Agricultural Prices in China

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WORLD BANK STAFF WORKING PAPERS
Number 606
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ABSTRACT

This paper describes the major features of China's agricultural pricing system as they have evolved since 1949, but focuses on adjustments in the 1976-82 period. The institutional setting for price policy is described, price-cost relationships are examined and price ratios from key inputs and outputs are defined. A major portion of the paper is devoted to agricultural marketing policy and consumer subsidies. The size of important subsidies is estimated and their distributional and allocative implications are explored. The paper suggests that state interventions in the agricultural pricing system provide disproportionately high benefits to relatively advantaged urban consumers and may restrict adjustments to more economically efficient production patterns in agriculture.
CURRENCY EQUIVALENTS

US$1.00 = ¥ 1.75 (May 1982)
¥ 1.00 = US$0.57

WEIGHTS AND MEASURES

One jin = 0.5 kg
One dan = 50 kg
One mou = 0.067 hectare
ABSTRACT

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SUMMARY AND CONCLUSIONS

1. Since 1978 China has been engaged in a systematic effort to modify its centralized system of resource allocation through greater use of price incentives and markets. The substitution of economic incentives in place of bureaucratic control has been particularly important in agriculture since the reforms are applicable throughout the sector rather than limited to a subset of producing units, as is the case in industry. Moreover, because of institutional arrangements, farm producers are much more responsive to changes in relative prices and enhanced marketing opportunities than are industrial enterprises. Thus China's experience in price reform in agriculture is of interest not only from the perspective of evaluating agricultural development but the overall reform effort as well.

2. China's State Commodity Price Bureau for the past five years has sought to adjust relative prices of both agricultural and nonagricultural products to overcome the legacy of more than a decade when most prices were frozen and resources increasingly were allocated administratively. During that decade producer incentives were reduced and a range of other distortions became embedded in China's system of resource allocation. Considerable progress has been made in adjusting the relative prices of major crops to induce a mix of output consistent with changing central objectives. For example, China's cotton:wheat and cotton:rice price ratios have been raised and the gap between the Chinese and world price ratios has been reduced. That has improved the efficiency of domestic resource allocation, stimulated domestic cotton production and led to substantial foreign exchange savings. Cotton imports, which had risen rapidly in the 1970s, have now begun to decline. Savings on imports of cotton have been more than sufficient to pay for the increased imports of wheat engendered by the policy.

3. While some improvements have been achieved, the process of price adjustment remains constrained. First, as constraints on marketing have been eased, implicit prices for some commodities either have remained unchanged or changed by proportionately far more than explicit price changes. Consequently there has been under and overshooting in the resulting quantity adjustments.

4. Second, the cost surveys that are said to form the basis of adjustments in state purchase prices seem flawed. They appear, for example, to account inadequately for the growing cost of fixed and working capital. Upon careful examination, price survey data that are published to justify price adjustments do not appear to explain the timing of price changes.

5. Price adjustment is inhibited by more fundamental forces as well. Although state purchase prices have risen substantially in the past five years, agricultural prices are still relatively low. This judgment is
supported by explicit statements of the State General Commodity Price Bureau which justifies low pricing as a means of transferring resources intersectorally from agriculture to industry. There has been only a modest increase in the quantity of grain delivered to the state in response to the sharply higher average and marginal state purchase prices for cereals. Rural market prices for major farm products remain almost double state quota purchase prices and 20% above the state’s marginal (over-quota) procurement price; and price ratios of major farm inputs to farm outputs still are substantially above world price relatives. A proposal to raise China’s agricultural product prices substantially and increase the direct agricultural tax so as to generate the same revenues as the current system of indirect taxation does not appear to have been given serious consideration.

6. A closely related constraint on price adjustment is the fixity of nominal prices of staple foods for a select group of Chinese consumers who are eligible for food rations. This group, which consists of state employees and their dependents (predominantly urbanites but including state employees in health, education, transport, commune administration, etc. who live in rural areas), numbered 160 million in 1980 (16% of the total population). It is referred to by the Chinese and in this paper as the "nonagricultural population" (fei nongye renkou). State subsidies of the food consumption of the nonagricultural population now are the equivalent of about one fourth of state (the sum of central, provincial, and local) budgetary revenues or a third of the wage bill of state employees. The magnitude of these subsidies is so large that it imposes a most fundamental constraint on long-run rational price setting.

7. While there is some empirical evidence that rationing of basic necessities at low prices improves the distribution of consumption in societies where most of the undernourished are the urban poor, the hypothesis that China’s coupon rationing of staples is part of a basic needs strategy is not strongly supported by the evidence reviewed in this paper. Restrictions on rural to urban migration have prevented the emergence of a significant class of urban poor and indirectly led to what is probably the highest urban labor force participation rate of any major developing country. The poorest component of China’s population is the rural poor, a group that is not generally eligible for rationed staples and has received quite modest government subsidies of staple foods and other forms of relief.

8. Furthermore, at least ten million workers in nonfarm occupations are not eligible for rationed food since they are classified as either contract or temporary workers rather than permanent employees. They must purchase food in nonstate markets where prices are two to four times the prices of rationed commodities. The rationing system is targeted on a small share of the total population, a group that enjoys incomes substantially higher than those prevailing in the countryside and a broad array of subsidies in addition to those received for food.
9. The distribution of rationed food to a relatively small group at declining real prices distorts resource allocation. The financial burden of maintaining fixed staple prices for China's nonagricultural population now exceeds that of Poland in the late 1970s. The magnitude of the subsidies is so large that the state, since 1979, has felt compelled to freeze the purchase price of cereals and to rely increasingly on economically inefficient quantity controls of farm production. That, in turn, has contributed to a rate of commercialization and marketing of grain that is now less than in prewar China by a significant margin.

10. In short, Chinese agricultural price policy seems designed to provide cheap supplies of basic staples for state employees, the vast majority of whom are urban residents. Although subsidy systems in theory provide the means for simultaneously offering incentive prices to producers and subsidies to low income consumers, the budgetary burden of subsidies in China is now so large that the commitment to fixed nominal prices for staples to urban consumers constitutes a significant constraint on the ability of the state to offer incentive prices to producers. Moreover, it is not clear that the state's market interventions improve the distribution of income since state subsidies are targeted primarily on a relatively high income group that benefits from a broad array of nonfood subsidies, while the disruption of private trade, through procurement at fixed prices and other interventions, intensifies pressures on consumers outside the public distribution system.
AGRICULTURAL PRICES IN CHINA

1. PRICE POLICY

A. State of Knowledge

1.01 Analysis of China's agricultural pricing system is handicapped by shortages of information, both quantitative and qualitative. Unlike other centrally planned economies where detailed price handbooks are sometimes available, data on Chinese prices must be culled from individual articles appearing in national and local newspapers and journals. Qualitative information in most respects is even more scarce. Individuals responsible for price setting rarely write for newspapers and journals that circulate in the West. Personal access to these individuals and agencies by foreigners appears to have been very limited. Few visitors to China have been able to meet high level officials from the State General Commodity Price Bureau (guojia wujia zongju), the national agency that supervises price formation.

1.02 In the past two to three years, the availability of information on prices has expanded, but not to the degree witnessed for most other categories of economic data. The most important new sources are Zhongguo Caimao Bao (Chinese Finance and Trade Report) published three times a week, available in the West since the beginning of 1981; Jiajie Lilun Yu Shijian (Price Theory and Practice), a bimonthly published jointly by the State General Commodity Price Bureau and Nankai University in Tianjin since the beginning of 1981; Shichang (Marketing) a weekly published by People's Daily, available since late 1979; the Chinese 1980 Agricultural Yearbook, released in late 1981 and Caimao Jingji (Economics of Finance and Trade) a monthly published by the Finance and Trade Economics Research Institute of the Chinese Academy of Social Sciences since the beginning of 1982. Information nonetheless remains scarce. In the recently published compendium of economic history and statistical materials, Zhongguo Jingji Nianjian (1981)

/1 The predecessor of this journal Zhongguo Caimao Zhanxian (China Finance and Trade Front) circulated internally in China for a year or two but was not available for export on a regular basis. Its contents can be judged only from the articles that originally appeared there but were reprinted in the Party paper People's Daily.

B. Institutional Arrangement and Pricing Principles

1.03 The key central price setting organ is the State General Commodity Price Bureau, re-established in the later half of the 1970s. In establishing agricultural prices, the Price Bureau, however, acts only in consultation with the Ministries of Finance, Agriculture, and Food, and its decisions generally must be approved by the State council, the highest governmental organ, and the Central Committee of the Chinese Communist Party.

1.04 The general principles of price formation are well-known but sufficiently vague to serve poorly as a guide to central pricing decisions. The prime principle is preserving price stability. The high priority attached to that objective reflects China’s very unhappy experience with hyper-inflation in the late 1940s. Price stability has been a critical component of the Communist Party’s claim for popular support and legitimacy. However, as will be discussed further below, stability of prices is sought primarily at the retail level, particularly for urban consumers and for staple commodities.

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/2 The Price Bureau is the successor to the National Price Commission (Quanguo wujia weiyuanhui) first established in July 1957, revived in 1963, but that ceased to exist as an independent organization after the mid-1960s. I am not certain when the Price Bureau formally was revived.

/3 In the spring of 1982, as part of the effort to streamline and reduce the size of the state governmental apparatus, the Ministry of Food (Liangshi Bu) was abolished and its functions subsumed within the Ministry of Commerce. The Ministry of Food had been, since the early 1950s, the agency responsible for the procurement of cereals in the countryside and the administration of the urban rationing system. It maintained its own offices at the provincial, prefectural, and county levels. Offices were even maintained in many communes and were independent of the commune administration.

/4 Liu Zhuofu, "Readjust Unreasonable Prices in a Planned Way Under the Premise of Price Stability." Red Flag No. 11, 1979, pp. 36-41.
1.05 The priority of price stability has inhibited relative price adjustment. The official view is that retail price stability should not be achieved through all prices remaining unchanged for long periods of time. Rather, retail price adjustments, whether up or down, must be gradual and not contribute to a secular trend in the overall price index while retail food prices are partially insulated from upward pressure by increased state budgetary subsidies. In practice, price stability is achieved in large measure, not through offsetting relative price adjustments, but through price rigidity.

1.06 A second major principle is to reduce the disparity between the relative prices of industrial and agricultural product prices, the so-called "scissors price differential." Again that general principle is so broad that it provides scant guidance to actual pricing decisions for it does not explain the timing of price changes or indeed the persistence of the differential for more than three decades. Continued underpricing of agricultural products, according to Price Bureau officials writing in Red Flag, is necessary in order to transfer resources intersectorally from agriculture to industry via the price mechanism rather than through private savings and investment decisions or government tax and expenditure policy.

1.07 In short, prices are expected to bear many of the burdens that government tax and expenditure policy perform in most market economies. Prices in China for most of the past thirty years have been set largely with a view towards determining the allocation of resources between individuals and the state, between industry and agriculture, and among different regions. Thus periodic reforms, in which increased use of prices is viewed as a mechanism to improve the efficiency of resource allocation, have limited effects since relative price adjustment impinges on the ability of the government to achieve other objectives via the price mechanism. If a prior reform is not undertaken to bring prices more into line with opportunity costs, allowing enterprises and other decision makers to allocate resources in response to existing prices is not likely to improve allocative efficiency. On the other hand, a price reform in the absence of appropriate tax and expenditure policy to achieve certain distributive aims would have far reaching unintended consequences for the division of output between state and private control and the distribution of income both among sectors and between regions.

/1 Liu Zhuofu, "Readjust Unreasonable Prices in a Planned Way Under the Premise of Price Stability," Red Flag, No. 11, 1979, pp. 36-41.

1.08 Much of the history of price policy and price adjustment in China can be understood only in this framework. Unassisted by other policy tools, prices simultaneously have been and still are expected to achieve allocative and multi-dimensional distributive goals. Adjustments essentially represent trade-offs among mutually incompatible goals. It has been proposed that the government shift some of the distributive functions currently assigned to the price system to other policy instruments in order to allow prices to play their comparative advantage role more actively in allocating resources. The proposal calls for the state to increase the direct agricultural tax by an amount sufficient to replace all of the government revenues generated indirectly through the system of procurement at fixed prices (discussed further below), while simultaneously raising farmgate prices substantially, perhaps even substituting market for state set prices./1 This proposal appears to have been dismissed as impracticable by government planners and has elicited little response even in academic circles. Since the proposed direct tax program would generate revenues equivalent to the indirect taxes it would replace, opposition to it appears to stem from the judgment that specifying the magnitude of the tax burden should be avoided.

C. Scope of State Price Control

1.09 Since the early 1950s agricultural products have been divided into three categories. Assignment to these categories determines both the nature of price formation and of the distribution and marketing of the products.\(^2\) Category one products, those subject to "unified procurement" (tonggou), include only cereals, cotton, and edible vegetable oils. Over one hundred products fall in category two and are subject to "designated procurement" (paigou or tongi shougou). The most important of these include pork, fresh eggs, tobacco, tea, silkworm cocoons, sugarcane, sugar beet, raw lacquer, hemp and flax, animal hides, wool, major aquatic products, and fresh and dried fruit. Category three includes hundreds of distinct subsidiary and native products.

1.10 There are six important prices for agricultural products; four of these can be considered farm-gate prices. Farm-gate prices for category one and two products are based on "procurement prices" (shougou jiage), the basic price that the state pays for quota sales of cereals and most other


\(^2\) Industrial products also are divided into three broad categories. It should be noted for both agriculture and industry that the number of categories has remained unchanged since the 1950s but the partitioning of the vast array of products among these categories has undergone almost continual readjustment.
products. The prices of 113 agricultural products, falling in nine major classes, are subject to centralized price control. Almost all of these are in categories one and two. A second farm-gate price category is the "above quota grain price" (zhaogou liangshi jia), reflecting the 30-50% premium paid for deliveries beyond the basic quota. Deliveries over and above these quotas occur at "negotiated prices" (i-jia), mutually agreed to by producers and the state commercial departments. A fourth farm level price for some products is the price prevailing in rural markets (nongcun jishi) or in urban markets (chengshi jishi).

1.11 The number of farmgate prices existing simultaneously varies over time and by product category. Certain products, such as cotton, cannot legally be sold in rural markets and are not subject to sale to the state at negotiated prices. The state procures about 98% of all cotton produced at the quota and above-quota prices. Most category one commodities may be sold legally in rural markets, but only after quota and above-quota obligations have been fulfilled so all four farm-gate prices may exist within a single crop year in a given locality. Prior to 1979, however, negotiated prices generally were not applied to cereals, so this is a relatively recent phenomena. Category three commodities generally are not subject to

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/2 The history of the magnitude of this premium is unclear. Both the magnitude of the premium and the specific products included within the scope of the system have varied over time. Many scholars have the impression that the system was in existence in the 1950s although I am coming to doubt this interpretation because of a lack of documentary evidence. According to the Chinese Agricultural Yearbook 1980, the system was first implemented for grain in 1970 with a premium rate of 20%. The premium for above-quota deliveries was raised to 30% in 1972 and 50% in 1979. In 1980, the state began, for the first time to my knowledge, to pay premium prices for cotton as well as cereals. In 1981, the price of soybeans for quota deliveries was raised by 50% and the over-quota category eliminated.

/3 For some products the state is prepared to purchase amounts in excess of the over-quota quota only at the lower quota procurement price. For other products there are specifically established ceilings for negotiated prices. Thus "negotiated prices" are not necessarily free market prices.

compulsory state procurement or state price control. These products, with few exceptions, are sold freely on rural markets. State commercial departments purchase the quantities of these products they desire at market determined prices.

1.12 In addition to the four farm-gate price levels for state purchases, there are several retail price categories for agricultural products sold by the state. First, there are sales to the nonagricultural population of rationed commodities (essentially category one commodities), cereals, edible vegetable oils, and cotton cloth and cotton products. These products, since the mid-1950s, have been subject to coupon rationing, with per capita quantities frequently dependent on age, type of employment, and other determinants of caloric requirements. For cereals, e.g., the monthly grain ration varies from 25-28 kg for workers engaged in heavy labor to 3.5-4.0 kg for children under three years. Rationed commodities are sold at strictly controlled prices that have not changed significantly for three decades.1 The state also sells, at fixed prices, a large number of nonstaple commodities (corresponding by and large to products procured in category two) that are not now usually formally rationed, although local rationing by many urban administrations of pork, eggs, and some other products was widespread in the past.

