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INTERSECTORAL RESOURCE FLOWS IN CHINA REVISITED: WHO PROVIDED INDUSTRIALIZATION FUNDS?

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I. INTRODUCTION

A good deal of discussion has taken place concerning the role of agriculture in capital accumulation within a national economy. Many scholars have been attracted in particular to the issue of resource (or capital) flows between the agricultural and industrial (or nonagricultural) sectors, with much of their discussion centering on whether or not agriculture transfers relatively more resources and funds to industry (or nonagriculture) during the process of economic development and what factors determine such flows.

During the 1970s Western researchers specializing in the Soviet economy re-examined, in the context of the socialist economies, the so-called "socialist primitive accumulation" hypothesis as proposed by Preobrazhensky [25], who insisted on the necessity of exploiting agricultural surplus for industrialization. Millar, Ellman, and others tested its validity and reality for the initial stage of Soviet industrialization.[1] According to Millar [16], there was no net capital flow from the Soviet agricultural sector for the period concerned. In terms of development theories, Ranis and Fei [26] proposed a rough accounting framework of intersectoral resource flows. This was later developed by Ishikawa [9] who advanced a new hypothesis that agriculture in today's developing countries requires a net resource flow from the nonagricultural sector since the agricultural sector has no firm basis to provide surplus for industrialization. Li, Mundle, and others participated in empirical testing of Ishikawa's hypothesis,[2] and according to Li [13], who examined Taiwan's economy, agriculture did contribute a substantial portion of capital investment in that country's development.

The above studies indicate that the validity of a hypothesis would depend in part on the country and period selected for empirical tests. And in our view it would also depend on the methodology employed in these tests, as well as the definition of sectors and resources.

This paper intends to calculate the intersectoral resource flows in China's history of industrialization using a more rigorous methodological framework, and to revisit those hypotheses from today's vantagepoint.

I am indebted to anonymous referees of the journal for valuable comments on the earlier draft of this paper. Any remaining errors and mistakes are entirely my own. This paper is a summary of my study published in Japanese in 1988 (see [23]).

[1] See, for instance, [16] [17] [18] [4] [5] [29] [6] [24] [27].

[2] See [13] [15] [19] [20] [21] [28].

Ishikawa's pioneering study [10] of intersectoral flows within the Chinese economy of the 1950s was published in 1967. Since then several other studies dealing with this issue have appeared,[3] but there has been no exhaustive positive analysis developed, probably due to the shortage or lack of necessary statistical data.[4] Today, China's statistical materials, though still limited, have become more available, and we are now in a better position to make quantitative estimates of the long-term resource flows between sectors within the Chinese economy.

Section II of this paper presents three different approaches for evaluating a net resource flow and four ways of demarcating sectors. In Section III, estimates are made of the intersectoral resource flows based on a "trade surplus" approach, and those based upon a "savings surplus" approach are dealt with in Section IV. The final section presents our tentative conclusions and discusses where China actually gets the funds it needs to industrialize its economy.

II. APPROACHES AND SECTORAL DEMARCATIONS

A. *Approaches*

If an economy consists of two sectors, A (agriculture) and N (nonagriculture), there are at least three approaches toward measuring intersectoral resource flows depending on the nature of "resources."

(1) Trade surplus approach

One approach is to imagine a resource transfer relation between the two sectors as a trade balance analogous to that in foreign trade. If sector A exports to sector N by the amount of E, while sector A imports from sector N by the amount of M, A's trade balance B is $E - M$. Mundel [20] likened B to a "trade surplus," and hereafter we will call it the same.

If trade balance B is taken in real terms, the real trade surplus B' can be broken down into "visible flows" and "invisible flows" as was done by Ishikawa [10]. When sector A's export price index is pe and its import price index pm, then

$$B' = E/pe - M/pm = (E - M)/pe + M/pe(1 - pe/pm)$$
$$\text{or} \qquad = (E - M)/pm + E/pe(1 - pe/pm). \tag{1}$$

The first term on the right-hand side of equation (1), $(E - M)/pe$, is called "visible flows," while the second term, $M/pe(1 - pe/pm)$, is "invisible flows." The price ratio pe/pm becomes the terms of trade index.

(2) Savings surplus approach

Another approach is to regard the net intersectoral surplus flows as corresponding to the current account balance in international trade, V. This consists of the balance of trade, B, and the sum of the invisible trade balance plus the net transfer payments, R. Thus $V = B + R$.

