


Figure 2—Grain Prices and Subsidies in Zhengding, 1989

Problems

There are three major problems inherent in the above-mentioned price and subsidy system, which exert increasing pressure upon the Chinese government and call for long-term solutions.

The first is the disproportionate growth of the state financial burden, which has two dimensions. With a constant purchasing quota the increase in grain demand due to urban population expansion can only be met with Part II trade, which means, as in the example of wheat, that a more than 2-percent increase in subsidy is needed for every 1 percent of growth in the urban population. This alone suggests an 8-percent increase in subsidy annually, assuming a 4-percent annual growth rate of the urban population, as was actually the case during 1982–89. With a constant state-set consumer price and an increasing purchase price on both "tracks" (see Table 4), the average subsidy for each unit of grain rationed is increasing. If the price trend shown in Table 4 continues, this will mean an annual subsidy increase of 30 percent. Even if the actual price increase in the coming years is only half of this, the resulting subsidy increase will still be as high as 15 percent.

Table 4—Development of Purchasing Price for Grain in Zhengding (yuan/t)

Year	1986	1987	1988	1989
Wheat:				
State-set	488	488	520	550
Open market	540	620	680	1,120
Maize:				
State-set	322	342	342	362
Open market	420	420	470	680

The second problem is the increasing operational difficulty of quota purchasing. With the wide and widening gap between the open-market price and quota purchase price, increasingly greater operational and political costs are involved in persuading and forcing farmers to fulfil their delivery quota.

Besides its operational feasibility, the system is also questionable in social equity terms. The differential between the state-set quota price and the open-market price can be seen not only as a tax, but also as a subsidy paid by the farmer to the consumer. In the case of wheat, such a subsidy paid by the farmer for Part I trade amounted to 570 yuan/t, even larger than the government's share (320 yuan/t). This means that urban consumers are substantially subsidized by rural farmers, although the latter have only half of the income level of the former.

The third major problem is the high degree of waste in the marketing and consumption sectors. According to various sources, post-harvest waste of grain in China averages 12 percent of production (i.e., 50 Mt), while the waste in the consumption sector amounts to 20 Mt. Both figures greatly exceed China's annual grain imports. The high degree of waste is mainly due to inefficiency in the marketing system and the low price in the consumption sector, which is in turn closely related to the price and subsidy system discussed above.

Recent Reform Efforts

Although there have been no centrally guided or fundamental changes in recent years, some individual experimental efforts have been made by various local governments. However, these efforts are mainly confined to changes in the subsidy-granting methods. They have tried to reduce or totally eliminate the negative marketing margins but not the subsidy. Neither

the subsidy nor the price disparity between the two "tracks" has been abolished. The quota delivery obligation also remains. For example, in Guangdong Province, the state-set purchasing price for paddy rice has been increased from 191.60 yuan/t to 250 yuan/t, while the rationing price for rice has been raised from 148 yuan/t to 306 Yuan/t. The increase in the purchasing price is financed by cutting down the amount of subsidy previously granted to the farmer for fertilizer, while the increase in the rationing price is compensated with the same amount of direct subsidy to the consumer.

In all these experiments, the underlying problems remain basically unsolved, and new methods need to be sought.

Aspects of Further Reform

Policy objectives and instruments. Ultimately, the problems are rooted in the conflict over current grain policy objectives, basically between the objectives of a low consumer price and sufficient supply. A low consumer price is in fact the central and starting point of the whole food policy system in China (Figure 3).