1.13 There are two retail price levels for rural sales by the state of category one products, particularly cereals. These transactions are referred to as "resales" (fanxiao) since they involve commodities the state has purchased from one segment of the peasantry to sell to another segment. Most such resales are at prices that have risen commensurately with purchase prices but some sales are made at subsidized prices to peasants who are chronically short of grain because of low income or who have suffered natural disasters. There is finally for the years since 1978 a standard internal accounting price for cereals distributed in kind to members of each producing unit.2 Analysis in this paper of this array of prices faced by consumers is limited to the issue of subsidies, taken up further in Section 3. The range of price variation encompassed by these various price categories for two agricultural products, wheat and rice, is shown in Table 1.1.


2 This fixed accounting price was adopted so that the officially calculated per capita distributed collective income of commune members, a very large portion of which consists of in kind distribution, would not be inflated upward by the adoption of higher procurement prices after 1978.
Table 1.1: WHEAT AND RICE PRICES, VARIOUS CATEGORIES, 1980

<table>
<thead>
<tr>
<th></th>
<th>Wheat (yuan per kg)</th>
<th>Paddy (yuan per kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State quota purchase price</td>
<td>0.3296</td>
<td>0.2312 /a</td>
</tr>
<tr>
<td>State above quota purchase price</td>
<td>0.4944</td>
<td>0.3468 /a</td>
</tr>
<tr>
<td>State negotiated purchase price/b</td>
<td>ca. 5940</td>
<td>ca. 5460</td>
</tr>
<tr>
<td>Rural market price</td>
<td>0.5940</td>
<td>0.5460 /c</td>
</tr>
<tr>
<td>Urban market price</td>
<td>- /t</td>
<td>0.620</td>
</tr>
<tr>
<td>State racioned price, retail sales to nonagricultural population</td>
<td>0.333 /d</td>
<td>0.2128 /e</td>
</tr>
<tr>
<td>State resale price, retail sales to agricultural population /f</td>
<td>0.3560</td>
<td>0.2497</td>
</tr>
<tr>
<td>State resale price, retail sales to low income peasants and those suffering from natural disaster /g</td>
<td>0.2094</td>
<td>0.1469</td>
</tr>
<tr>
<td>Internal accounting price, for in-kind distribution within production units /h</td>
<td>0.2722</td>
<td>0.1904 /a</td>
</tr>
</tbody>
</table>

/a Indica.
/c A market price of .780 for milled rice converted to a price for paddy, assuming a 70% milling rate.
/d The retail price of rationed flour converted to a price for wheat, assuming a 90% milling rate.
/e The retail rationed price of milled rice converted to a price for paddy, assuming a 70% milling rate.
/f An 8% premium over the quota purchase price. This is the price paid by peasants engaged in production of economic crops, vegetables, animal husbandry, aquatic products, salt, timber, etc.
/g Seventy percent less than the usual resale price.
/h The 1978 quota procurement price.
/i Data not available.
D. Price Adjustments

1.14 The long-term upward trend in the procurement prices of most agricultural products is well-known and reflected in the official procurement price index, shown below in column one of Table 1.2. Average farmgate prices doubled between 1952 and 1979. As is shown in the separate indexes for cereals, industrial crops, animal products, and other products (columns two through five), the price increases were broadly distributed across product categories. Industrial crops, however, rose the least while other agricultural and subsidiary products rose by relatively larger amounts, primarily because of the more rapid rise in prices of these products between 1950 and 1952.

1.15 The data in Table 1.2 obscure two important points concerning the timing of price increases. First, a large share of the long-term upward trend reflects market forces, not state policy. Prices rose by more than a third between 1950 and 1953. Since unified purchase of category one commodities was not instituted until the fall of 1953 and was based on the then prevailing prices, rising prices up to 1953 largely reflect market forces. Agricultural products had declined in value relative to industrial products after 1933 and part of the large agricultural price increase after 1949 represents a reversal of war induced distortions in the relative demand for and supply of agricultural commodities. Following the institution of compulsory state procurement, prices rose only 13% in the remaining four years of the first Five-Year Plan (1953-57). Second, almost all of the remaining 80% price increase that took place between 1953 and 1979 actually occurred in 1961-62 and 1978-79. Prices were adjusted upward by 20 to 30% in 1961-62, in the aftermath of the collapse of the Great Leap Forward, and by another 25% in 1978-79. Thus the long-term upward trend in the general level of prices paid to farmers in the first three decades of the People’s Republic of China was almost entirely accounted for by the market-led increases in 1950-53, the price changes instituted in 1961-62 to induce recovery of production from the depths to which agricultural output had fallen in 1960, and the price adjustments made in the post-Mao era. There are some long periods in which prices of major products were not adjusted. Following a 1966 adjustment, the prices of wheat, rice and corn were unchanged until 1978. /1

Table 1.2: PROCUREMENT PRICE INDEXES, 1950-79

<table>
<thead>
<tr>
<th>Year</th>
<th>Aggregate index</th>
<th>Cereals</th>
<th>Economic crops</th>
<th>Animal products</th>
<th>Other agricultural and subsidiary products /a</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1952</td>
<td>121.6</td>
<td>121.4</td>
<td>113.0</td>
<td>105.7</td>
<td>160.6</td>
</tr>
<tr>
<td>1957</td>
<td>146.2</td>
<td>141.4</td>
<td>126.4</td>
<td>145.5</td>
<td>210.2</td>
</tr>
<tr>
<td>1965</td>
<td>185.1</td>
<td>190.9</td>
<td>152.8</td>
<td>192.1</td>
<td>251.4</td>
</tr>
<tr>
<td>1975</td>
<td>201.3</td>
<td>222.8</td>
<td>165.1</td>
<td>200.6</td>
<td>267.0</td>
</tr>
<tr>
<td>1979</td>
<td>242.7</td>
<td>271.3</td>
<td>200.4</td>
<td>247.4</td>
<td>302.5</td>
</tr>
</tbody>
</table>

/a Includes lumber, oils with industrial uses, silk, fruit, vegetables, medicinal herbs, native products, and aquatic products.

Notes: See note 1 to para. 1.16 for a discussion on unexplained differences between the data in Tables 1.1 and 1.2.


1.16 More detailed information on the price adjustments made between 1950 and 1979 for specific commodities is provided in Table 1.3. /1 All of

/1 There are some unexplained differences between the data presented in Tables 1.1 and 1.2. Data in Table 1.1 is from a chapter of the Annual Economic Report of China 1981 prepared by the State Statistical Bureau and seems most authoritative. Data in Table 1.2 are taken from the Chinese Agricultural Yearbook 1980. For example, with 1950=100 the index of purchase prices for cereals is 271.3 in the economic report but 231.7 in the agricultural yearbook. While this discrepancy may be due to a printing error, the indexes for cotton are 162.4 and 150.13. A larger number of comparisons is not possible because the data in the Economic Yearbook are for aggregations of commodities while the Agricultural Yearbook data are generally for specific products.
Table 1.3: FREQUENCY AND MAGNITUDE OF ADJUSTMENTS IN AGRICULTURAL PRODUCT PURCHASE PRICES, 1950-79

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Number of Adjustments</th>
<th>Index of total change (1950-100)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>upward</td>
<td>downward</td>
</tr>
<tr>
<td>Cereals</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Rice</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Corn</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Millet</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Sorghum</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Soybeans</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Economic Crops</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Peanuts</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Rapeseed</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Hemp</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Sugarcane (since 1952)</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Sugar beet (since 1952)</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Jute</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Hemp</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Lemon hemp (? ningma)</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Silkworm cocoons (since 1952)</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Tussah silk cocoons (since 1952)</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Flue cured tobacco</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Red tea</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Green tea</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Jilong tea</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Jinya tea</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Apples</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Oranges</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Animal Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pigs (since 1952)</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>Sheep (since 1952)</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Beef cattle (since 1952)</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Eggs (since 1952)</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Ox hides</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Cattle hides</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Sheep hides</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Goat hides</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Wool of improved varieties of sheep (since 1952)</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Fine native wool</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Coarse native wool</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

these commodities fall into categories one and two and are subject to the most centralized form of price control. Two key points emerge from this data. First, the frequency of price adjustments is greater than has sometimes been thought or presumed by many outsiders. With few exceptions the prices of the most important commodities have been changed a dozen or more times. The procurement price of pigs on average has been adjusted virtually annually. Moreover, not all of the adjustments have been in an upward direction. Only rice among the major products has not been subject to at least one downward adjustment. Since the longterm upward price trend can be traced to a few large upward adjustments, the corollary of this observation on the frequency of price adjustments is that most adjustments must have been very small. That in turn rises questions that will be discussed further below. Second, there is considerable dispersion in the price changes. Dispersion would be less surprising if Table 1.2 included large numbers of category three products which generally have not been subject to centralized price control. Relative procurement prices have in some cases changed quite markedly. At the extremes, the price of soybeans has almost quadrupled while jute has increased only 10%; the price of wool from improved varieties of sheep declined almost 10%.

E. Unification of Prices

1.17 Official procurement prices for category one commodities, by and large, are unified - that is the same price prevails for a commodity throughout China. The uniformity of these prices is confirmed by the data from several widely separated provinces, the consistency of local purchase prices for major product categories with national data for identical products, and the similarity of provincially published procurement prices.

1.18 One exception to this principle of unification for category one commodities is cotton. Official procurement prices were raised successively by 10, 15, and 10% in 1978-80. But in 1979 and 1980 provinces in north China received an additional 5% premium. Thus over three years cotton prices rose 39% in central China and 50% in north China.

1.19 Procurement prices of category two products frequently do vary from province to province, although apparently within centrally specified constraints. Data on animal product prices and their changes in 1979 for several geographically widely separated provinces are assembled in Table 1.4. While price increases for live pigs were quite uniform across provinces (increasing almost without exception from 49-50 yuan per dan in 1977 and 1978 to 60-62 yuan in 1979), more significant variation in price increases is evident across provinces for cattle and especially goats and sheep. Prices in Yunnan for pigs and beef cattle were raised substantially more than elsewhere. In Hebei Province the Provincial Commercial Bureau even instituted intra-provincial procurement price differentials by paying a 5% premium for sheep and goats in all but the two most northern prefectures.
### Table 1.4: INTERPROVINCIAL VARIATION IN PROCUREMENT PRICES, CATEGORY TWO COMMODITIES
(Yuan per kg)

<table>
<thead>
<tr>
<th></th>
<th>Hebei Province</th>
<th></th>
<th>Hubei</th>
<th>Yunnan</th>
<th>Heilongjiang</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1978</td>
<td>1979</td>
<td>%</td>
<td></td>
<td>% change</td>
</tr>
<tr>
<td>Pigs/a</td>
<td>1.005</td>
<td>1.265</td>
<td>25.8</td>
<td>28.82</td>
<td>30.5</td>
</tr>
<tr>
<td>Cattle, second grade</td>
<td>1.381</td>
<td>1.860</td>
<td>34.7</td>
<td>30.15/a</td>
<td>40.8/a</td>
</tr>
<tr>
<td>Sheep, second grade</td>
<td>1.408</td>
<td>1.900/b</td>
<td>34.9</td>
<td>9.4/a</td>
<td>33/a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.000/c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goats/a</td>
<td>1.228</td>
<td>1.840/b</td>
<td>49.8</td>
<td>29.5/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.940/c</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

/a Grade not specified.
/b Price for Zhangjiakou and Changde Prefectures.
/c Price for eight southern prefectures.

Sources:
2. FARM OUTPUT PRICES

2.01 Procurement prices for major farm products for the years 1952-79 are assembled in Table 2.1. Several important issues deserve attention. First, to what extent, if any, are these prices below farm production costs? As discussed above in Section 1, setting procurement prices below the estimated average cost of production has been a central tenet of price policy. It was first articulated in the early 1950s and has been reiterated frequently since. However, the magnitude of underpricing for specific products is rarely discussed. A second issue is to what extent have trends in retail prices paralleled procurement prices? Have the rising costs of procurement been passed on to consumers? If so, for what product categories and for what classes of consumers? Are some commodities subsidized and if so, for what purposes and with what consequences? A third issue is the central objective of the major price changes begun in 1978 for cotton and continuing subsequently for a broad range of products. What factors underlie the timing and magnitude of price changes for specific products? To what extent have these price changes been instituted with a view to affecting the allocation of land and current inputs among alternative crops as opposed to achieving other objectives? Have changes been made in the institutional features of the Chinese rural system that would facilitate an adjustment to relative price changes?

A. Price-Cost Relationships

2.02 Evaluating price-cost relationships for specific agricultural products in China is problematic. At least two major methodological problems arise. The first is, in the absence of any rural labor markets of a conventional type, what is the appropriate wage rate to use to value labor costs? In short, what is the opportunity cost of rural labor? A second is the valuation of capital contributions to output. There is considerable evidence that most agricultural cost calculations in China fail to take into consideration depreciation of modern farm assets. Because of the growing inventory of agricultural machinery in the countryside, this may lead to a systematic and growing understatement of agricultural costs. /1

/1 Fixed assets in collective agriculture were Y 73.2 billion in 1977 and Y 84.9 billion in 1978. The coverage and methodology for compiling these data can be ascertained from several sources. Coverage is broad in that all assets valued at Y 30 or more that are used for two years or more are included. But collective fixed assets exclude the value of land as well as the value of rural housing and other privately-owned assets. Fixed assets are also exclusive of the value of large-scale water conservancy projects since these remain state rather than collectively owned.
Table 2.1: PROCUREMENT PRICES OF SELECTED FARM PRODUCTS, 1952-79
(Yuan per kg)

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat (Yellow Grade 3)</th>
<th>Corn (Grade 2)</th>
<th>Rice/a (Paddy Grade 3)</th>
<th>Grain/b (Grade 3)</th>
<th>Cotton ginned/c</th>
<th>Peanuts, shelled</th>
<th>Rape-seed</th>
<th>Sugar-cane</th>
<th>Sugar-beet</th>
<th>Pigs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1952</td>
<td>.1630</td>
<td>.0944</td>
<td>.1134</td>
<td>.1192</td>
<td>1.7356</td>
<td>.3270</td>
<td>.2186</td>
<td>.0210</td>
<td>.0330</td>
<td>.5300</td>
</tr>
<tr>
<td>1957</td>
<td>.1786</td>
<td>.1116</td>
<td>.1236</td>
<td>.1332</td>
<td>1.7134</td>
<td>.3872</td>
<td>.3188</td>
<td>.0226</td>
<td>.0400</td>
<td>.7314</td>
</tr>
<tr>
<td>1962</td>
<td>.2348</td>
<td>.1506</td>
<td>.1650</td>
<td>.1802</td>
<td>1.7004</td>
<td>.6078</td>
<td>.4548</td>
<td>.0280</td>
<td>.0542</td>
<td>.9150/d</td>
</tr>
<tr>
<td>1965</td>
<td>.2212</td>
<td>.1516</td>
<td>.1694</td>
<td>.1848</td>
<td>1.8404</td>
<td>.6078</td>
<td>.4548</td>
<td>.0300</td>
<td>.0546</td>
<td>.9416</td>
</tr>
<tr>
<td>1975</td>
<td>.2686</td>
<td>.1818</td>
<td>.1962</td>
<td>.2176</td>
<td>2.1160</td>
<td>.7600</td>
<td>.5600</td>
<td>.0346</td>
<td>.0600</td>
<td>.9886</td>
</tr>
<tr>
<td>1977</td>
<td>.2686</td>
<td>.1818</td>
<td>.1962</td>
<td>.2176</td>
<td>2.1160</td>
<td>.7600</td>
<td>.5600</td>
<td>.0346</td>
<td>.0600</td>
<td>.9886</td>
</tr>
<tr>
<td>1978</td>
<td>.2722</td>
<td>.1760</td>
<td>.1904</td>
<td>.2492</td>
<td>.2128</td>
<td>2.3048</td>
<td>.7600</td>
<td>.5606</td>
<td>.0346</td>
<td>.0600 .9892</td>
</tr>
<tr>
<td>1979</td>
<td>.3296</td>
<td>.2144</td>
<td>.2312</td>
<td>.2972</td>
<td>.2572</td>
<td>2.6552</td>
<td>2.7880</td>
<td>.9658</td>
<td>.0424</td>
<td>.0750 1.2506</td>
</tr>
</tbody>
</table>

**Indica/e Japonica/f**

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat</th>
<th>Corn</th>
<th>Rice/a</th>
<th>Grain/b</th>
<th>Cotton ginned/c</th>
<th>Peanuts, shelled</th>
<th>Rape-seed</th>
<th>Sugar-cane</th>
<th>Sugar-beet</th>
<th>Pigs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>.2722</td>
<td>.1760</td>
<td>.1904</td>
<td>.2492</td>
<td>.2128</td>
<td>2.3048</td>
<td>.7600</td>
<td>.5606</td>
<td>.0346</td>
<td>.0600 .9892</td>
</tr>
<tr>
<td>1979</td>
<td>.3296</td>
<td>.2144</td>
<td>.2312</td>
<td>.2972</td>
<td>.2572</td>
<td>2.6552</td>
<td>2.7880</td>
<td>.9658</td>
<td>.0424</td>
<td>.0750 1.2506</td>
</tr>
</tbody>
</table>

/a Through 1977 an average price of indica and japonica types.