As occurs in the money flow system of a national economy, investment minus

[3] Hayashi [7], Imaoka [8], and Lardy [12] are among the few studies dealing with this issue.

[4] Ishikawa has recently reconsidered this issue within a comparative framework and with new data. But his methodology is quite different from ours employed in this study. See [11].

savings is equal to increased financial debts minus increased financial assets. Therefore,

$$I_a - S_a = dD - dA, \tag{2}$$

where I_a is sector A's investment, S_a its savings, dD its increased debts, and dA its increased assets. At the same time, as in international balance of payments, the current account balance is equal to the net increased assets to the foreign sector. This gives us the following equation:

$$V = dA - dD. \tag{3}$$

Thus, $V = S_a - I_a$. Consequently, it is not unreasonable to call V a (sector A's) savings surplus in accordance with Mundle [20].

(3) Value surplus approach

A third approach is to measure the net transfer of commodity value from sector A to sector N. Preobrazhensky insisted on exploiting agricultural surplus through an "unequal exchange" between the two sectors by setting the price of agricultural products intentionally lower than the level of their true "value" as understood in the Marxist sense. Many Chinese scholars have tried to calculate the amount of value which the peasants lost as a result of "irrational official pricing" in their commodity trade with the government/industrial sector.[5] But since the "value" of commodities, however it is defined, depends on a certain kind of value judgment, it is worth stressing here that no objective calculation of intersectoral transfers based on this approach is possible. Market clearing prices could be used as another standard measure to evaluate allocative losses involved in the so-alleged "irrational official prices." Lardy [12, Chap. 4] made an international comparison of rice/fertilizer price ratios to illustrate the relative lowness of China's agricultural prices. But particular price ratios in certain other countries can not necessarily be a good measure of a should-be price structure for China. Moreover, given the long held policy of resource immobility among regions, it is not easy to assess on the basis of "market equilibrium" the extent of "irrationality" in Chinese domestic agricultural prices. Therefore, this type of approaches was not employed in this study which was made in an attempt to calculate the objective amount of intersectoral transfers.

B. *Demarcations: The Different Definitions of Sector A*

More difficult than approach is the question of how to demarcate sectors A and N. At the initial stage of the socialist industrialization debate and development theories, this was not a real problem since it was usually assumed that all members living in the countryside were agriculturists, who engaged in agriculture alone. But once we try to make an empirical test of Preobrazhensky's or Ishikawa's hypothesis for particular areas and specific periods, a question arises as to how we should define the A or N sector. It seems to us that there are several possible

[5] See, for instance, Chen [2] and Li [14]. Nakagane [22] critically considers from a theoretical aspect the so-alleged "price scissors" proposition.

alternative definitions for sector A in terms of its activity, bearing in mind that our focus in this paper is on China.

Agricultural sector. This sector consists of agricultural production, investment, and consumption by the households and all their members engaged in such activities. It varies in its coverage depending on the definition of "agriculture." In Chinese official statistics up to 1984, "agriculture" included not only crop farming, forestry, animal husbandry, and fishery, but also sideline productive activities done by brigades (or villages) and lower administrative units in conjunction with industry. In this paper agriculture including all sideline industrial activities is called "agricultural sector in the broad sense," while agriculture excluding sideline industrial activities is called "agricultural sector in the narrow sense."

Farm sector. This sector comprises every kind of productive activities by the households engaging in agricultural production plus consumption by all members in these households. If all of the rural households are organized into collectives, both production and consumption activities by these collectives should be included in this sector. In China many households carry on nonagricultural activities especially during the off seasons and some members in the households are employed in cities, sending a portion of their earnings to their families. Therefore it is extremely difficult to separate such nonagricultural revenues from their total income of these families.