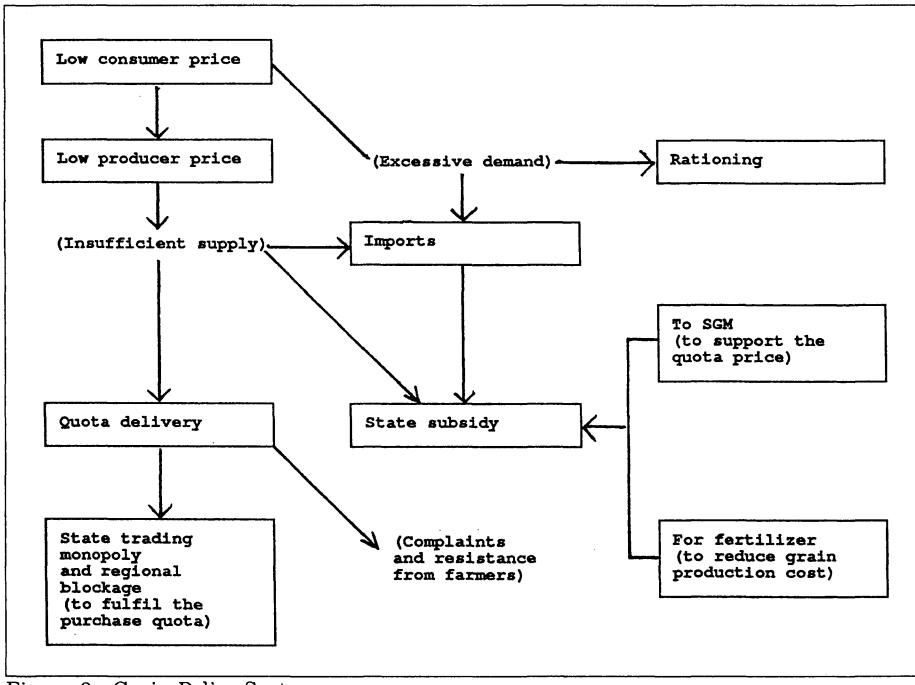


Figure 3—Grain Policy System

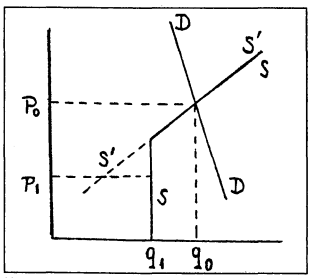
It is easy to see that compulsory quota purchasing, state subsidies, and imports are the major means for resolving the conflict between the two objectives. Since it is increasingly difficult to intensify the use of these means, consideration has to be given to whether one of the two objectives should be given up, and, if so, which.

Obviously, the price objective is less important than the quantity objective. With an improved income situation, people are much more concerned with the sufficiency of food supply than with the price level. Urban households that will be in a difficult situation if asked to pay

for their food grain at the open-market price are nowadays exceptions in China. It is unconvincing to argue that people cannot afford food grain at the market price when they already own colour television sets, refrigerators, and washing machines. So, if the government is forced to cut down the subsidy, it should and has to give up the priority of retaining a low state-set consumer price. This will also induce a positive effect on improvement in marketing efficiency and reduce waste.

Quantity guarantee. Based on the above considerations, it can be proposed that the state-set price and subsidy should be abolished. In order to avoid or reduce the negative psychological effects and still give the urban consumer a feeling of security, the coupon system for rationing food grain can be further used. This, however, implies no more subsidy, only a quantity guarantee. This means that the urban consumer would receive the same amount of grain coupons as at present with which to buy grain from the SGM, but no longer at the subsidized price. Instead, they would have to pay the prevailing market price in the locality concerned.

Open-market price. Many people fear that there will be a strong increase in the open-market price if quota purchases and the subsidy are abolished. In effect, exactly the opposite will happen. Figure 4 helps to illustrate this. It suggests that the open-market price is neither directly influenced by the quota purchase price nor affected by marginal changes in the quota quantity. This clearly indicates that there is no direct correlation between the state subsidy and the open-market price.



q_1: Quota purchasing at state-set price p_1.
$q_0 - q_1$: Open market purchasing at open market price p_0.
$S'S'$: Supply curve in the case of no quota purchasing.
SS: Supply curve with quota purchasing.
DD: Demand curve with subsidy.

Figure 4—Grain Market

There must be some indirect effects of the subsidy on the level of the open-market price due to the income effect of the subsidy on the demand curve. The abolition of the subsidy means a decline in the purchasing power of urban households. With a positive income elasticity of food grain demand (0.10–0.20), the demand curve will shift to the left. This implies a drop rather than an increase in the open-market price.