/b The average procurement price of wheat, corn, rice, millet, sorghum and soybeans.

/c Prior to 1979 the procurement price for cotton was uniform.

/d For 1961.

/e Indica.

/f Japonica.

/g Central China.

/h North China.

2.03 Published Chinese reports on costs of farm production evaluate labor costs in one of two ways. The most frequent procedure, particularly when aggregate costs as a share of the value of farm output is calculated, is to simply exclude labor costs. The share of output value absorbed by non-labor costs thus calculated has been released for 1952, 1957, 1965, and 1974-79. While, when combined with data on trends in production and in the size of the farm population, those cost data may provide some indirect measure of trends in per capita farm income (including not only the amounts distributed as return to labor but also amounts retained by communes for internal reinvestment in fixed and working capital and for collective consumption expenditures), but certainly provide no basis for centralized pricing decisions for specific farm products.

2.04 Thus the Chinese also use crop-specific cost surveys in which a fixed daily accounting price for labor is utilized to determine total production costs. This procedure has two drawbacks from the point of view of analyzing price-cost relations. First, the fixed price used in such calculations really represents a political or welfare judgement - not an opportunity cost. The resulting calculation of total cost cannot then have the interpretation usually given for market economies. Second, given a fixed daily price for labor, trends in total costs may be influenced by non-economic factors. In periods of labor mobilization based on campaigns when commune members are encouraged to work more than the usual number of days, recorded labor inputs rise and costs calculated at a fixed price per day rise. Commune members are able to adjust partially to these campaigns by increasing their on-the-job leisure, but production team accountants still record an increased number of work days. Presumably carefully designed surveys avoid this second problem, although retrospective cost calculations based on team account books still may be distorted.

2.05 Depreciation is an area of equal uncertainty. Non-labor costs, according to one comprehensive book, include production costs (seeds, chemical fertilizers, insecticides, costs of irrigation and mechanized plowing, repair of farm implements, purchases of some hand tools), management fees (most importantly the fees paid to higher administrative levels but also office expenses); and other expenditures (interest on loans, losses on commodities and materials in storage, etc.). Depreciation

\[1\] The respective proportion of the value of output absorbed by non-labor costs in the years listed was 26.5, 27.3, 31.9, 31.9, 33.6, 35.5, 35.7, 34.4, and 33.6%.

charges are excluded from this measure of nonlabor costs. Presumably, specific cost surveys use different procedures and try to account for costs of capital. However, descriptions of the methodology used in these surveys are not readily available, so it is difficult to judge the procedures used. Journal articles on cost surveys that are available in the West report cost data in aggregate form so that it is very difficult to know the magnitude of depreciation or even whether depreciation has been included at all. It should be noted that some sources state that depreciation is included in cost calculations, but these statements are more likely to occur in books written and published by academic based groups, not practitioners. An article in Rural Work Bulletin, a hands-on type practitioner's periodical signed by the People's Commune Bureau of the Ministry of Agriculture, may provide the most realistic assessment. In their words "the great majority of the People's Communes do not retain depreciation funds on their fixed assets, this is very improper." Moreover, although some units calculate depreciation as an element of cost they concede "at present China still does not yet have a unified standard and methodology."/1

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2.06 There are other less critical problems with the production surveys. Notable among these is that costs also exclude taxes. While this might seem entirely appropriate if taxes were levied on profits or net revenues (gross revenue less production costs) prior to labor remuneration, that is not the case. The agricultural tax appears to approximate a lump sum tax. It is adjusted downward on a temporary basis only for production units that have sustained a devastating flood, drought, or other natural disaster.

2.07 Problems with the data from several of the major cost surveys that have been released are evident from examining Table 2.2. For one major survey of cereal production in 1,296 teams in 1976, production costs plus taxes were found to average 11.6 yuan per fifty kilograms while the procurement price for the same mix of output was only 10.74 yuan. For 302 production teams specialized in cotton production, production costs plus taxes were 109 yuan per fifty kilos while the purchase price was only 106.7 yuan./3 Presumably the price of labor used was the national uniform


Table 2.2: PRODUCTION COST AND PROCUREMENT PRICE RELATIONS (yuan per kg)/a

<table>
<thead>
<tr>
<th></th>
<th>Production Cost</th>
<th>Procurement Price/b</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cereal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey of 2,162 production teams 1965</td>
<td>0.226</td>
<td>0.1848</td>
</tr>
<tr>
<td></td>
<td>1976</td>
<td>0.256</td>
</tr>
<tr>
<td>Survey of 1,296 production teams 1976</td>
<td>0.232</td>
<td>0.2148</td>
</tr>
<tr>
<td><strong>Cotton</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey of 302 production teams 1977</td>
<td>2.18</td>
<td>2.138</td>
</tr>
</tbody>
</table>

/a Cost and price data for cereals are for an average of six types of grain: wheat, rice, corn, sorghum, millet, and soybeans. For both cereals and cotton, costs are inclusive of taxes.

/b The slight differences between the procurement prices shown for grains in this table and the price shown in 2.1 in the column labeled "grain" presumably reflect differences between the composition of grain production and procurement in the survey teams and the national average.


standard of 0.87 or 0.80 yuan per day that has been reported in other
sources. Thus losses of 7.4% of costs \(= \frac{11.60 - 10.74}{11.60}\)
would not necessarily be reflected in a negative cash flow but in one or
more of the following: a declining value of a labor day, a squeeze on
internal reinvestment by communes, or reductions in collectively provided
consumption. This survey was one of several published in late 1978 in
anticipation of the public announcement of increased purchase prices.

However, since officially the Chinese have endorsed a policy of
setting prices at less than cost, including labor inputs valued at a fixed
accounting price, such surveys are, in and of themselves, hardly a
persuasive reason to raise prices. The character of these pricing decisions
is brought out by examining a second survey, also from 1976. Data from this
survey showed that while yields had risen 36% (from 232 to 316 jin/mou)
between 1965 and 1976, production costs had risen 54% (from 26.2 to 40.5
yuan per mou). The result was that the value of a labor day had declined
20% from .70 to .56 yuan per day. Therefore, it was argued that procurement
prices were too low. Yet data of this type might well have justified a
price increase prior to 1979. One can calculate that losses per hectare
rose from 72 to 91 yuan over this period and that losses as a percent of
costs were 18% in 1965 and 15% in 1976. Moreover, by comparing production
costs with quota procurement prices, the article ignores the additional
income farmers receive from selling part of their output at premium
over-quota prices. As will be discussed below, in 1976 40% of grain sold to
the state in 1976 was delivered at the above-quota price.

In summary, the cost survey data that have been published may be
of limited analytical value. The absolute level of costs reflects an
arbitrary valuation of labor and excludes important costs that are quite
significant from the point of view of producers, frequently taxes and
probably a large share of capital costs. Finally, since procurement prices
set by the state sometimes have remained for years below the cost figures
cited in survey data, it is difficult to judge the relevance of the survey
data to the decision to raise prices.

\[/1\] Yao Xianguo, "Cost Price, and Value of Farm Products: Report of An
Investigation and Calculation of Farm Costs for Jiading County." 

\[/2\] Ji Long and Lu Nan, op cit, p. 46.
B. State and Market Prices for Agricultural Products

2.10 An alternative approach is to judge the level of state prices by comparing them to prices that prevail in non-state markets, rural farm markets and in urban markets for agricultural and subsidiary products. Before presenting the details of that comparison, however, it is useful to examine the analytics of such a price comparison. The major potential drawback of comparing state and market prices is that the latter may be substantially above marginal cost because excess demand not satisfied in state controlled markets flows on to markets characterized by a small volume of sales. Moreover, urban market prices may be above official procurement prices since urban market prices include costs of transporting commodities from rural to urban areas whereas procurement by the state takes place at commune grain stations only a short distance from most producers. Empirically, it is difficult to judge the magnitude of the difference between average state procurement prices and the price level that would prevail if all sales were voluntary. For several reasons, however, I believe that the difference between the average state price and the hypothetical price level that would prevail in a market where all transactions were voluntary would be significant, that is, the hypothetical free market price would not collapse to the average state procurement price:

(a) the volume of transactions on both rural and urban markets is relatively large. For example, for cereals in 1979, the first year cereals could legally be sold, the volume of transactions was five million tons. While that is quite small relative to total grain production, it is a large share of total sales of grain in rural areas. The only other significant source of marketed cereals for consumption within the collective sector is resales of grains purchased by the state procurement authorities, usually to producers of noncereal crops and to peasants in areas where floods or droughts have depressed farm output. Resales of state procured grain in rural areas are in the range of 12 to 15 million tons. Private sales would thus represent a third or more of the total volume of grain purchased by collective


\[2\] Commune administrators and other state employees living in rural areas are eligible to receive cereals through the coupon rationing system. The cereals distributed through the rationing system in rural areas are not included within the category of "resales."

\[3\] Resales in the late 1970s and early 1980s average about one-quarter of procurement. Procurement has ranged from 47 to 52 million tons in the same period.
members in 1979. Qualitative indications are that private sales have expanded since 1979 while official state resales have not, so this proportion could have risen over the past few years. Thus the persistent large differential between state and market prices cannot be explained simply by arguing that excess demand not satisfied by the state flows on to a very thin rural free market for cereals;

(b) Second, in aggregate terms the volume of rural market sales almost doubled between 1978 and 1980 and substantially exceeded the level of 1965, the last pre-Cultural Revolution year. The volume of rural private sales, including not only cereals but other agricultural and subsidiary products, was 7.0 billion yuan in 1965, 12.5 billion yuan in 1978, 17.1 billion yuan in 1979 and 21.2 billion yuan by 1980, when the number of peasant markets reached 40,800, slightly more than before the Cultural Revolution. By comparison, in 1980 the total value of state purchases of agricultural and subsidiary products was just under 68 billion yuan. Sales in private urban markets (which in 1980 numbered 2,919) also have expanded, reaching a volume of 2.34 billion yuan in 1980; and

(c) The expansion of private plots and a less restrictive policy on household sideline production has increased the opportunities for participating in the markets, both rural and urban. Since the great bulk of the transactions are for locally produced commodities and entry to the production of these products is not restricted, it is difficult to argue a priori that prices prevailing in these rural markets are substantially above marginal cost. However, the state does restrict entry of cereals into these markets until after quota and over-quota sales have been fulfilled locally, so markets for grain still are more restricted than those for other commodities.

2.11 The journal China's Finance and Trade Report in 1980 and 1981 published thousands of price observations from both urban and rural markets, for both staple and a broad array of non-staple commodities. Average rural

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/3 Unfortunately, the publication of these rural price observations for staple commodities was reduced in the first half of 1982, and suspended after June. Thus the observations in Table 2.3 are limited primarily to 1980 and 1981.
market prices for most staple commodities are based on observations at a hundred or more market sites. The information includes the product, usually classified by grade, the average price at the end of the month, the average price at the end of the month a year ago, and price observations for specific market towns in named counties. The one potential drawback of this large body of rural price data is that the markets from which the sample is drawn are relatively large. All are under the administration of the General Administrative Bureau for Industry and Commerce (Gongshang xingzheng guanli zongju). This Bureau is directly responsible for the administration of 206 of the largest periodic markets where the volume of transactions is many times the average for China's 40,800 rural markets.

2.12 This brief paper does not attempt a detailed analysis of this vast array of price data. I will focus briefly on wheat sold in rural markets and rice in urban markets. The urban market price of rice for several cities in 1981 is shown in Table 2.3. Analysis of these prices is difficult since they reflect quality variation from city to city and perhaps special premia for rice in cities such as Beijing, Tianjin, Loyang, Xian, and Harbin, which are located in predominantly wheat producing regions in north and northeast China. If we restrict our attention to cities within predominantly rice growing regions such as Nanjing in Jiangsu, Wuhan in Hubei, and Chongqing in Sichuan, urban market rice prices in 1981 of from 0.6 to 0.9 yuan per kilogram were from 2.5 to 4 times the state quota purchase price.

2.13 Rural price observations from 1980-82 for wheat are summarized in Table 2.4. Several points emerge from these data:

(a) The year-to-year variation in the rural price observations is relatively modest, at least at the level of aggregation shown in the table;

(b) The within year variation is what one would expect. Peak prices prevail in February or March prior to the harvest of winter wheat in central and north China, followed by a downward trend beginning in May or June, reaching a trough in July-September when the harvest of spring wheat in the Northeast is completed;

(c) The maximum within year variation is relatively modest - about 15% - although this may be due partly to the aggregation over many markets or to the timing of state purchases and sales in the category of "negotiated purchases" and "negotiated sales." One function of these sales is to stabilize market prices.
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing Paddy from service center /a</td>
<td>0.41</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.96</td>
<td>0.94</td>
<td>0.96</td>
<td>0.92</td>
<td>0.96</td>
<td>0.94</td>
</tr>
<tr>
<td>Tianjin</td>
<td>0.41</td>
<td>0.90</td>
<td>0.90</td>
<td>0.98</td>
<td>0.96</td>
<td>1.00</td>
<td>1.02</td>
<td>1.02</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Nanjing Middle Grade</td>
<td>0.28</td>
<td>0.66</td>
<td>0.68</td>
<td>0.66</td>
<td>0.64</td>
<td>0.66</td>
<td>0.64</td>
<td>0.66</td>
<td>0.62</td>
<td>0.60</td>
</tr>
<tr>
<td>Wuhan Middle Grade, Second standard</td>
<td>0.284</td>
<td>0.62</td>
<td>0.60</td>
<td>0.64</td>
<td>0.66</td>
<td>0.64</td>
<td>0.66</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
</tr>
<tr>
<td>Loyang Middle Grade</td>
<td>0.356</td>
<td>0.92</td>
<td>0.92</td>
<td>0.90</td>
<td>0.92</td>
<td>0.88</td>
<td>0.88</td>
<td>0.92</td>
<td>0.94</td>
<td>0.90</td>
</tr>
<tr>
<td>Xian Middle Grade</td>
<td>0.29</td>
<td>0.90</td>
<td>0.90</td>
<td>0.90</td>
<td>0.90</td>
<td>0.88</td>
<td>0.86</td>
<td>0.84</td>
<td>-</td>
<td>0.86</td>
</tr>
<tr>
<td>Harbin Middle Grade</td>
<td>0.37</td>
<td>1.16</td>
<td>1.10</td>
<td>1.10</td>
<td>1.06</td>
<td>1.06</td>
<td>1.04</td>
<td>1.10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Top Grade</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.30</td>
<td>1.30</td>
<td>1.16</td>
</tr>
<tr>
<td>Chongqing Middle Grade</td>
<td>0.284</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.90</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Notes:— Indicates data not published.
Middle grade ("Zhong deng").
Middle grade, second standard ("Zhongdeng biaoer")
Top grade ("Shangdeng").
State fixed price (guoying paijia) is the retail price of the commodity when purchased through coupon rationing system.

/a Literally small station paddy ("xiaozhandao"). May be unmilled price.