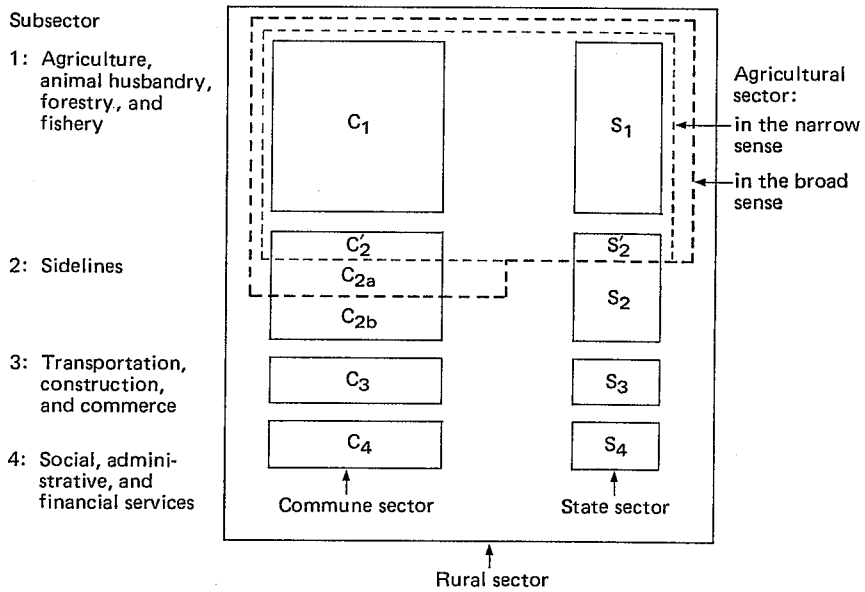
Rural sector. If we regard a geographical area in which farm households gather in space as a village, then there should be a sector consisting of production and consumption activities by all of the residents living in the village. Therefore, even certain types of nonagricultural activities, such as rural industry and service, are included in this sector. Since in China rural enterprises called "township and village enterprises" have developed to a remarkable extent with increasing numbers of workers specializing in such nonagricultural activities, the gap between the "rural sector" and "farm sector" is widening.

Commune sector. It is also possible to define sector A on the basis of ownership, rather than the nature of industry or area of its activities. Although the people's communes in China had been disbanded by 1984, we can imagine a sector consisting of activities formerly done by the communes and their members, as against those done by the state farms. On China's state farms today, agricultural production is increasingly born by their member households as in the collective sector, but individual activities within such a state sector should be included in the N sector.

An interrelation among the four different definitions of sector A, except for the farm sector, is depicted in Figure 1. Of course, the real situation in rural China is much more complicated, since, for example, such enterprises cross different types of ownership as "new economic unions" have been created and are now expanding in rural China.

Which type of sectoral demarcations is to be employed to calculate intersectoral resource flows depends on the purpose of this study and the availability of necessary data. In our view, there could be no single standard of sectoral demarcation for the sake of testing either Preobrazhensky's or Ishikawa's hypothesis.

Fig. 1. Different Definitions of Sector A



Note: The definitions of sector A are made on the basis of production or activities. Both C'_2 and S'_2 are private sidelines. C_{2a} shows industry run by brigades or village and lower administrative levels. C_{2b} shows industry run by communes or township and their equivalent administrative levels. C_3 consists of activities in transportation, construction, food and catering services, and commerce in which collectives or individuals are engaged. S_3 means such activities done by state farms. C_4 indicates activities of rural clinics, schools, credit cooperatives, and other social, administrative services in the communes or townships. S_4 shows activities of schools, hospitals, and various agricultural extension services attached to state farms or provided by the state.

Taking the "rural sector" as an example, we need to remember that what Preobrazhensky actually insisted on was confiscation of a portion of the surplus value of rural and handicraft products. He called for "accumulation at the sacrifice of non socialist sectors," not "exploitation" of agriculture itself. Moreover, it is very effective to see how the countryside as a whole contributes to raising investment funds in a national economy, as well as to industrializing it. Equally important is to see what role the agricultural farm plays as one of the major sources of national saving.

When we focus on China, we find it impossible to get a consistent series of data on investment, sales, purchases, population, and work forces, whichever type of sectoral demarcation referred to above is employed. Therefore, we have to rely on a great number of estimation in order to achieve statistical consistency in the data. This is one of the main reasons why we reconsider the issue of intersectoral resource transfers with various sectoral demarcations and from different approaches.

III. INTERSECTORAL RESOURCE FLOWS IN CHINA: TRADE SURPLUS APPROACH

In this section we shall estimate the three types of "trade surplus" of sector A. We first estimate the volume of trade surplus of the agricultural sector in the narrow sense, then extend it to cover the agricultural sector in the broad sense, finally proceeding to the trade balance of the rural sector.