This is, of course, a conclusion based only on theoretical analysis. Its realization needs certain preconditions. The most fundamental of these are free competition and good market transparency. These are two decisive factors in achieving an efficient marketing system. Both aspects have been improving since the mid-1980s. The recent establishment of a grain wholesale market in Zhengzhou, Henan Province, is a significant effort in this direction.

Mechanics of transition. From both the political and the operational-technical viewpoints, the reform target cannot be accomplished in one move, neither can the subsidy be abolished overnight. It has to be carried out step by step.

At present, food grain coupons are issued monthly. The quantity of such subsidized grain per person per month varies from person to person according to age, sex, and occupation, covering a wide range from 5 kg for a one-year-old child to 13.5 kg for a dependent adult and from 15 kg for a white-collar employee to 30 kg for a heavy-industry worker such as a miner. So there is a technical problem of how gradually to reduce the amount of subsidized grain without involving too much operational cost. A possible solution is proposed that seems easy to implement: monthly reduction year by year. In the first year, the subsidy for one month (e.g., December) would be abolished, and for the remaining months remain unchanged. In the

second year, the subsidy for a further month (e.g., November) would be abolished, etc. Using this system, the whole subsidy can be eliminated in about 10 years.

For the low-income group that really has difficulties in buying food grain at the market price and needs government help, other solutions ought to be developed such as establishment and improvement of the social welfare system. The poor will be better and more efficiently subsidized by social policy, but not by market and price policy, which in fact benefits the upper-income group much more than the lower-income group.

Notes

[1]Beijing Agricultural University.

[2]It is termed "negative" because the state-set consumer price is lower than the farm price.

[3]The corresponding figures for maize were 21 percent, 9 percent, and 70 percent, respectively.

Discussion Opening—*Zbigniew Kowalski* (Academy of Technology and Agriculture, Poland)

Problems addressed in the paper bear a close resemblance to changes encountered very recently in Polish agriculture. Polish policy makers faced such problems at the beginning of the 1990s. Similar measures to those suggested by the paper were employed with impressive success. This places Polish farming in a position one step further on the way towards a market-oriented agriculture (a more general term that refers not only to a price setting mode but also to farmers seen as active agents able to benefit from the market). This discussion will therefore refer to some Polish experiences, which are common to all economies that change from central planning to the free market. An equitable food market, though naturally seen as the ultimate objective at the stage of reforms discussed in the paper, is in fact only a part of a broader package of problems that appear as prices are decontrolled.

Generally, any change in an agricultural price-setting mechanism seems to have two main aspects. First, it leads to a new situation on the food market for both producers and consumers (a new model of behaviour appears). Second, it affects the income distribution between rural and urban sectors. The first problem, as Polish experiences have shown, can be solved smoothly even if the market reform comes overnight (a situation which, according to the author, should be avoided in the case of China). The Polish food market has gone from central control to a free-price system within several months, turning from a 30-year-long period of shortages (with a food rationing system very similar to that in China) to the problem of overproduction. Having balanced the food market, the focus has moved on to the second question that emerged unexpectedly, namely the influence of the free market on farm income. It is known that under a central planning system that keeps food retail prices low, an essential part of farm income is being transferred out of agriculture as a hidden subsidy to consumers. But turning to a free market does not necessarily protect farmers from that. In centrally planned economies with family-type agriculture (as in China and formerly in Poland), the economy has assumed a curious dual structure—a highly centralized industrial sector versus a fragmented, scattered peasant agriculture. For central planners, the interest lies with agriculture. To control it, compulsory deliveries are often necessary. For market-eager reformists, such an agriculture is almost an ideal textbook model of free competition. But after freeing prices, agriculture is confronted by another textbook-model-like structure—a fully monopolized industry. As a result, agricultural incomes are again low (in Poland they are now, apparently, much lower then under central planning).