Sources: Zhongguo caimao bao (Chinese Finance and Trade Report) March 26, April 23, May 28, June 25, July 30, August 27, September 24, October 29, November 26, all 1981; under the title "Market Prices in Urban Farm Markets for Agricultural and Subsidiary Products," (Chengshi nongfu chanpin shichang hangqing).
Table 2.4: RURAL MARKET WHEAT PRICES, 1980-82
(yuan per kg)/a

<table>
<thead>
<tr>
<th>Month</th>
<th>1980</th>
<th>1981</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>0.588</td>
<td>0.588</td>
<td>-</td>
</tr>
<tr>
<td>February</td>
<td>0.600</td>
<td>0.588</td>
<td>0.584</td>
</tr>
<tr>
<td>March</td>
<td>0.594</td>
<td>0.594</td>
<td>-</td>
</tr>
<tr>
<td>April</td>
<td>0.596</td>
<td>0.586</td>
<td>-</td>
</tr>
<tr>
<td>May</td>
<td>0.578</td>
<td>0.570</td>
<td>-</td>
</tr>
<tr>
<td>June</td>
<td>0.542</td>
<td>0.556</td>
<td>-</td>
</tr>
<tr>
<td>July</td>
<td>0.528</td>
<td>0.526</td>
<td>-</td>
</tr>
<tr>
<td>August</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>September</td>
<td>0.520</td>
<td>0.530</td>
<td>-</td>
</tr>
<tr>
<td>October</td>
<td>0.534</td>
<td>0.546</td>
<td>-</td>
</tr>
<tr>
<td>November</td>
<td>0.556</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>December</td>
<td>0.574</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Average</td>
<td>0.594</td>
<td>0.594</td>
<td></td>
</tr>
</tbody>
</table>

/a Prices are end of month weighted averages of prices observed in 60 to 100 rural markets in predominantly wheat growing districts in Hebei, Shandong, Henan, Shanxi, Chilin, Shanxi, Hubei, Xingjiang, Gansu, and Ningxia.

Source: Zhongguo Caismao Bao, various issues 1981 and 1982, for monthly observations. NCNA, "Grain Prices in Rural Farm Markets have Stabilized or Dropped." People's Daily, April 22, 1981, p. 1, for yearly average prices.

2.14 These rural market price data show a rather substantial premium over the price paid by the state for quota wheat deliveries, 0.3296 yuan per kilogram. In both 1980 and 1981 the average rural market price was 80% above the quota price. The market price also represented a premium of 20% above the over-quota price discussed earlier. In view of the relatively large volume of private market sales, the concentration of these private markets in wheat producing regions, the exclusively rural character of these markets (i.e. prices do not reflect either rural to urban transport costs or the effects of high urban purchasing power), they provide a rough measure of the degree of taxation implicit in the system of compulsory deliveries at fixed prices.
2.15 A more precise measure depends on knowing the relative shares of cereals delivered to the state at the quota and over-quota prices. Rough approximations of these numbers for 1976, 1978, 1979 and 1981 are shown in Table 2.5. The over-quota share of sales was only a fourth in 1977-78 but rose to 60% by 1981. Thus, the average price paid for delivery of cereals to the state increased substantially between 1977-78, when it was 7.5% more than the quota price, and 1981 when the average price exceeded the quota price by 30%.

2.16 The data contained in Table 2.5 and the price data already presented allow one to measure the large gap between the prices prevailing in rural markets for cereals and the average prices received for the delivery of identical products to state purchase agencies. In 1981 the price received by farmers in rural markets for wheat (.5940 yuan per kilogram /1) was a 39% premium over the average price they received in sales to the state, .4285 yuan per kilogram /2). The gap in the case of rice was even larger. The rural market price, .518 yuan per kilogram, /3 was a 70% premium over the average price of .3061 per kilogram farmers received for deliveries to the state. /4 Urban market prices from .6 to .9 yuan per kilogram in rice growing regions (Table 2.3) were from two to three times the average state procurement price. While the unusually large gap between the urban market price and the average state purchase price may reflect restrictions on entry to urban markets and high transport costs, the large gap between prices in sales on rural markets and procurement prices for deliveries to the state reflects the taxation implicit in the procurement system.

/1 NCNA April 21, 1981, "Grain Prices on Rural Markets Have Dropped." People's Daily, April 22, p.1. The rural market wheat price in 1981 was the same as in 1980 (see Table 1.1).

/2 The quota price, .3296 yuan per kilogram, times the ratio of the average to the quota price, 1.3.

/3 NCNA April 21, 1981, op.cit. provides a price of .740 per kilo husked rice. This is equivalent to .518 yuan per kilo paddy, given a milling rate of .7. The rural market rice price in 1981 was down 5% compared to 1980.

/4 The quota price, .2354 yuan per kilogram, times the ratio of the average to the quota price, 1.3.
Table 2.5: AN INDEX OF AVERAGE PRICES RECEIVED BY FARMERS FOR GRAIN SOLD TO THE STATE, 1976-81

<table>
<thead>
<tr>
<th>Year</th>
<th>Quota price</th>
<th>Over quota price</th>
<th>Over quota premium</th>
<th>Weighted price Quota = 100</th>
<th>Index of average sale price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>57-53</td>
<td>43-47</td>
<td>30</td>
<td>113-114</td>
<td>100</td>
</tr>
<tr>
<td>1977</td>
<td>75</td>
<td>25</td>
<td>30</td>
<td>107.5</td>
<td>95</td>
</tr>
<tr>
<td>1978</td>
<td>75</td>
<td>25</td>
<td>30</td>
<td>107.5</td>
<td>95</td>
</tr>
<tr>
<td>1979</td>
<td>67.3</td>
<td>32.7</td>
<td>50</td>
<td>116</td>
<td>124</td>
</tr>
<tr>
<td>1981</td>
<td>40</td>
<td>60</td>
<td>50</td>
<td>130</td>
<td>138</td>
</tr>
</tbody>
</table>


2.17 The taxation implicit in the procurement system is also borne out by the relatively small quantity response to the 40% increase in the over-quota purchase price for cereals in 1979. There may be some confusion on this point because the phrase of "over-quota" seems to imply that deliveries in this category are voluntary. In actuality, over-quota delivery quotas are involuntary and are distinguishable from quota deliveries only in that they are subject to upward revision in years of good harvest.

\[ \text{Since the quota price of cereals was raised 20% in 1979 and the premium for over quota deliveries raised from 30 to 50%, the new marginal price is } 1.8 \text{ times (} -1.2 \times 1.5 \text{) the old quota price. The pre-1979 marginal price was } 1.3 \text{ times the quota price. Thus the marginal price rose } 38.5\% \text{ (} = \frac{1.8}{1.3} \text{).} \]
and downward revision in years of crop failure. But over-quota delivery and quota deliveries are both designed to ensure the delivery of cereals to the state at prices below which such quantities voluntarily would be delivered. In figure 2.1, where SS represents the supply curve of collective agriculture to the state and OT represents tax deliveries, $Q_1-T$ quota deliveries, $Q_2-Q_1$ over-quota deliveries, $P_1$ the quota price, and $P_2$ the over quota price, the shaded areas represent a measure of the implicit burden imposed on collective agriculture through the system of quota and over-quota deliveries. The quantities $Q_1$ and $Q_2$ would be voluntarily delivered only at $P_3$ and $P_4$. Empirically what we need to know is the magnitude of the difference between $P_1$ and $P_3$ as well as between $P_2$ and $P_4$.

**Figure 2.1: ADMINISTERED PRICES AND THE BURDEN IMPOSED ON AGRICULTURE**

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1 The practice of fixing quotas for periods of three or five years applies only to quota deliveries. For example, the quota was fixed for 3 years, in 1965 and fixed at a new level for 5 years beginning in 1971. However "the amount of over-quota gran is set again each year." Ministry of Food Research Office, A Discussion of Policy on Procurement and Sales of Cereals and Oils in Rural Areas, Peking: Finance and Economics Publishing House, 1981, p. 24.
2.18 As a first approximation the answer may be implicit in the changes in the share of output delivered to the state after the 1979 price change. The underlying supply curve SS may be presumed to move only slowly in response to changes in farm production technology, farm input prices, and farm income, the latter influencing producers' self-consumption of farm products. With the possible exception of farm income, these may be presumed to have changed very little or slowly. In 1977 and 1978 peasant deliveries to the state were 47.4 and 46.5 million metric tons, 20.2% and 18.4%, respectively, of total grain production (both measured in terms of "trade weight"). In 1979 and 1980 deliveries were 53.9 and 50.0 million tons, 19.6 and 18.7% of production.\footnote{Ministry of Agriculture Policy Research Office, China's Basic Agricultural Situation. Peking: Agricultural Publishing House, 1980, p. 30. Zhang Lifen, "The limitations of the law of value in the development of China's grain production." Shansi Finance and Economics Institute Bulletin 1980, no. 4, pp. 6-10 reprint in Agricultural Economics 1981, no. 10, pp. 29-30, procurement data on page 30. Lin Gang, "China's rapid population growth is the root cause of its agricultural backwardness," Population Research, 1981, No. 1, p. 22. Liang Yan, "We must take the grain problem very seriously," Red Flag 1981, no. 5, p. 24. NCNA 20 April 1981 "State purchase plans for grain, cotton fulfilled," in Foreign Broadcast Information Service, Daily Report, April 22, 1981, pp. K20-21.} Deliveries as a share of output were
actually slightly less in the two years after the price increase than the immediate prior two years. Since there was only a modest response in the share of output delivered to the state after \( P_1 \) was raised 20% and \( P_2 \) was raised 40%, as a first approximation it would appear that the difference between \( P_1 \) and \( P_3 \) exceeds 20% and the difference between \( P_2 \) and \( P_4 \) exceeds 40%. A voluntary increase in deliveries was apparent only in the negotiated price category. In 1979 5.25 million metric tons of grain were delivered voluntarily, but the price was roughly triple the pre-1979 procurement.

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/1 The procurement date contained in the State Statistical Bureau, *Chinese Statistical Yearbook* (Beijing, Statistical Publishing House, 1982), p. 341, show procurement rising from 50.73 million metric tons in 1978 to 60.10, 61.29 and 68.46 million metric tons in 1979-81. As a share of output, (adjusted to the trade weight basis of the procurement data) procurement rose from 19.9% in 1978 to 21.6%, 22.8%, and 25.2% in 1979-81. These data, which show a greater quantity response than those cited in the text of this study, appear to be inclusive of procurement at negotiated prices by state purchase agencies as well as perhaps market purchases by state organizations other than official agencies of the Ministry of Commerce. Although strongly discouraged by the State, in 1981 military units, mass organizations, commune and brigade industrial enterprises and state organizations other than purchase agencies made extensive purchases in the market. (State Council, Ministry of Food, State General Commodity Price Bureau, "Circular on the Management of Grain and Oil Purchases and Sales at Negotiated Prices," in Foreign Broadcast Information Service, *Daily Report*, March 23, 1981, p. L24.) The quantity response shown in the *Statistical Yearbook* data appears to reflect purchases at market or negotiated prices, not increases in quota or in over-quota deliveries.

/2 An alternative hypothesis, that local state procurement agencies were unwilling or financially unable to step up their purchases, is explored later in this paper.

/3 China finance and Trade Front, "Negotiated Price Grain Sales in a Year and a Half are More than 14 billion Jun," *Southern Daily*, October 10, 1980, p. 3.
quota price and a substantial premium (20% for wheat, 50% for rice) over the current over-quota price (Table 1.1).\footnote{There are no data on the prices prevailing in negotiated price transactions. The judgment in the text, which is that negotiated price transactions take place at prices close to those prevailing in rural markets, is based on statements such as: "Negotiated prices must be in line with market trends," cited in Table 1.1, note b, and "Negotiated purchase prices for grain and oil should be slightly lower than the quoted market prices" (State Council, Ministry of Food, State General Commodity Price Bureau, op. cit).}

2.19 The modest quantity response to the sharply higher over-quota purchase price poses the issue of why a dual price system is used at all. It is usually presumed that a two tier price system is adopted to promote increased deliveries to the state. But in China in the late 1970s it would appear that both quotas and over-quota volumes were set so high relative to the quantities that would have been voluntarily delivered at prevailing quota and over-quota prices that raising the over-quota price by as much as 40% had stimulated only modestly increased over-quota deliveries. The net effect of the over-quota price thus appears to be to reduce the burden of the implicit tax imposed by the procurement system on collective agriculture, rather than to stimulate increased deliveries. But a similar reduction in the tax burden could be achieved through a procurement system with a single price, somewhat above the present quota price.\footnote{For 1981, for example, the appropriate single price that would have had the same effect on peasant income as the dual prices system would be 1.3 times the quota price.}

2.20 Moreover, a single price procurement system would improve the distribution of income within the collective farm sector. The present dual price system effectively is a regressive tax, one that makes the distribution of after tax (i.e. post deliveries to the state) income more unequal than the pre-tax distribution. The implicit proportional tax burden is less for the few producers where the growth of output in recent years has been sufficiently rapid to ensure that the premium price is received for a significant share of deliveries to the state. For large numbers of teams with lower yields where output growth has been relatively slow, over-quota
deliveries in years of average weather are quite small or nonexistent. Therefore, they receive little or no incremental income from premium prices./1

2.21 A single price system also might have important allocative efficiency advantages compared to the present dual price system. The supply curve SS in figure 2.1 is an aggregation of the supply curves of about 5 million separate producing units. While 25 to 60% of total sales to the state in recent years have been at the higher above quota price, (see Table 2.5), these sales constitute only 3-10% of total cereal output. Moreover, quotas have not been set to allow all producers to sell at the over-quota price. Since producers face marginal prices that vary by as much as 50%, there must be significant inefficiency in the allocation of resources. If, under the current system of enhanced production team autonomy, producers are able to choose freely their level of input usage, the marginal product of fertilizer and other inputs may be substantially higher in producing units unable to sell at over-quota prices, compared to those selling output at the over-quota price. But they would not choose to increase their use of inputs since the marginal price they receive for sales to the state is the

/1 Data are not available on the number of rural production units that are usually unable to make any sales at the over-quota price. But Chinese sources do acknowledge that significant numbers of poor units are unable to make any sales to the state at above quota prices. For example, according to the Ministry of Food Research Office, "Because the pace of development of grain production among different regions and among different communes and brigades differs considerably, the amount of over-quota grain that they are able to sell also varies considerably. In some old commodity grain bases the original level of grain production was comparatively high and they sold large amounts of grain to the state. The basic quota that was fixed at that time was also relatively high. But if the rate of growth of grain production was not high, the amount of over-quota grain that production teams were able to sell to the state was small. As a result the following situation developed: in some regions and in some communes and brigades the quantity of per capita grain sales to the state was large but the amount of income earned from sales at the over-quota price was very small. In other poorer regions where the pace of development was very slow they were not only unable to sell over-quota grain but were even unable to complete their quota deliveries. In these regions the burden of state grain sales became extremely heavy." Ministry of Food Research Office, A Discussion of Policy on Procurement and Sale of Cereals and Oils in Rural Areas. Peking: Finance and Economics Publishing House, 1981, p. 32.
lower quota price. Thus, the dual price systems does not appear to provide significant incentives for increased deliveries to the state, but simply reduces the implicit tax burden of the procurement system. This could be achieved more simply through a higher single price.

2.22 In summary, while the over-quota prices for delivery of cereals such as rice and wheat to the state are as much as 70 to 85% of the market price, the respective average prices paid by the state are only about 70% and 55% of the market price. It is possible this understates the gap since prices prevailing in smaller rural markets may be somewhat higher than the prices reported in Zhongguo caimao bao. While the over-quota price is closer to the market price than the quota price, a large number of producing units, where per capita production is low, are unable to sell a significant quantity of grain at the premium price. For these producers, the price received for sales to the state is only about half the prevailing free market price. The persistence of this gap appears to underlie the widespread peasant belief that state procurement prices for agricultural products are too low.