A. *Trade Surplus of the Agricultural Sector in the Narrow Sense*

The biggest problem in estimating this kind of surplus is how we should treat the inner trade between this sector and other nonagricultural subsectors in the rural area. For instance (see Figure 1), subsector C_1's sale of raw materials to subsector $C_{2(a+b)}$ must be regarded as the former's export, while subsector C_1's purchase of farm implements from subsector $C_{2(a+b)}$ must be treated as its import. If we could assume that every commodity is commercialized in rural China so that, for instance, all of the farm implements subsector C_1 demands are bought from the official commercial network, then we need not worry about such rural inner trade, because the sale of these implements would be counted in rural retail sales. But it seems very natural to assume that there must exist some uncommercialized, thus statistically veiled, trade between these subsectors, since subsector $C_{2(a+b)}$ was originally derived from subsector C_1. However, at present we have no firm statistical material for estimating such unmonetary inner trade, therefore we cannot help but assume that there is no, or very little, such trade in the Chinese countryside.

Since the amount of the export of the agricultural sector in the narrow sense may well be represented by the "purchases of farm and sideline products" (*nongchanpin shongou zonge,* hereafter abridged as NSZ) figure, what will be required here is to estimate its import by revising the statistics for "rural retail sales of social commodities" (*xiangcun shehuishangpin lingshow zonge,* hereafter abridged as XSLZ).[6] This revision entails the elimination of several items from this statistics, since they cover all purchases by the rural sector as a whole. First of all, the amount of consumption by the workers in subsectors $C_{2(a+b)}$, C_3, and C_4 in Figure 1 must be eliminated. Second, the amount of food and catering service in the rural area should be subtracted from the XSLZ figure, because most of the consumers of such service are undoubtedly peasants and their family, and as a result this type of service trade should be treated as inner trade within the sector concerned. Third, the amount of consumption goods that workers and employees of state farms and other institutional organizations buy directly from their organizations also needs to be eliminated from the XSLZ.

If we subtract the total of these volumes of intra-sector trade from the XSLZ figure, the balance is supposed to be nearly equal to the import of the agricultural sector in the narrow sense from the other sector. Consequently, the balance

[6] See Appendix for these two key Chinese statistical figures.

between this amount and the NSZ can be regarded as the trade surplus of the sector. The estimated results are in Table I.

It can be seen from this table that except in the early 1960's when there was an export surplus for the agricultural sector in the narrow sense, the intersectoral flows had been almost balanced until 1968, but they began to turn against the sector from 1969 on. It is quite apparent why the sector was faced a "trade deficit" in the early 1960s. At that time the state was not able to reduce supplies of both producer and consumer goods to give production incentives to the sector, while at the same time it was not allowed to procure the same volume of farm products as before although the sector was now caught up in the turmoil following the Great Leap Forward.

The reason for the sector's import surplus since 1969 seems to be very structural. It may suffice here to point out several possible factors associated with this trend: increased modern inputs in agricultural production (probably due to the decreasing returns in agriculture), decreased reliance on agricultural products as industrial materials, i.e., development of industrial substitutes such as chemical fibers for cotton, and decreased Engel's coefficient in the nonagricultural or urban sector.

B. *Trade Surplus of the Agricultural Sector in the Broad Sense*

As stated above, the agricultural sector in the broad sense includes productive activities by the subsector of village or brigade and team industry. Therefore this subsector's trade with the nonagricultural sector must be taken into consideration. As noted in the Appendix, the NSZ figure does not include the output value of small rural industrial firms, and the XSLZ statistics do not cover the value of their inputs. Therefore, an independent estimation of their trade with the nonagricultural sector is required, but this is very difficult to do because of the shortage of relevant data. To overcome this difficulty we adopted a method of estimation utilizing the 1981 input coefficients of the "sideline" sector in its transactions with the nonagricultural sector. We realize that this method is open to question. For one thing, it is doubtful if such technical coefficients can be assumed to remain constant over time. For another, such sideline activities that appear in the 1981 I-O table do not completely correspond with the village and the lower level industries which are part of the agricultural sector in the broad sense.

As in the case of the agricultural sector in the narrow sense, the problem of uncommercialized inner trade within the rural sector also arises, such as free exchange of products among village factories in the same localities. But again we assume that this sort of inner trade does not exist as in the previous case.

Adding the net trade surplus of the village and the lower level industries to the estimated trade surplus of the agricultural sector in the narrow sense leads to the trade surplus of the agricultural sector in the broad sense. The result is shown in column 4 of Table II.

We can draw two findings from this table. First, although the sector's trade deficit decreases in absolute value when the sectoral coverage is widened, it continues to persist from 1969 on. Second, however, there is no trend of increasing trade deficit which was observed in the agricultural sector in the narrow sense

TABLE I

TRADE SURPLUS OF THE AGRICULTURAL SECTOR IN THE NARROW SENSE

(100 million yuan)

	Total Amount of Rual Retail Sales of Social Commodities (XSLZ) (1)	Total Sales of Agricultural Producer Goods in XSLZ (2)	Rural Retail Sales of Consumer Goods (1) − (2) (3)	Rural Sales of Catering Trade (4)	Material Consumption by Nonagricultural Workers in the Commune Sector (5)	Intrasectoral Material Consumption by the State Farm Population (6)	Imports of the Agricultural Sector in the Narrow Sense (1) − (4) − (5) − (6) (7)	Total Amount of Purchases of Farm and Sideline Products (NSZ) (8)	Trade Surplus of the Agricultural Sector in the Narrow Sense (8) − (7) (9)
1952	151.2	14.1	137.1	10.8	5.3	0.5	134.6	140.8	6.2
1953	179.8	19.2	160.6	11.6	5.9	0.5	161.8	166.8	5.0
1954	202.5	25.0	177.5	13.3	6.8	0.5	181.9	191.0	9.1
1955	209.0	28.2	180.8	15.4	6.7	0.6	186.3	195.2	8.9
1956	234.0	37.0	197.0	17.0	10.0	0.7	206.3	192.2	−14.1
1957	235.8	32.6	203.2	17.5	8.9	0.7	208.7	217.5	8.8
1958	292.1	66.8	225.3	18.5	33.6	1.8	238.2	229.8	−8.4
1959	315.2	81.5	233.7	17.0	28.4	2.7	267.1	279.2	12.1
1960	326.8	101.5	225.3	15.8	18.2	8.5	284.3	220.0	−64.3
1961	256.6	70.0	186.6	13.1	4.9	9.5	229.1	205.0	−24.1
1962	285.5	60.3	225.2	15.8	3.8	8.1	257.8	211.0	−46.8
1963	299.6	59.7	239.9	16.8	3.9	8.4	270.5	238.2	−32.3
1964	315.2	65.5	249.7	25.4	4.1	9.1	276.6	271.0	−5.6
1965	331.4	80.2	251.2	25.0	4.3	10.4	291.7	307.1	15.4
1966	370.0	100.0	270.0	25.6	4.7	12.6	327.1	345.9	18.8
1967	388.5	91.4	297.1	25.5	5.6	13.4	344.0	344.8	0.8
1968	364.1	88.1	276.0	23.7	5.2	14.6	320.6	338.2	17.6
1969	408.0	103.3	304.7	25.9	6.1	15.2	360.8	324.0	−36.8

TABLE I (Continued)

	Total Amount of Rual Retail Sales of Social Commodities (XSLZ) (1)	Total Sales of Agricutural Producer Goods in XSLZ (2)	Rural Retail Sales of Consumer Goods (1) − (2) (3)	Rurl Sales of Catering Trade (4)	Material Consumption by Nonagricultural Workers in the Commune Sector (5)	Intrasectoral Material Consumption by the State Farm Population (6)	Imports of the Agricultural Sector in the Narrow Sense (1) − (4) − (5) − (6) (7)	Total Amount of Purchases of Farm and Sideline Products (NSZ) (8)	Trade Surplus of the Agricultural Sector in the Narrow Sense (8) − (7) (9)
1970	458.0	129.2	328.8	29.8	6.6	17.2	414.4	347.8	−66.6
1971	492.5	152.3	340.2	34.7	6.9	18.6	432.3	369.0	−63.3
1972	527.7	169.8	357.9	37.4	7.3	19.7	463.3	377.1	−86.2
1973	575.4	189.0	386.4	39.7	8.0	21.6	506.1	436.2	−69.9
1974	603.4	196.2	407.2	41.8	8.7	22.5	530.4	445.9	−84.5
1975	664.2	224.7	439.5	46.1	9.5	24.3	584.3	478.6	−105.7
1976	694.0	240.4	453.6	47.6	11.2	25.5	609.7	469.8	−139.9
1977	744.9	258.5	486.4	51.1	13.5	28.0	652.3	494.6	−157.7
1978	810.4	293.7	516.7	56.5	14.3	28.7	710.9	557.9	−153.0
1979	984.8	324.0	660.8	68.8	20.3	30.0	865.7	713.6	−152.1
1980	1,189.7	346.0	843.7	85.9	26.7	35.1	1,042.0	842.2	−199.8
1981	1,324.0	347.5	976.5	95.2	30.1	38.6	1,160.1	955.0	−205.0
1982	1,480.0	388.5	1,091.5	112.6	44.7	41.3	1,281.4	1,083.0	−198.4
1983	1,670.0	423.3	1,246.7	129.7	56.5	44.7	1,439.1	1,265.0	−174.1
1984	1,999.3	477.2	1,522.1	162.3	95.1	50.0	1,691.9	1,440.0	−251.9
1985	2,517.0	503.6	2,013.4	220.0	194.7	61.6	2,040.7	1,680.0	−360.7