3. SUBSIDIES OF URBAN FOOD CONSUMPTION AND MARKETING POLICY

A. Food Subsidies

3.01 In the 1950s state procurement and resale of most agricultural commodities was quite profitable. For rice and wheat, for example, the mark-ups in 1952 between the procurement price for unmilled cereals and retail prices for milled rice and wheat flour, as shown in Tables 3.1 and 3.2, were greater than 150 and 110%, respectively. Even allowing for processing losses (30 and 10-12% for rice and wheat, respectively) and transportation, storage, and distribution costs, these transactions were profitable. Although profits declined as procurement prices rose, as late as 1959, when procurement prices were about 10% higher than 1952, profits on

\[\text{/1 For bureaucratic reasons the dual price system may directly inhibit the sale of grain to the state. This is discussed further below.}\]

\[\text{/2 In 1981, when the share of cereals sold to the state at the premium prices (both over quota and negotiated) reached an all time high, these sales represented less than 10% of cereal output.}\]
the sale of cereals were approximately 400 million yuan.\(^1\) It is likely that the procurement and resale of edible vegetable oils was also profitable.

3.02 Profits subsequently were reduced as grain procurement prices rose sharply by about one-quarter in 1961 while retail prices remained unchanged. The contribution of the State General Commodity Price Bureau to the Chinese 1981 Economic Yearbook states that by 1965 the price of rationed grain sold in cities was less than the procurement price. While the data in Tables 3.1 and 3.2 show that this was not literally true, perhaps the commercial departments' total costs exceeded the revenues received from sales to the non-agricultural population so that losses were incurred. To alleviate this problem, in January 1965 the Central Committee of the Chinese Communist Party and the State Council issued a joint decision raising the retail sales prices "equal to the level of procurement prices."\(^2\) Again this must mean that retail prices were raised to a level sufficient to cover total costs. My presumption is that most or even all of the retail price increases for wheat flour (7.5%) and rice (2.7%) between 1952 and 1978 occurred in 1965.

3.03 The relief that this upward adjustment of retail prices provided was minor since the procurement prices of cereals were raised by 15-20% in 1966. Since that time the state has posted growing losses in its domestic trade in cereals and edible vegetable oils. Significant losses were incurred in the early 1970s, although reports on the magnitude have not been published. Between 1974 and 1978 these losses were reported to have averaged in excess of 4 billion yuan per year, for cumulative losses of 20.8 billion yuan.\(^3\) Losses amounted rapidly thereafter since in 1979 average quota procurement prices for cereals rose by about 21% and for edible vegetable oils 25%, while retail sales prices to the nonagricultural

---


Table 3.1: COMPARISON OF THE WHEAT PROCUREMENT PRICE AND RETAIL PRICE OF RATIONED FLOUR, 1952-81  (yuan per kg)

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat quota procurement price (Grade Three, unmilled)</th>
<th>Wheat flour retail price (Standard Grade)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1952</td>
<td>0.1630</td>
<td>0.344/a</td>
</tr>
<tr>
<td>1957</td>
<td>0.1786</td>
<td></td>
</tr>
<tr>
<td>1962</td>
<td>0.2348</td>
<td></td>
</tr>
<tr>
<td>1965</td>
<td>0.2212</td>
<td>0.370</td>
</tr>
<tr>
<td>1970</td>
<td>0.2686</td>
<td></td>
</tr>
<tr>
<td>1977</td>
<td>0.2686</td>
<td>0.370</td>
</tr>
<tr>
<td>1978</td>
<td>0.2722</td>
<td>0.370/a</td>
</tr>
<tr>
<td>1979</td>
<td>0.3296</td>
<td>0.370</td>
</tr>
<tr>
<td>1980</td>
<td>0.3296</td>
<td>0.370</td>
</tr>
<tr>
<td>1981</td>
<td>0.3296</td>
<td>0.370</td>
</tr>
</tbody>
</table>

/a The prices of 0.344 and 0.370 for 1952 and 1978 were reported for Beijing Municipality. A substantial body of evidence shows that 0.370 yuan per kilo is the national uniform price for standard grade wheat flour and that this price had been established long prior to 1978 and that it persists in 1979, 1980, and 1981.


Table 3.2: COMPARISON OF THE PADDY RICE PROCUREMENT PRICE AND RETAIL PRICE OF RATIONED POLISHED RICE, 1952-81

<table>
<thead>
<tr>
<th></th>
<th>Paddy rice quota purchase price (Yuan per kilo)</th>
<th>Polished rice retail price (Yuan per kilo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1952</td>
<td>0.1134</td>
<td>0.296</td>
</tr>
<tr>
<td>1957</td>
<td>0.1236</td>
<td>-</td>
</tr>
<tr>
<td>1962</td>
<td>0.1650</td>
<td>0.304</td>
</tr>
<tr>
<td>1970</td>
<td>0.1962</td>
<td>-</td>
</tr>
<tr>
<td>1978/a</td>
<td>0.1962</td>
<td>0.304</td>
</tr>
<tr>
<td>1981</td>
<td>0.2370</td>
<td>0.304</td>
</tr>
</tbody>
</table>

/a Retail prices for 1952 and 1978 are for standard grade rice in Peking municipality. Available retail price quotations show greater interregional variation than wheat flour prices. But most of the variation may be explained by the wider range of quality variation in rice—most importantly the substantial premium for japonica rice.

Sources: Column 1, Table 2.1
Column 2, NCNA July 26, 1978

As was shown in Table 2.5, average procurement rose even more since the premium on over-quota deliveries of cereals was raised from a level of 30% to a level of 50% and the share purchased at over-quota prices rose. Financial losses were reported at 6.8 billion yuan in 1979, almost two-thirds greater than the 1974-78 average.


2 NCNA, November 5, 1979, "Commodity Prices and Peasant Income," in BBC, SWB/FE/W1059/A/2. The loss figure was given as an estimate. Indirect evidence suggests actual losses for the full calendar year may have been greater than 6.8 billion yuan.
3.04 The available evidence suggests that this large and growing subsidy accrues mainly to urban residents and to a smaller number of state employees in rural areas. This population, referred to by the Chinese Government as the nonagricultural population, numbered 160 million in 1980 of which about 135 million were urbanites and 25 million were residing in rural areas.\(^1\)

3.05 A large share of sales of state grain to peasants, which as discussed in Section 1 is referred to as "resales", for most of the last three decades has been at prices sufficiently high to minimize or perhaps entirely avoid losses. In short, the price for resales of cereals to most peasants has been tied to the rising procurement price, while prices of rationed cereals sold to the nonagricultural population have changed little. In the 1950s, articles reporting on the effect of changes in purchase prices on the standard of living of peasants always showed that an increase in the price of grain led not only to substantially increased peasant income but, for those peasants who specialized in production of non-grain crops, to increased expenditures as well. Since in the 1950s a substantial portion of cereals purchased by the state was resold to peasants, the aggregate offset to higher purchase prices, particularly for grain, was significant. In aggregate terms the increased expenditures for food offset a third of the increased revenues from the sale of food to the state at higher prices.\(^2\)

This pricing policy on resold grain was confirmed in a contribution to a book published in 1959.\(^3\) It was noted that grain resold in the countryside was priced at 8% over the procurement price, in order to cover the

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\(^1\) Li Siheng, "Points on China's Grain Situation," A Collection on Agricultural Economics 1981, No. 4, p. 56, provides data on the nonagricultural population. The number urban is estimated on the basis of the 1979 urban population of 128.6 million, reported in Annual Economic Report of China, 1981, op. cit., p. VI-3; a reported average annual conversion from agricultural to nonagricultural status of 6 million in 1978-80, State Council, "Directive on the strict control of the flow of rural labor force into cities to work and the conversion from agricultural to nonagricultural status," State Council Gazette, February 10, 1982, pp. 885-887; and my estimate of a 1.7 million annual increment to the urban population from natural growth.


costs of distribution and storage. Whether or not this small margin was sufficient to cover those costs, and whether or not peasants had to pay separate fees for processing of purchased grain is not clear.\(^1\) What is clear is that the cereal resale price was tied to and rose with the procurement price. The first deviation from that policy appears to have occurred for a few years in the first half of the 1960s. Following the sharp procurement price increases of 1961–62, the price of resold grain was not increased and thus was below the new procurement price. But in 1964 the price of grain sold to peasants was raised to the level of the procurement price, closing the gap.\(^2\) After 1965 resales of cereals in the countryside appear to have taken place on the basis of a dual price system. Both in 1966, when the state raised cereal procurement prices by over 15% and in the late 1970s, when cereal procurement prices were raised for the first time in twelve years, the price of grain resold to producers of industrial crops, vegetables, animal husbandry products, aquatic products, salt, timber was raised simultaneously.\(^3\) But sales to poor rural households and those peasants whose consumption levels have been threatened by temporary harvest shortfalls occur at a lower state subsidized price. In 1980, price subsidies for rural resales of cereals were approximately 3 billion yuan.\(^4\)

\(^3.06\) There has been no program for reselling edible vegetable oils in the countryside.\(^5\) Because of the widespread geographic conditions under which various sources of edible vegetable oil, including peanuts, rapeseed, soybeans, etc., can be grown, this creates only minor problems for most rural residents. For specialized producers of vegetable crops in suburban areas, specialized producers of other industrial crops who do not grow oilseeds, and communes engaged primarily in fishing, forestry or salt

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\(^2\) Jia Xiuyan, op. cit., p. 16.


production, the absence of resales of edible vegetable oils creates a hardship. Since proportionately the state subsidy of oils is larger than that for grains, this policy reinforces the tendency for the benefits of agricultural price subsidies to accrue largely to state employees rather than members of communes.\(^1\)

3.07 The state cost of food subsidies for the nonagricultural population increased in 1979 because subsidies were extended to cover nonstaple foods, largely those in category two discussed above. Following the procurement price increases for most non-staple commodities in 1979, the urban retail price was less than the procurement price for many commodities. Since most of these commodities were not rationed, a reverse flow problem appears to have arisen. Enterprising peasants reportedly found they could purchase commodities at retail and resell them to the state for a profit.\(^2\)

3.08 To eliminate that problem the state raised the retail price of many non-staple foods by about a third. To alleviate the income effect on urban consumers, state employees and retirees drawing state pensions in November 1979 began to receive a monthly "non-staple food allowance" of 5 yuan. Outlays for these subsidies amounted to 16 billion yuan in 1979-1981.

3.09 Total state financial losses on cereal and edible vegetable oils sales were 6.8 billion yuan in 1979,\(^3\) rose to 10.3 billion yuan in 1980,\(^4\) and were 12.9 billion yuan in 1981.\(^5\) Food consumption of nonagricultural

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\(^1\) State subsidies of edible vegetable oils, 1.6 yuan per kilogram, are 8 times the subsidy of cereals, .2 yuan per kilogram. Since the purchase price for the most important types of oilseeds (peanuts and rapeseed) are only 2.5 to 3.5 times the average for cereals (see Table 2.1), proportionately the subsidy of rationed edible vegetable oils surpasses that for rationed cereals.


\(^3\) 6.8 billion yuan was the magnitude of losses estimated for 1979. The estimate was published in November 1979.


\(^5\) Estimate based on cumulative losses of greater than 30 billion yuan (implying losses greater than 30 but less than 31 billion yuan) in 1979-81 and losses reported for 1979 and 1980.
households is subsidized further in two ways that are not reflected in the
data just reviewed. First, the state incurs losses on the sale of imported
wheat.\(^1\) In 1981 these losses amounted to about 600 million yuan,
calculated on the official exchange rate, or about 2.4 billion yuan,
calculated on the average yuan cost of earning a unit of foreign exchange.\(^2\) These losses should be added to those discussed above since most, if not all, imported grains are sold to nonagricultural households. Second, the state provides additional indirect subsidies of non-staple foods, amounting to 2.8 billion yuan in 1981.

3.10 Aggregate subsidies of food consumption in 1981 are estimated at
23.8 to 25.6 billion yuan, shown in Table 3.3. This is the equivalent of
23-26% of state budgetary revenues (at all levels of government), about
6.2-6.5% of national income (based on Chinese national income concepts), or
29.0-31.0% of the wage bill of state workers and employees.\(^3\) Of this,
perhaps 3.7 billion yuan, or a little over 10% of the total, benefits the
agricultural population.\(^4\)

\(^1\) The exclusion of losses on imported grain in the subsidies discussed
above is stated in two sources: People's Daily Reporter, "Annual
Financial Subsidies of More Than 10 Billion Yuan to Stabilize the
Selling Price for Grain, Cotton, and Oils Have Had a Beneficial
Zhou Zhiuing, "Gradually Raise People's Living Standards on the
Premise of Developing the Production Base," Chinese Trade and

\(^2\) The national average domestic resource cost of earning one US dollar
"at the present time," according to a study published in December 1981,
was 2.29 yuan. Guangdong Economics Society, An Investigation of

\(^3\) Percentages calculated on budgetary revenue data given in Wang
Bingqian, "Report on the State's 1980 Final Accounts and the Conditions
of Implementation of the State's 1981 Budget." New China Monthly 1981,
No. 12, pp. 28-34; and data on national income and the wage bill of
state workers and employees given in State Statistical Bureau, "Report
on the Results of the 1981 Plan Implementation," People's Daily,

\(^4\) Estimated on the basis that the cost of subsidized grain resold to
peasants in 1980 was 3 billion yuan. Ministry of Food Research Office
A Discussion of Policy on Procurement and Sales of Cereals and Oils in
That was 30% of total subsidies of cereals and oils. I assume the same
share applied in 1981.
Table 3.3: STATE SUBSIDIES OF FOOD CONSUMPTION, 1979-81
(billions of yuan)

<table>
<thead>
<tr>
<th></th>
<th>1979-81 (Cumulative)</th>
<th>1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect subsidy of domestic cereals and edible vegetable oils</td>
<td>30.0</td>
<td>12.9 /a</td>
</tr>
<tr>
<td>Indirect subsidy of nonstaple foods</td>
<td>8.4 /b</td>
<td>2.8</td>
</tr>
<tr>
<td>Direct subsidy of nonstaple foods</td>
<td>16.0</td>
<td>7.5 /c</td>
</tr>
<tr>
<td>Indirect subsidy of imported cereals</td>
<td>0.6-5.3 /d</td>
<td>0.6-2.4 /d</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>55.0-60.3</td>
<td>23.8 25.6</td>
</tr>
</tbody>
</table>

/a Estimated on the basis of the cumulative amount and the reported subsidies of 6.8 and 10.3 billion yuan for 1979 and 1980, respectively.

/b Estimated at three times the reported 1981 subsidy.

/c Estimated. The direct subsidy program was not begun until November 1979, thus the bulk of the cumulative 1979-81 expenditures on this program were in 1980 and 1981.

/d The unit price of wheat imported from the United States in 1981 was $173 per ton (f.o.b. Atlantic Ports) plus freight of $36 per ton times the official exchange rate (1.7 yuan per dollar) yields a c.i.f. price of 355 yuan per ton. Port charges and domestic transport costs are estimated at 20 yuan per ton and the milling rate is assumed to be 90%. I assume that the sale of milling by-products covers the cost of milling. The cost of flour milled from imported wheat is thus 417 yuan per ton. Since the domestic price of rationed flour is 0.370 yuan per kg and wheat imports were 12.66 million metric tons in 1981, losses are estimated at 600 million yuan. A similar calculation based on the average cost in terms of domestic resources of earning a dollar in foreign exchange, 2.3 yuan, shows losses of about 2.4 billion yuan on imported cereals. The same methodology applied to 1979 and 1980 shows no losses incurred if the official exchange rate prevailing in those years is used, but losses of 800 million and 2,100 million yuan if the average domestic resource cost of earning a dollar of foreign exchange is used as the exchange rate.

3.11 These subsidies are substantially larger than those of the Food Corporation of India, which manages India's rationing (Fair Price Shop) system, and exceed the subsidies prevailing in several Eastern European countries. In 1978-79 Indian subsidies of rationed cereals were only Rs 570 crores, less than 2% of budgetary (central and state) outlays and seven tenths of one percent of net national product. In Poland food subsidies rose sharply in the 1970s and in 1980 were 17.8% of the wage fund.

3.12 Two refinements of these comparisons must be made. First, while the subsidies in other centrally planned economies are indirect, a significant share of the subsidies in China are direct in the form of nonstaple food allowances, rather than low commodity prices. The five yuan monthly cash allowance, like wage payments, is allocated by consumers in a utility maximizing fashion. But, because the prices of some nonstaple foods were raised substantially in 1979, there is no encouragement of the consumption of these commodities through low prices. Second, resource distortions caused by subsidies of the consumption of the nonagricultural population are a function not only of the magnitude of the subsidies relative to national income but also relative to the share of the population benefiting from the subsidy. Chinese subsidies appear to be concentrated on 16-17% of the population, causing greater distortion than in most of the countries of Eastern Europe where the share of the population receiving subsidized food is three or four times as large. The greater distortion is reflected in the high ratio of subsidies to the wage bill in China compared to the Eastern European countries.