Sources: For columns 1, 2, and 8, *Statistical Yearbook of China* (ZTN), various editions; for columns 4, 5, and 6, author's calculations.

TABLE II

TRADE SURPLUS OF THE AGRICULTURAL SECTOR IN THE BROAD SENSE

(100 million yuan)

	Brigade (Village) Industry			Trade Surplus of the Agricultural Sector in the Broad Sense[c]
	Export[a]	Imports[b]	Trade Surplus	
	(1)	(2)	(3)	(4)
1952	0	0	0	6.2
1953	0	0	0	9.1
1954	0	0	0	9.1
1955	0	0	0	8.9
1956	0	0	0	−14.1
1957	0	0	0	8.8
1958	14.8	7.5	7.3	−1.1
1959	8.5	4.3	4.2	16.3
1960	4.9	2.5	2.4	−61.9
1961	4.9	2.5	2.4	−21.7
1962	1.9	1.0	0.9	−45.9
1963	1.0	0.5	0.5	−31.8
1964	1.2	0.6	0.6	−5.0
1965	1.3	0.7	0.6	16.0
1966	1.4	0.7	0.7	19.5
1967	1.4	0.7	0.7	1.5
1968	1.4	0.7	0.7	18.3
1969	3.5	1.8	1.7	−35.1
1970	9.9	5.0	4.9	−61.7
1971	25.1	12.8	12.3	−51.0
1972	31.0	15.7	15.3	−70.9
1973	31.0	15.7	15.3	−54.6
1974	40.0	20.3	19.7	−64.8
1975	52.9	26.8	26.1	−79.6
1976	76.8	38.9	37.9	−102.0
1977	91.2	46.2	45.0	−112.7
1978	122.5	62.1	60.4	−92.6
1979	135.7	68.8	66.9	−85.2
1980	164.0	83.1	80.9	−118.9
1981	181.9	92.2	89.7	−115.3
1982	197.4	100.1	97.3	−101.1
1983	239.9	121.6	118.3	−55.8
1984	296.8	150.5	146.3	−105.6
1985	426.2	216.0	210.2	−150.5

Source: Author's calculations.

[a] Calculated using the formula [estimated gross output of brigade (village) run industry × 0.645], where 0.645 is the rearranged technical coefficient of sidelines in China's input-output table for 1981.

[b] Calculated using the formula [estimated gross output of brigade (village) run industry × 0.327], where 0.327 is the rearranged technical coefficient of sidelines in input-output table for 1981.

[c] Column 3 + column 9 (Table I).

because the sector's export has increased following the development of its small rural industries. In other words, the development of rural industry contributes to improving the trade "balance" of the agricultural sector, exporting relatively more to the nonagricultural sector.

C. *Trade Surplus of the Rural Sector*

Let us extend our estimation to look at the trade surplus of the rural sector as defined in Section II, in which every rural nonagricultural activity including township industry is involved.

The biggest problem in this case is how to deal with the trade of such subsectors as C_2 with the nonagricultural sector (or urban sector). In estimating the trade surplus of the agricultural sector in the broad sense, only transactions of subsector C_{2a} should be measured independently. But when measuring the entire rural sector every sort of rural nonagricultural subsectors such as C_{2b}, and C_3 must be taken into account.

There may be several methods for estimating the net trade surplus of the rural nonagricultural subsectors, but whatever method one employs, he will be forced to make bold assumptions of various sorts. One of the results of our estimates is shown in Table III. It indicates that the rural sector has also created almost the same amount of trade deficit since the late 1960s as has the agricultural sector in the broad sense.