3.13 Subsidies for consumption of cereals and oils by the nonagricultural population distort resource allocation and may increase inequality in the distribution of income.\footnote{Some sources suggest that the state in recent years also has had to provide subsidies to cover losses incurred in the sale of rationed cotton textile products. Information on textile subsidies is less complete and is not analyzed here. It should be noted, however, that the distributive implications of cotton cloth rationing are quite different from those for staple foods since urban and rural residents both receive cloth coupons and pay the same prices for cotton textile products. Thus while cotton subsidies may introduce certain allocative inefficiencies, there is little reason to believe that these subsidies increase the inequality of income between consumers in the urban and rural sectors.} Most significant, for reasons explained below, they constrain the setting of farm level prices, the development of marketing, and specialized crop production. Furthermore, subsidies have led to a system in which some nonagricultural workers with similar wages face very different real prices for basic consumption goods than do others.

3.14 Subsidy of the food consumption of the nonagricultural population has distorted prices at the farm level. Upward adjustment of purchase prices is constrained because of the increase in urban food subsidies required to maintain the stability of ration prices. Because of competing financial demands of other projects and domestic constituencies, farm level prices for cereals are thus held down. Even though non-staple foods are not usually subsidized, there is pressure to hold their prices down as well, to prevent excessive switching of land out of cereal production. In effect, the pricing constraint inevitably leads to greater use of quantity controls on cropping decisions that \textit{a priori} leads to increased inefficiency.\footnote{For the theoretical case that the use of quantity controls to direct the composition of output is inherently less efficient than the use of price controls under the conditions prevailing in Chinese agriculture see Nicholas R. Lardy, "Comparative Advantage, Internal Trade and the Distribution of Income in Chinese Agriculture," a paper prepared for the Trade and Development Workshop, Yale University, January 1982.} The Party leadership reportedly has questioned whether the upward adjustment of agricultural purchase prices in 1979 was too large and should have been
implemented in two steps, over a period of two or more years./1 Since the magnitude of food subsidies rose sharply during a period of continuous budgetary deficits, it has been stated authoritatively that no further price increases for cereals will be considered for the foreseeable future./2 That, in turn, has necessitated increased use of quantity controls in farm production.

B. Subsidies and Marketing

3.15 Subsidies also may have inhibited the development of marketing. Since 1979 in some areas, the local agencies of the Ministry of Food have been unable to expand their purchases of cereals because their budgetary allocations have not expanded sufficiently to cover the subsidies necessary both to maintain retail price stability and to expand purchases. In some localities producers have expressed disappointment because of the low volume of state purchases at the new higher marginal purchase prices./3 Thus the announced policy of increased purchases by the state, to have been encouraged by the use of the negotiated price category, has been thwarted.

3.16 Increased private sales cannot completely substitute for the inability of the state marketing agencies to increase the degree of commercialization of Chinese farming in some localities because the long distance private transport of cereals and most other agricultural

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/1 "Raising procurement prices of agricultural products was extremely correct, and thus played a tremendous role in stimulating agricultural production. However, if we sum up experiences, perhaps we should have done it in two steps to insure somewhat lesser effect on finances and prices." Deng Xiaoping’s Report on the Current Situation and Tasks, Zhengming (Hong Kong) March 1, 1980, pp. 11-23.

/2 Zang Guofan, "Several Problems in the Scissors Price Differential and the Relative Prices of Industrial and Agricultural Products," Jiang and Han (Rivers) Forum, 1980, No. 2, p. 17. This view was reiterated by Hu Yaobang, the Chairman of the Chinese Communist Party, in his speech to the Twelfth Party Congress in September 1982. "We can no longer increase peasant incomes mainly through raising the prices of farm produce and enlarging the scope of negotiated purchase." "Create a New Situation in All Fields of Socialist Modernization," Beijing Review, September 13, 1982, p. 18.

/3 Zhong Yuanhe, "With no way to sell their surplus grain, peasants are anxious." Southern Daily, October 25, 1980, p.1.
commodities is prohibited. Marketing is carried out primarily by producers, not traders, selling in rural markets within a limited geographic area. The vast majority of sales occur at the rural market within the producing commune (there are presently four rural periodic markets for every five communes) or in an adjacent commune. Sales in urban farm markets are small relative to rural sales. In 1980, for example, sales of agricultural and subsidiary products in urban farm markets were just over a tenth of rural periodic market sales./1 The vast majority of China's rural producers are probably unable to sell in urban farm markets because of transport or administrative constraints.

3.17 In 1982 the Government moved to institutionalize further the low degree of marketing that has characterized Chinese agriculture since the mid-1960s. An April 1st decision of the State Council decreed that beginning in 1982 the quantities of grain procured, sold, and transferred interprovincially by the state would be fixed for three years./2 Not only are the aggregate quantities of cereals so specified, but even the specific types of cereals are designated and not to be changed for three years. The state is even reducing its commitment to supply relief grain. Grain deficits arising from floods, droughts, and other causes are to be resolved primarily with local resources. Only in the case of large-scale natural calamities will the state step in. This policy is more accommodating than the local self-sufficiency policy pursued after the mid-1960s, but it does freeze the magnitude of inter-provincial transfers at a low level, proportionately well below the level of the mid-1950s. That, in turn, may well inhibit the recovery of commercial crop production in low income, grain-deficit areas, most notably on the North China Plain.

3.18 The freeze on resales appears to be at least partly a response to the complex price structure for cereals discussed earlier (Table 1.1). Peasants in some localities have sought to increase their sales on the free market and sales to the state at over quota prices or negotiated prices at the time of the fall harvest and then to cover shortfalls in supplies for consumption by purchasing grain from the state in the spring and early summer, prior to the next year's harvest. Given the large price spreads between the state resale price on the one hand and market, over-quota, and negotiated prices on the other hand, such transactions would be highly profitable. State grain agencies must attempt to differentiate among


peasants (or collective units) who wish to purchase grain from the state because they grow commercial crops such as cotton, tobacco, etc. or had harvest shortfalls due to poor growing conditions, from those who wish to purchase grain to compensate for their excess sales at harvest time. This is one example of the administrative costs of trying to maintain a viable multiple price system.

C. Resource Costs and Distributive Implications of Subsidies

3.19 Declining real prices for rationed cereals in urban areas may cause other difficulties as well. For example, it may encourage household production of poultry and perhaps pigs by the nonagricultural population. Retail prices of pork, poultry, eggs, etc. have increased substantially over the past three decades while rationed cereals have not. Since the marginal rate of conversion of grain to poultry is about 3:1 while the poultry:rationed grain price ratio is now about 10:1, domestic production of poultry is encouraged by the price structure. Since rations of the nonagricultural population are moderately generous, particularly for higher income urban dwellers who consume a significant portion of their diet in non-rationed commodities, a growing portion of urban cereal rations may be diverted to domestic production of poultry etc., particularly in south China.

3.20 The absolute cost of administering the rationing program is unknown, but must be large and growing. The use of a coupon rationing system for basic commodities for 160 million people, other than on a temporary wartime basis, is unprecedented. Moreover, as the real prices of rationed commodities decline, as they have over the past three decades as other prices and average nominal wages have risen, the costs of administering the system would be expected to grow. The real value of being a part of the rationing system has been increasing over time, increasing the incentive for abuse. These costs are reflected in State Council directives on controlling the flow of the rural labor force into cities and the conversion of registration status from agricultural to nonagricultural. /1 Nonagricultural registration status is a precondition for access to rationed cereals and edible vegetable oils. The local offices of the Food Bureau have been enjoined to cut off the supply of rationed low price staples if irregularities in these matters are uncovered.

3.21 Finally, it appears that the food rationing system, along with other subsidies of the consumption of the nonagricultural population, has become a source of inequality. The magnitude of food and nonfood subsidies in 1978 was 526 yuan per state employee, per year, 82% of the nominal average wage. These subsidies included 179.6 yuan for rationed staples, 85.3 yuan for housing, for which state employees pay only 2 to 3% of their income, 67 yuan for retirement, survivor, disability, maternity and similar benefits administered through the labor insurance system, 48.3 yuan for health care, 10.1 yuan for subsidies of coal for home heating, 10.0 yuan for inter-city travel subsidies for visiting parents or a spouse living in another city, 6.3 yuan for subsidizing intra-city bus travel to and from work, 84.5 yuan for welfare programs provided by the state, and 35.0 yuan for welfare programs provided directly through the work unit.


/2 The housing subsidy is the difference between rent paid and the sum of depreciation (calculated on 50 year life), maintenance expenditures and management expenses. In Beijing the rates charged state employees cover only about half of the maintenance costs and none of the depreciation or management costs. See Beijing Municipal Planning Commission, "How Large are State Subsidies Relative to People's Consumption?" Finance (Caizheng) No. 7, 1981, pp. 27-28. For China as a whole rents paid by state employees for housing average 10 fen per square meter while depreciation, maintenance, and management expenses total 38 fen per square meter. The cumulative value of the subsidy for urban housing for state employees in 1979-81 was 3.5 billion yuan NCNA 12 October 1982 in Foreign Broadcast Information Service, Daily Report, p. K13.

/3 These subsidies for welfare are exclusive of state budgetary expenditures for programs on health, education, science, etc. Identification of the services provided in the final 2 categories identified as welfare requires further research.
3.22 These subsidies have grown over time. Food subsidies were non-existent in the 1950s since the ration price of staples, relative to the prevailing procurement prices, was sufficiently high that financial subsidies to the Ministry of Food were unnecessary. Indeed as discussed earlier, the Ministry's annual profits contributed significantly to the state treasury. Rent subsidies also have increased over time. Prior to 1955 the level of rents for urban housing was set to cover maintenance and replacement costs and averaged three times the present rates. Rents absorbed 6 to 7% of family income. Rents subsequently were lowered (in absolute amounts) first in August 1955 and again during the Cultural Revolution, while costs of construction materials and labor rose./1

3.23 Tracing the origins of the other subsidy programs requires more research, but between the 1950s and 1978 the growth of rent and food subsidies alone is sufficient to have doubled their value on a per worker basis. Thus while per worker incomes were essentially unchanged between 1957 and 1978, the value of subsidies grew rapidly, increasing the gap between urban and rural per capita consumption.

3.24 The growth of subsidies has accelerated since 1978. As discussed above, the price subsidies for cereals and edible vegetable oils in the aggregate have more than doubled between 1978 and 1981, adding perhaps another 150 yuan per year to the value of subsidies of each state employee. The initiation of direct subsidies for nonstaple foods in late 1979 added another 60 yuan per worker per year. These two changes alone increased the value of subsidies by about 40%, to 740 yuan per worker. This rate of increase surpassed the rate of increase in wage income, which rose from 644 to 812 yuan per employee over the same period, 1978-81./2

3.25 Subsidies to members of agricultural households are quite modest by comparison. Only a small share of commune members, as discussed above, are eligible for subsidized staple foods. The value of staple food subsidies for peasants was about 3.7 billion yuan in 1981. Peasant housing is privately owned and its costs are borne from peasant income. Commune

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members are not eligible for the retirement, survivor, disability, maternity and other benefits administered with state funds through the labor insurance system; and they receive no travel or heating subsidies. Subsidies for the health and welfare programs which exist in the countryside are financed through a combination of retained earnings of collective units that are earmarked for such purposes and state budgetary funds allocated for "rural relief." Retained earnings for welfare, "public welfare funds" (gong yi jin), grew from 457 million yuan in 1957 to 1.527, 1.684, 1.675, 1.702, 1.814, and finally to 2.165 million yuan, respectively, in the years 1974 through 1979.\(^1\) In per capita terms expenditures on these internally provided welfare programs increased from .8 yuan in 1957 to 2.7 yuan in 1979.\(^2\) State budgetary funds allocated for rural relief rose from an average of 275 million yuan per year during the First Five-Year to 1.090 billion yuan in 1981.\(^3\) In per capita terms that represents an increase from about one half yuan per peasant to about 1.3 yuan. Agricultural households benefit indirectly from state subsidies of agricultural producer goods such as electricity and diesel fuel. As discussed in Section 5, in 1981 these subsidies were 4.5 billion yuan. Thus in 1981 on this broad definition, including state subsidies of agricultural producer goods and staples, state expenditures on rural relief, and the allocation of retained collective earnings for social programs, total outlays might be 11.8 billion yuan or 15 yuan for each peasant.\(^4\)

\(^1\) Chinese Agricultural Yearbook 1980, pp. 382-383.

\(^2\) Calculated from data on the number of members of rural collective units provided in Chinese Agricultural Yearbook 1980, p. 5.


\(^4\) In some ways the comparison of 15 yuan per peasant with 740 yuan per state employee overstates the state subsidy of the countryside. As discussed below (Section 5) subsidies of inputs used in agriculture are not economic subsidies since the prices of the products bear little if any relationship to costs. Second, in the countryside retained "public welfare funds" are used in large measure to support educational and social programs that in urban areas are provided through state budgetary expenditures and are not reflected in the urban subsidy data. Many rural primary schools, for example, are not financed through budgetary funds but are "run by the people" (min-ban), meaning the teachers salaries and other costs are financed from public welfare funds. All urban schools, by contrast, are state supported.
3.26 Subsidies appear to be contributing both to a growing disparity between agricultural and nonagricultural consumption and to increased inequality within the nonagricultural population. Within the nonagricultural population, some are entitled to cheap rationed food and others are not. In 1980 there were 160 million Chinese classified as nonagricultural who were entitled to subsidized cereals and oils. There were large numbers of other individuals who held jobs in the state sector but were not entitled to rationed food. The magnitude of this latter group in 1980 was reportedly about 9.3 million.\(^1\) The registration status of these individuals remains officially agricultural even though they hold nonagricultural jobs in the state sector in the categories of contract workers or temporary workers. In practice their employment is frequently long term rather than temporary, but they are denied access to subsidized food and the other subsidies discussed above which are provided to permanent workers. The officially reported total of 9.3 million probably excludes sizeable numbers of individuals holding agricultural registration status but employed in urban collectives, in urban households, or in other ways outside of officially approved forms.

3.27 Individuals working in nonagricultural jobs without the benefit of permanent work status, and the nonagricultural registration status entitling them to rationed staples, receive their food in one of several ways. First, they may buy grain legally in one of the approximately 2,000 urban farm markets where the prevailing prices for rice are at least twice and sometimes as much as four times the rationed price (see Table 2.3). Prior to the legal opening of non-state urban markets for grain, they could have purchased grain on the black market at a price that was almost certainly an even higher multiple of the subsidized ration price. Second, if they have family connections in nearby rural areas, they may return to their place of origin and get their grain from a rural collective unit. This practice appears to be common for temporary or contract workers in urban areas who legally remain attached to a household with agricultural registration status located in a periurban area. These workers are eligible to receive grain in the normal distribution to household members of rural collective units.

3.28 The opportunity cost of this grain, however, is almost certainly substantially above the price of rationed urban cereals. First, areas adjacent or in close proximity to cities frequently have higher than average marketing rates. Thus the opportunity cost to the producing unit of distributing grain for consumption may be the over-quota or negotiated price, either of which is substantially in excess of ration prices (Table 1.1).

\(^1\) State Council, "Directive on the strict control of the flow of rural labor force into cities to work and the conversion from agricultural nonagricultural status," op. cit.
The opportunity cost of such grain to the worker is also higher than urban rationed grain since the individual must bear the cost of returning to his native place periodically and of transporting the grain to where he works. Third, they may rely on the system of "exchange grain," (huan liang), established after unified procurement of cereals was introduced in the fall of 1953. Under this system the family of an urban worker not eligible for rationed grain but with continuing rural ties may deliver grain to the state, separate from quota or over-quota deliveries, in exchange for coupons entitling the worker to buy grain from the state in cities. According to the regulations, the quantities of grain so delivered are not included in official data on procurement since exchange gain is considered a separate market./1 This method of acquiring grain in urban areas is obviously more attractive for those whose location effectively precludes their returning to their native place to physically pick up grain./2 The opportunity cost to a worker is not clear. But it must be at least the marginal delivery price in his native place and, depending on the exchange rate between grain and coupons, may include an implicit fee for transport and processing that increases the margin over the ration price paid by urban residents eligible for rationed grain. Cereal consumption of domestic servants is usually provided by the families for whom they work, generally from the rations of the members of the family which employs them.

3.29 In summary, subsidies of the consumption of the nonagricultural population inhibit both the adjustment of the purchase prices paid to peasants and the spread of commercialization in agriculture. The costs of the system, both in terms of increased productive inefficiency and direct administrative costs associated with controlling access to subsidized foods, do not appear to be justified on equity grounds. The subsidy system contributes to increased disparities in consumption both between the agricultural and the nonagricultural population and among those employed in the modern state-operated sector of the economy. The usual beneficiaries of coupon rationing in market economies, the urban poor, are very small in

/1 State Council, "Provisional measures for the unified purchase and unified sale of grain in rural areas." New China Monthly 1955, No. 9, p. 161.

/2 The continued existence of this system is confirmed in Stephen Andors, "Industry and Industrialization in Shalu County" unpublished manuscript, 1980.
number in China. Rural to urban migration, with a few brief lapses, has been strictly controlled through an internal passport system for the last two or more decades. A guaranteed job appears to be the primary requisite for permission to move to a city. This system of control has held down the rate of urban population growth. Subsidy of retail prices for all urban consumers is a cumbersome and inefficient mechanism for meeting the consumption needs of a small number of low income urban households. By contrast, the price subsidy of cereals sold in the countryside is limited to regions of natural disasters or of chronically grain short rural households.

4. RELATIVE PRICE TRENDS

A. Long Term

4.01 Detailed analysis of relative price trends is impossible in a paper of limited scope. I have given greatest attention to adjustments in the last five years but will begin with a few observations on long-term relative price trends. First, the relative prices of the major cereal crops in China basically have not changed for three decades (Table 4.1).

/1 The official poverty line for urban residents is Y 20 per family member per month. Families below this level are referred to as "households in hardship" (Kunnan hu) and are eligible for welfare programs. According to a survey of 8,715 urban households in 46 municipalities conducted by the State Statistical Bureau in 1981, only 2.1% of the families had incomes below the poverty line, "Report Explaining Investigation Materials on the Living Standards of Workers and Staff in Urban Areas in the Last Three Years," New China Monthly, 1982, No. 3, pp. 133-34.

/2 It has been reported that the urban share of the total population fell from 15.4% in 1957 to 13.2% in 1979 (Xue Muqiao, Annual Economic Report of China, 1981, p. VI-3). Although these data were presented in a single table, they are not comparable overtime because of changes in the official criteria for urban. Note that the State Statistical Bureau communique on the 1982 census results provides a much higher urban population figure for 1982, viz., 206.6 million, or 20.6% of total population. On this same definition, the urban population in 1964 was 18.4%. ("The 1982 Census Results," Beijing Review, No. 45, 1982, p. 21) The Chinese Government has not published on internally consistent series for the urban population that includes both the 1950s and the 1970s.
Table 4.1: TRENDS IN RELATIVE PURCHASE PRICES FOR SELECTED AGRICULTURAL PRODUCTS, 1952-79
(grains, unprocessed; cotton, ginned)

<table>
<thead>
<tr>
<th></th>
<th>Wheat:Paddy rice</th>
<th>Corn:Paddy rice</th>
<th>Corn:Wheat</th>
<th>Cotton:Grain</th>
</tr>
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<tr>
<td>1952</td>
<td>1.44</td>
<td>0.83</td>
<td>0.58</td>
<td>14.56</td>
</tr>
<tr>
<td>1957</td>
<td>1.45</td>
<td>0.90</td>
<td>0.62</td>
<td>12.86</td>
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<td>1962</td>
<td>1.42</td>
<td>0.91</td>
<td>0.64</td>
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</tr>
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<td>1965</td>
<td>1.31</td>
<td>0.89</td>
<td>0.69</td>
<td>9.96</td>
</tr>
<tr>
<td>1970</td>
<td>1.37</td>
<td>0.93</td>
<td>0.68</td>
<td>8.58</td>
</tr>
<tr>
<td>1975</td>
<td>1.37</td>
<td>0.93</td>
<td>0.68</td>
<td>9.72</td>
</tr>
<tr>
<td>1977</td>
<td>1.37</td>
<td>0.93</td>
<td>0.68</td>
<td>9.72</td>
</tr>
<tr>
<td>1978</td>
<td>1.43</td>
<td>0.92</td>
<td>0.65</td>
<td>10.83</td>
</tr>
<tr>
<td>1979</td>
<td>1.43</td>
<td>0.93</td>
<td>0.65</td>
<td>10.32</td>
</tr>
</tbody>
</table>


The relative wheat:paddy rice, corn:paddy rice and corn:wheat price ratios have changed little since 1952. Except for the ratios involving rice, this is roughly in line with world price trends. Chinese relative prices are anomalous in two dimensions. First, compared to the relative prices in the world market, wheat is overpriced in China. The wheat:paddy rice ratio is 1.4:1 in China; adjusting to milled rice reduces the ratio to about 1:1. However, on the international market, milled rice is generally two to three times the price of wheat. These differentials seem enormous but may be misleading since world trade in rice is quite limited. If China (the world's largest producer) substantially increased its rice exports, the world price of rice might fall substantially. Second, between 1952 and the late 1970s the world price of rice rose relative to wheat while there

/1 International price data are taken predominantly from World Bank, Commodity Trade and Price Trends, August, 1981.

/2 This anomaly is not a post-1949 phenomenon. In the mid-1930s, and probably long before, wheat was substantially more expensive than paddy rice in most regions of China. See T.C. Liu and K.C. Yeh, The Economy of the Chinese Mainland: National Income and Economic Development, 1933-1959 Princeton University Press, 1965. Appendix B, "Farm Prices in 1933".
was no relative price trend for the two commodities in China. If China’s prices reflected accurately domestic production costs one might wonder why the Government did not export even more rice and import more wheat.\(^1\)

4.02 The relative price trends of cereals and industrial crops, such as cotton, present a somewhat different picture. Between the early to mid-1950s and 1976-1978, there was very little movement in the world cotton:wheat price ratio. However, in China the relative value of cotton declined by about a third (prior to the price adjustments that began in 1978). This trend is somewhat puzzling because there is little evidence, other than the decline in its relative price, of a reduced priority for cotton. Chinese imports of raw cotton grew steadily and in the mid to late 1970s reached record levels. More detailed analysis of trends in the relative prices of industrial crops, such as edible vegetable oils, sugarcane and sugar beet would be valuable because increased purchases of these commodities (or products derived therefrom) by China in international markets makes the comparison of greater interest in evaluating the efficiency of domestic resource use.

B. Short Term

4.03 The relative price adjustments undertaken since 1977 can be viewed as part of a broader effort to substitute indirect or price planning in place of direct planning in agriculture. A similar policy was followed in the 1950s - up to 1956 or 1957 - and from 1961 through 1965. Indirect planning is characterized by a greater reliance on relative farmgate prices to influence the allocation of land, labor, and other current inputs among alternative crops. Support for this hypothesis comes in the form of relaxation of previously existing constraints that would have inhibited adjustment in response to relative price changes. The most critical of these changes included relaxing constraints on private marketing activities, enhancing the state’s role in supplying foodstuffs to non-cereal producers, and an easing of price controls for some commodities.

4.04 The pattern of price adjustments in the post-Mao period has been both broader and more complex than is generally appreciated. Most attention has been given to the price adjustments in 1979 when the prices of many cereals were adjusted for the first time in more than a decade. Yet, major

\(^1\) The much larger differential that exists for rice than for wheat between the free market and procurement price, suggests that the official prices may not accurately reflect relative rice and wheat production costs.
price increases were instituted both prior to and since that time. For example, prices were increased in 1978 for cotton, oil-bearing seeds, sugarcane, animal products, and fish.\(^1\) There was also a major price increase, 25%, for soybeans.\(^2\) In 1979 cereal prices were raised for the first time in 12 years. In the aggregate the 1979 price increases were the largest since 1961. The 1979 adjustments included crops whose prices had been raised in 1978 - notably cotton, oil-bearing seeds, and soybeans. In 1980 the state raised prices for a smaller list of products including sheep and goat hides, jute, hemp, timber, raw laquer, and tung oil, and for the third consecutive year, cotton.\(^3\) In 1981 tea, tobacco, soybeans, and vegetable procurement prices were increased.\(^4\) As a consequence of this accelerated pace of adjustments, unlike 1966–77 when prices of most products changed little, there has been a complex mix of changes in relative prices since 1977. The relative prices of some major pairs of crops, such as cotton and cereals, have changed in three of the past four years. The relative price of soybeans has changed in each of the past four years.

4.05 These relative price changes have been accompanied by changes in the pattern of cropping. It is difficult to judge, however, to what extent the observed changes are consistent with a model based on income maximizing peasant behavior. First, agricultural policy formulation over the past few years has been somewhat unstable. There has been extensive discussion over the degree to which the introduction (or reintroduction) of specialized cropping, stimulated by relative price adjustments, can serve to increase farm productivity and output. After moving away from the old policy, encapsulated in the slogan “take grain as the key link,” a concerted reemphasis on grain production has reappeared in the press. The watchword now is to avoid further reductions in grain sown area. But that is to be achieved largely through increased quantity controls, not relative price changes. Quantity controls on sown area have been reinforced by restricting the levels of interprovincial marketing of cereals to the level of 1982 or earlier.

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Moreover, restrictions on marketing and lack of adequate supplies of cereals to producers of industrial crops constrained the response to relative price changes. That is, the observed patterns of cropping in 1978 and 1979 did not represent a long-term equilibrium for a given set of relative explicit purchase prices, but rather a constrained adjustment to implicit prices that both varied substantially from the explicit prices and, more important, changed less than explicit prices in 1978 and 1979. Thus the price increases in 1978 and 1979 brought very little change in cotton sown area, yields, and production. In 1978, when the price of cotton vis à vis grain went up 11%, cotton area went up half a percent. In 1979 when the price of cotton and grain both rose but the relative cotton price declined 5%, the area sown to cotton fell 7%. Overall in 1978-79 the price of cotton rose in absolute terms 25.4% in central China, 31.8% in North China and rose 4.5 and 10%, respectively, relative to cereals; but reported sown area declined and output went up less than 10%./1

In my view the relatively small response in cotton acreage and output to higher prices was because internal constraints on specialized production had not been relaxed. In areas of historic specialization in cotton production, such as northwest Shandong, southern Hebei, and northern Henan, the implicit price of cotton had not changed since adequate external supplies of grain were not available, a legacy of the cereal self-sufficiency policy initiated in 1966. In 1980 external supplies of grain were guaranteed to cotton producers and the price of cotton was raised 15% in North China. Cotton sown area in northwest Shandong rose 54%. But most of the jump in area likely would have taken place without the final price change, the increased availability of cereals was more important. Formulated alternatively, the change in the implicit price of cereals in 1980 far exceeded the adjustment in the explicit price. Similar policies were followed elsewhere - the state sold about 500,000 tons of cereals to cotton producers in 1980. Nationally cotton sown area and output rose 9 and 23%, respectively. In 1981 when the provision of cereal supplies to cotton producers was continued, the increases were a further 4 and 10%, respectively.


4.08 It is difficult to evaluate the price adjustments undertaken since 1977 since it is unclear what the objective function of the leadership has been. Perhaps the goal simply was to raise farm income, not to affect the allocation of resources, and should be judged on that basis. Yet it is difficult to explain the specific pattern of price changes in 1978-1981 simply with reference to income objectives. The pattern of price changes is far more complex than an income goal alone would require. However, if the objective was to influence resource allocation, it was thwarted partially, at least in 1978 and 1979, by the failure to relax the marketing constraints that inhibited increased specialization. Moreover, by 1981 cropping patterns again appear to be subject to more direct quantitative controls. That, in turn, may be a consequence of the unwillingness of the state to raise grain prices further because of the growing budgetary subsidy that would require. It may be that the delayed response of commercial crop producers to 1978 and 1979 price changes led, ultimately, to prices for these crops that are somewhat too high, given the mix of output desired by the planners.

5. INPUT-OUTPUT PRICE RATIOS

5.01 Analysis of input-output price relations is more difficult than the analysis of relative crop prices in Section 4 of this paper. Input price data are less readily available and frequently are ex-factory prices. Since, as will be discussed below, mark-ups at the distribution stage can include specific significant rents, ex-factory prices cannot be used in analysis of input-output price relations. Even prices at the farm level may reflect subsidies that vary from place to place. A large number of such prices from geographically dispersed locations is required to gain a sense of the average price faced by producers. Even for products for which the prices to producers are well known and not subject to these ambiguities, it is sometimes difficult to establish the comparability of domestically produced farm inputs in China with inputs manufactured in other countries or traded internationally. The latter problem, for example, is severe for Chinese machinery, which tends to be characterized by a high ratio of weight to horsepower, low fuel efficiency, etc. Prices for a few more homogenous products such as urea and ammonium sulfate fertilizers, diesel fuel, and electric power, are available. Before examining any input-output price ratios it is useful to begin by looking at the relationship between production cost and selling price of chemical fertilizers.

A. Urea

5.02 Chemical fertilizer is analytically the most interesting input to examine because it is the single most important purchased input, not only in
China but in most Asian countries./1 For chemical fertilizer produced at the Wolidun plant associated with the Daqing oil field, one of China's 13 large-scale imported ammonia-urea complexes, the price charged to peasants by supply and marketing cooperatives has been disaggregated into production costs and various markups./2 The basic production cost is 150 yuan per ton of urea. Profit of 200 yuan per ton is added to this, leading to an ex-factory price of 350 yuan./3 Beyond this there are commercial costs of 64 yuan (including transport, working capital and management costs), an earmarked profit of 16 yuan that accrues directly to the provincial government and an earmarked profit of 19 yuan for the commercial system. Thus, the farmgate price is 450 yuan per ton. Because the technology, input prices, and output price at the other large-scale imported plants are probably similar, this cost and mark-up structure may be characteristic of most of the urea produced in China./4

5.03 The differential between production cost and farm level price is thus 300 yuan, of which only 64 yuan is said to cover transport, distribution, and capital costs. Profits per ton are 235 yuan per ton, or 155% of production costs and 110% of total costs. Since Chinese accounting procedures understate the costs of fixed capital, the economic profit is less than the financial profit that this cost structure generates. But even

/1 Based on the farm gate prices per unit of nitrogen in the form of urea (.978 yuan per kilogram of nutrient) and in the form of ammonium sulfate (1.68 yuan per kilogram of nutrient) and data on nitrogen fertilizer production in 1980, outlays for nitrogen alone constituted about 40% of total farm purchases of agricultural producer goods.


/3 A price of 350 yuan per ton appears to be the national unified ex-factory price for urea.

/4 It is possible that the input prices faced by plants using a different type of feed stock from that at Wolidun might be different.
if we take this into account, the rate of return on capital invested in these plants is quite high.\(^1\)

5.04 In view of the uncertainties in evaluating the price-cost relationship, it is also useful to examine the ratio of the price of nitrogen to the price of rice paid to farmers. The comparison is complicated by the dual purchase price policy for rice and other cereals. Analytically it may be most appropriate to use the marginal (over-quota) price of rice to calculate the nitrogen:rice price ratio when analyzing the efficiency of utilization of inputs and the average price (a weighted average of the quota and overquota prices, see Table 2.5) in examining the role of relative prices in transferring resources intersectorally.

5.05 In international comparative terms the nitrogen:paddy rice price ratio in China was relatively high throughout the 1960s and 1970s. In 1976, for example, the average relative price of nitrogen in the form of urea was 4.4 units of rice,\(^2\) the highest of any country in Asia, including Thailand.