D. *Trade Surplus and Terms of Trade*

All the above estimates of trade surplus are measured at current price, therefore no account of terms of trade effects on intersectoral transactions has been made so far. As was indicated in Section II, the real trade surplus can be broken down into invisible flows and visible flows. Let us try to break down the trade surplus of our estimates into these two components following Ishikawa's formula, i.e., equation (1) above. We focus on the trade surplus of the agricultural sector in the narrow sense. The result is shown in Table IV.

It can be seen from the table that the real trade surplus of the sector concerned is always negative, even when the trade balance at current price is favorable for the sector.

Also the invisible flows are always negative, since the agricultural terms of trade have been favorable, and at the same time, the price effect is dominant in determining the total real resource flows, as column 4 of Table IV clearly indicates.

Nevertheless we need to have reservations about the estimated results. We had to use official price indexes which have a coverage that is not necessarily consistent with our estimated volume indexes. Moreover, Chinese official price indexes are difficult to work with because they are not in the strict sense either of the Laspeyres or the Paasche type.[7] Thus it seems better to reserve drawing our final conclusions from Table IV until more reliable price indexes, e.g., those of purely Laspeyres type, are published or reconstructed for the sector's export and import.

[7] The formula of official retail price index and that of official procurement price index are different. For the specific formulas of these price indexes, see [3].

TABLE III

TRADE SURPLUS OF THE RURAL SECTOR

(100 million yuan)

	Rural Nonagricultural Sector			Trade Surplus of the Rural Sectors[a]
	Exports (1)	Imports (2)	Trade Surplus (3)	(4)
1952	—	—	—	0.9
1953	—	—	—	−0.9
1954	—	—	—	2.3
1955	—	—	—	2.2
1956	—	—	—	−24.1
1957	—	—	—	−0.1
1958	20.7	4.7	16.0	−26.0
1959	13.0	2.9	10.1	−6.2
1960	7.8	1.8	6.0	−76.5
1961	8.0	1.9	6.1	−22.9
1962	4.7	1.0	3.7	−46.9
1963	3.0	0.7	2.3	−33.9
1964	3.3	0.7	2.6	−7.1
1965	3.3	8.8	2.5	13.6
1966	4.3	1.1	3.2	17.3
1967	6.4	1.5	4.9	0.1
1968	8.6	2.0	6.6	19.0
1969	11.0	2.6	8.4	−34.5
1970	13.5	3.5	10.0	−63.2
1971	20.2	5.9	14.3	−55.9
1972	25.8	7.1	18.7	−74.8
1973	31.7	8.0	23.7	−54.2
1974	38.5	9.6	28.9	−64.3
1975	50.8	12.6	38.2	−77.0
1976	70.8	18.0	62.8	−88.3
1977	96.2	23.6	72.6	−98.6
1978	111.5	28.0	83.5	−83.8
1979	127.4	40.3	87.1	−85.3
1980	163.1	60.4	102.7	−123.8
1981	187.9	71.4	116.5	−118.6
1982	197.6	84.4	113.2	−129.9
1983	226.5	102.5	124.0	−106.6
1984	304.3	151.3	153.0	−194.0
1985	462.7	249.9	212.8	−375.2

Source: Author's calculations.

[a] Column 3 + [columns (9) − (5)] (Table I).

IV. INTERSECTORAL RESOURCE FLOWS IN CHINA: SAVINGS SURPLUS APPROACH

As has been pointed out in Section II, sector A's savings surplus is identical with both its current account balance and the net increase in its financial assets/debts. In this section we first estimate the current balance of the commune farm

TABLE IV

VISIBLE AND INVISIBLE FLOWS OF THE TRADE SURPLUS

(100 million yuan)