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\(^1\) Production costs of 150 yuan per ton of urea probably understate the real cost of capital. In state industrial enterprises, production costs typically include only a 5% depreciation charge, certainly an understatement of the opportunity cost of capital even in an economy with little price inflation. Christine Wong estimates the capital cost per ton of annual nutrient output in China's 13 modern large-scale urea complexes at 650-730 yuan. ("Rural industrialization in the People's Republic of China," unpublished, April 1981). That is inclusive of the costs of imported machinery and equipment, engineering charges, and an additional 80 to 100 percent for site construction and infrastructure costs. The 235 yuan in financial profits per ton of urea or 510 yuan (= 235 + .46) per ton of nutrient suggests a rate of return on fixed capital of about 70-80%, in addition to depreciation charges already included in costs. Using a shadow price for foreign exchange that was a multiple of the official exchange rate, of course, would raise the estimate of capital costs measured in yuan and reduce the calculated rate of return.

\(^2\) The cost of nitrogen in the form of urea is .978/kg [= (450 yuan/ton x 1,000 kg/ton + .46 kg of nitrogen/kg of urea). The quota price of rice (an average of japonica and indica varieties) was .1962 yuan/kg (see Table 2.1) and the average price received for cereals sold to the state was 113 to 114% of the quota price (see Table 2.5. I am assuming the ratio of the average to the quota purchase price for all cereals is representative of the same ratio for rice. .978 + (.1962 x 1.13) = 4.41.
where a rice export tax depressed the domestic price of paddy relative to the international price.\(^1\) The relative price of nitrogen in China was more than twice as high as in Bangladesh, Burma and Sri Lanka, twice the price in India, and almost six times the price in Taiwan Province. Even for Chinese producers who sold part of their output at the 30% over-quota premium, the marginal relative price of nitrogen, 3.8 units of rice,\(^2\) exceeded all countries but Thailand.

5.06 Since a significantly lower fertilizer price might have led to excess demand in the short run, the substitution of the relative international for domestic price may not have been warranted. Yet there is some evidence that there was substantial excess supply of chemical fertilizers at the prices prevailing in the mid-1970s. That was evident not in the accumulation of unsold stocks, but in bureaucratically determined levels of input usage that were in excess of those warranted on the basis of economic returns. County and lower level bureaucrats specified levels of chemical fertilizer usage higher than optimal on economic criteria since their performance was judged on the basis of absolute yields rather than the efficiency of resource use. Some production teams were supplied with arbitrarily high quantities of fertilizer, the cost of which the state deducted from their revenues, converting what is usually a variable input into a fixed cost.

5.07 If excess supply was limited to a few localities, rather than a general phenomena, and production units had more discretion over the level of their input usage levels than the above description implies, then the sustained disparity between domestic and international price relatives suggests that state policy of overpricing chemical fertilizers and underinvesting in additions to production capacity not only transferred resources out of agriculture but also depressed the long-term rate of growth of farm output. Historically, allocating a larger share of domestic investment to expand chemical fertilizer production capacity would have allowed the state to reduce the relative price of fertilizer more rapidly, without creating excess demand. That would have stimulated peasants to increase the application of fertilizer more rapidly than occurred, leading to faster growth of agricultural output.


\(^2\) \(0.978 \div (0.1962 \times 1.3) = 3.83\).
5.08 Price adjustments since 1979 have reduced somewhat the overpricing of urea fertilizer. Because of the increase in the quota and marginal delivery price and the increase in the share of cereals delivered at the higher marginal price (Table 2.5) the average price of grain sold to the state in 1981 was almost 40% greater than in 1976 and the average nitrogen:rice price ratio dropped to 3.2:1.\footnote{1} The marginal price ratio was 2.8:1.\footnote{2} The average nitrogen:rice price ratio remains more than twice the international level, where nitrogen in the form of urea and rice trade at roughly a ratio of 1.4:1, or about 1:1 when rice is priced in milled form.

B. Ammonium Sulfate

5.09 Nitrogen in the form of ammonium sulfate is more overpriced than urea, both at the factory and at the farmgate. That is surprising because in international markets the price per unit of nutrient in these two products is usually quite close, since they are good substitutes.\footnote{3} The ex-factory price per kilo of nitrogen in the form of ammonium sulfate is 0.889 yuan,\footnote{4} as opposed to 0.761 yuan/kg of nitrogen in the form of urea.\footnote{5} At the farmgate level, one kg of rice is equal to 0.67 kg of ammonium sulfate,\footnote{6} a nitrogenous fertilizer with 20.8% nitrogen content. That

\[
0.978 + (0.1962 \times 1.20 \times 1.3) = 3.195, \text{ where 20\% is the average increase in the quota price of japonica and indica rice in 1979 (Table 2.1) and 1.30 is the ratio of the average to the quota price of cereals in 1981 (Table 2.5.) Again, I am assuming the ratio of the average to the quota purchase price for all cereals is representative of the same ratio for rice alone.}
\]

\[
0.978 + (0.1962 \times 1.20 \times 1.5) = 2.77.
\]

\footnote{3} For example, the fob cost per unit of nutrient of the urea and the ammonium sulfate that China imported from Japan in the first nine months of 1981 were, respectively, US$550 and US$595, a difference of 8%. Japanese External Trade Organization, China Newsletter No. 35 (November-December 1981), p. 30.


\footnote{5} (350 yuan/ton of urea x 1,000 kg/ton) + .46 kg of nitrogen/ton of urea = 0.7608 yuan/ton of nitrogen at the ex-factory level.

\footnote{6} Jia Xiuyan, op. cit., p. 15.
implies a farmgate price of .35 yuan/kg of fertilizer in gross weight\(^1\) or 1.68 yuan/kg of nitrogen, more than two-thirds greater than nitrogen in the form of urea. The calculated farmgate price is quite close to the ammonium sulfate price that was reported by western delegations that have visited varying rural locations in China.\(^2\) In Japan a kilo of rice is the equivalent in value of 8.5 kg of ammonium sulfate. Thus, the Chinese relative price of nitrogen in the form of ammonium sulfate is more than 12 times the Japanese price. Discounting for the fact that the Japanese price of rice is about three times the world price, suggests the price of nitrogen in the form of ammonium sulfate in China is about four times the world price. This ratio is confirmed by a direct comparison of the relative prices of nitrogen (in the form of ammonium sulfate) and rice in Chinese domestic and international markets. The average Chinese domestic price relative in 1981 was 5.5:1, almost four times the relative price in the international market.\(^3\)

Moreover, while the Chinese frequently report that the price of industrial goods sold in rural areas has declined substantially over the last 25 years, that was true for urea but not ammonium sulfate. The ex-factory price of urea was 1,000 yuan in 1957, 540 yuan in 1965, 400 yuan in 1970 and 350 yuan in 1978, a decline that also has been reflected in the farmgate price. The ex-factory price of ammonium sulfate, in contrast, has been unchange. It was 184 yuan/ton in 1957 and 1965 and 185 yuan/ton in

\(^1\) .35 yuan (= 2.35 yuan/kg rice + .67 kg fertilizer/kg rice.


\(^3\) 1.68 yuan/kg of nitrogen in the form of ammonium sulfate (+ .1962 x 1.2 x 1.3) = 5.49. The price of milled rice fob Bangkok was about US$535 in the first half of 1981 and the price, fob Japanese ports of ammonium sulfate was US$595, a ratio of roughly 1:1 compared to the Chinese ratio (converted to a milled rice basis) of about 3.8:1 (5.49 x .7 = 3.84).
The farmgate price was .34 yuan/kg in 1955, .32 yuan/kg in 1975, and about .35 yuan in 1979-80. No declines have been reported since 1980.

The disparity in the price structure for urea and ammonium sulfate arises since ammonium sulfate is produced in plants managed at the county and prefectural levels, while large-scale urea-ammonia complexes are under direct national (or provincial?) management. County and prefectural authorities have been loath to cut the price of ammonium sulfate since they are able to retain some of the from the sale of ammonium sulfate profits for reinvestment in other local projects and they have traditionally had a guaranteed "market" for their output via orders from local cadres anxious to increase the absolute level of yields with little regard for costs. Whether they have been able to continue to sell their output under the more liberalized rural conditions that now prevail, in which levels of input usage are determined by farmers, is not clear. At least in some regions farmers are reluctant to accept ammonium sulfate fertilizer, preferring to utilize urea when it is available.

The implicit tax burden arising from the overpricing of nitrogenous fertilizer relative to the world price, estimated below, is about three times the explicit agricultural tax. Production of nitrogen in terms of

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3 Rural Small-Scale Industry in the People's Republic of China, Appendix E.
nutrient weight was 10 million MT in 1980. Assuming, as a rough estimate that the average price per kilogram of nutrient is the unweighted average of the urea (.978 yuan) and ammonium sulfate (1.68 yuan) prices, or 1.33 yuan and that the average price of unit of nitrogen is two and a half to three times the world price (a conservative estimate), peasant payments for nitrogen in excess of the relative world price were 8.0 to 8.8 billion yuan. The agricultural tax in 1980 was about 3.0 billion yuan. The implicit tax burden also may be judged by comparing it to state budgetary expenditures for investment in fixed and working capital in agriculture, 6.6 billion yuan in 1980, or to internal reinvestment by agricultural production units, 6.348 billion yuan in 1979.

C. Diesel Fuel

5.13 Diesel fuel pricing is more complex. The state price to users varies from region to region from a peak of 500 yuan to a low of 300 yuan/ton, the latter price prevailing, for example, in Sinkiang in the late 1970s. Moreover, prices to users are reduced below the state-fixed price by subsidies which also vary by region.

5.14 In Xinjiang and Hubei (the two provincial level units for which I have seen published data) the subsidies to farmers are now respectively 145 and 130 yuan/ton. In Hubei the subsidy was increased from 90 to 130 yuan/ton.

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/1 State Statistical Bureau, "1980 Plan Fulfillment Communique."

/2 The direct agricultural tax was 3.4 billion yuan in 1979 and was reduced by several hundred million yuan in 1980.

/3 State investment expenditures from Wang Bingqian, "Report on the State's 1979 Final Account, 1980 Draft State Budget, and 1981 Estimated State Budget." People's Daily September 13, 1980. Internal accumulation funds reported in Chinese Agricultural Yearbook 1980, pp. 282-283. The comparison with internal collective agriculture reinvestment is made with 1979 rather than 1980. In 1980 and 1981 internal reinvestment by collective units fell sharply presumably because, under the household responsibility system, a larger share of income is being distributed to households. They, in turn, are either consuming more or undertaking private investments not included within the scope of internal collective investment.


/5 Xinjiang Regional Service, op. cit. and Zhang Guofan, op. cit., p. 15.
yuan/ton in 1972. In Xinjiang the report of a 145 yuan subsidy and a 155 yuan price to agricultural users is for 1978, but there is no indication of the history of the level of the subsidy.

5.15 Prices to agricultural users in the mid-1970s were usually quoted at .25 to .28 yuan/kg confirming that subsidies in some regions reduced the price below the 300-500 yuan/ton official price. At the wheat procurement price prevailing in the mid-1970s, the receipts to farmers from the sale of a ton of wheat at the quota price would have been almost exactly equal to the cost of a ton of diesel fuel. Internationally at that time the wheat: diesel fuel price ratio was about 1.1:1. Thus, by international standards diesel fuel was not overpriced in the mid-1970s.

5.16 Because internationally the price of diesel fuel has risen more than the price of wheat and the domestic procurement price of wheat has risen while the price of diesel fuel is unchanged, diesel fuel to agricultural users in China now appears significantly underpriced. Several reservations should be noted. First it is possible that the subsidy in other provinces is lower and thus the average price paid by farmers higher than the analysis above suggests. Second, a portion of Chinese agricultural machinery is gasoline powered. Internationally at the wheat procurement price prevailing in the mid-1970s, the receipts to farmers from the sale of a ton of wheat at the quota price would have been almost exactly equal to the cost of a ton of diesel fuel. Internationally at that time the wheat: diesel fuel price ratio was about 1.1:1. Thus, by international standards diesel fuel was not overpriced in the mid-1970s.

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/1 Rural Small-Scale Industry in the People’s Republic of China, Appendix E.

/2 Rural Small-Scale Industry in the People’s Republic of China, Appendix E.

kerosene:wheat price ratio was 3.75 times the world ratio. From the point of view of subsidizing farm income the direct effect of the subsidy is the same, regardless of where the fuel is used. However, the supplies of fuels are limited so that quantity used in agricultural production may still be less than optimal.

D. Electricity

5.17 Like diesel fuel, the unified state price of electricity is high, but subsidized to agricultural users. International comparisons, however, are more tentative since electricity is a non-traded commodity and the economic cost of domestic production in China is not known. One price observation I have seen, .03 yuan/kilowatt, appears quite low. If this price were representative of that faced by agricultural producers, electricity would be underpriced in China. A kilowatt of electricity would be the equivalent in value of only a tenth of a kilogram of wheat, whereas in the US its value equals approximately one-third to one-half of a kilogram.

5.18 Unfortunately, this price is for electricity in Dazhai, China's now discredited model brigade in Shanxi province. Since in retrospect much of its achievements was the result of assistance from the government (both financial and technical), there is reason to believe that its electricity subsidy rate, roughly 50%, may have been higher than that enjoyed in most other regions. Analysis of this case will depend on a better sample of prices to users.

F. Machinery

5.19 Prices paid by users for a few models of machinery are known but quality judgments are difficult to make. Prices for three important tractor models are shown in Table 5.1. All three of these prices seem rather high. Seventy tons of rice in the US in recent years would earn 30,000 to 35,000 dollars. The post-1979 price in China of 56 tons of rice is equivalent to 29,000 dollars, with which one could probably purchase a tractor considerably superior to most products available on the Chinese domestic market. The


/2 *Rural Small-Scale Industry in the People's Republic of China*, Appendix E.
Table 5.1: PRICES OF CHINESE AGRICULTURAL MACHINERY

<table>
<thead>
<tr>
<th>Model</th>
<th>Ex-factory price</th>
<th>Price to purchaser</th>
<th>Equivalent 1978 &amp; 1979 &amp; 1979 &amp; 1979</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ex-factory price</td>
<td>before after</td>
<td>before after</td>
</tr>
<tr>
<td></td>
<td>(yuan)</td>
<td>1978 1979 1979 1979</td>
<td></td>
</tr>
<tr>
<td>Tractor 55 hp &quot;Iron oxen&quot;</td>
<td>12,000 14,000</td>
<td>70 tons (56 tons rice)</td>
<td>(56 tons rice)</td>
</tr>
<tr>
<td>Tractor 28 hp &quot;East is Red&quot;</td>
<td>/a (7,000)</td>
<td>35.5 tons rice 29.6 tons rice</td>
<td></td>
</tr>
<tr>
<td>Walking tractor</td>
<td>2,300 4,700</td>
<td>15.35 tons (21.7 tons highest grade wheat)</td>
<td></td>
</tr>
</tbody>
</table>

/a Not specified.

/b Calculations in parentheses by author.


smaller, more popular 28 hp model appears overpriced. The Chinese point out that a 20 hp model tractor that is similar to the 28 hp East is Red model could be purchased in Japan for the equivalent of 5.5 tons of rice in 1978—less than a sixth of the Chinese price. That comparison neglects to mention that the Japanese maintain the domestic price of rice at two to three times the world level. Discounting for this suggests the relative price of the tractor is at least twice the world level. The price after 1979 still seems high. Thirty tons of rice would earn more than US$13,000 on the world market in 1980.
5.20 Walking tractors, of which 200,000 to 300,000 have been produced annually in China for the last several years, appear to be the least overpriced. After the 1979 procurement price increase, such a tractor cost the equivalent of almost 13 tons of high quality wheat. In terms of rice the price is somewhat above the price of a power tiller in India.

G. Input Subsidies

5.21 Aggregate subsidies of agricultural inputs in 1981 were 4.5 billion yuan,\(^1\) apparently mostly for electricity and diesel fuel. It is difficult to interpret this number since, as the discussion above makes clear, there is little systematic relationship between state set prices and production costs. Thus, subsidies do not represent price reductions below economic cost, but rather reductions below administered financial prices. Moreover, there is no evidence on the magnitude of input subsidies prior to 1981, so it is not possible to judge whether subsidies have increased in recent years. In any case since total farm outlays for industrial inputs in 1980 (the most recent year for which data are available) were 35 billion yuan, the input subsidies seem quite modest.

\(^{1}\) Liu Zhuofu, "How should we view our current market price problems?" op. cit., p. 34.
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Yale University Press, 302 Temple Street, New Haven, Connecticut 06520, U.S.A. 1975. xi + 204 pages (including 10 appendixes, references, index).


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