	Terms of Trade Index pe/pm (1)	Visible Flows $(E-M)/pe$ (2)	Invisible Flows $(M/pe)(1-pe/pm)$ (3)	Contribution of Invisible Flows (3)/[(2)+(3)] (4)
1952	110.1	5.1	−11.2	1.84
1953	117.8	3.8	−21.7	1.21
1954	118.5	6.6	−21.0	1.47
1955	115.8	6.7	−27.2	1.32
1956	119.7	−10.1	−29.2	0.74
1957	123.0	6.0	−32.8	1.23
1958	125.0	−5.6	−41.9	0.88
1959	126.3	8.0	−46.2	1.21
1960	127.2	−40.9	−49.1	0.55
1961	150.5	−11.4	−57.4	0.83
1962	142.4	−22.6	−54.6	0.71
1963	141.8	−16.6	−58.2	0.78
1964	141.2	−2.2	−60.1	0.97
1965	144.1	8.2	−68.5	1.14
1966	152.4	9.6	−87.5	1.12
1967	153.9	0.4	−94.8	1.00
1968	154.9	9.0	−90.2	1.11
1969	155.4	−17.8	−102.6	0.85
1970	155.6	−34.1	−118.1	0.78
1971	161.9	−31.9	−134.9	0.81
1972	165.7	−42.1	−151.4	0.78
1973	167.1	−33.7	−167.5	0.83
1974	168.2	−40.5	−176.9	0.81
1975	171.8	−49.8	−201.0	0.80
1976	172.5	−65.9	−210.8	0.76
1977	171.9	−74.6	−224.2	0.75
1978	178.6	−69.6	−257.0	0.79
1979	213.9	−56.5	−371.4	0.87
1980	219.4	−69.4	−437.5	0.86
1981	227.7	−67.9	−491.8	0.88
1982	228.8	−63.6	−536.2	0.89
1983	236.1	−53.3	−609.6	0.92
1984	238.4	−75.4	−700.7	0.90
1985	241.9	−99.4	−797.9	0.89

Sources: For *pe* for 1952–83, *Statistical Materials of Trade and Prices in China* (MWTZ), p. 369 and for 1984–85, *Statistical Yearbook of China* (ZTN), 1985 and 1986 editions; for *pm*, ZTN, various editions; for *E*, column 8 (Table I); for *M*, column 7 (Table VII).

Notes: *pe*=general price index of purchases of farm and sideline products.
pm=general price index of total rural retail sales of social commodities.

sector (i.e., the "farm sector" within the commune sector). We then calculate the net increase in financial assets of this same sector. Finally we measure the amount of savings of the commune agricultural sector (i.e., the "agricultural sector" within the commune sector) and compare it with the estimated value of investment

in the agricultural sector.[8] A sectoral consistency should be maintained in these three sets of estimates; however, we had to sacrifice statistical consistency to some extent in order to make rough estimates of the savings surplus.

A. *Current Account Balance of the Commune Farm Sector*

Since the *Statistical Materials of Trade and Prices in China, 1952–1983* (MWTZ) and the *Statistical Yearbook of China* (ZTN), both of which are our major data sources for this study, do not provide the date on trade balance, we had to work through a long indirect process to estimate the current account balance of the commune farm sector. Our final results are shown in Table V.[9]

It can readily be seen from this table that the sector's current balance has been favorable except in 1962. This implies that the "trade deficit" ($-B$) has been compensated by the revenues from its invisible trade and transfer payments (R).

It also seems that the current balance has fluctuated with certain cyclical movements, and three troughs are evident: the early 1960s, the early 1970s, and 1976–77. This pattern does not coincide with that of the trade surplus of the agricultural sector in the narrow sense, particularly after the late 1970s (see Figure 2). Until that time, the balance of the commune farm sector's current account decreased when the agricultural sector's trade surplus rose, and vice versa. But after the late 1970s these two figures began to move just in the opposite direction.

Furthermore, the relative amount of current surplus is not considerable, even if the surplus is created in the commune farm sector. Take for example, the surplus for 1985, which is the largest in absolute size for the period under study, its ratio with the gross value of agricultural output for the same year is no more than about 10 per cent. The ratio is much lower for the years before 1985, except in 1965–66. This fact implies that the savings surplus of the commune farm sector concerned, and probably of the agricultural sector as a whole, was very little if anything.

B. *Net Increase in Financial Assets/Debts in the Farm Sector*

The structure of financial assets and debts in rural China has been very simple for the period being studied here, although new forms have developed recently, such as shareholdings and loans in mutual financial associations (known as *biaohui, yaohui*). For the most part, however, the financial assets Chinese peasants hold are deposits in credit cooperatives as well as cash in hand. Their major financial debts are loans from either such cooperatives or the Agricultural Bank. There are most likely other types of rural debts, particularly in the poor regions, such as borrowings from the government or supply and purchase cooperatives, but we have no statistical information as to the volume of such debts.

The financial structure in rural China is simple, but it is not simple to make a firm estimate of the amount of these assets and debts. At present the only reliable

[8] The definitions of the farm sector and the agricultural sector used here follow those presented in Section II.

[9] For the estimation procedures, see [23].

TABLE V

CURRENT ACCOUNT BALANCE OF THE COMMUNE FARM SECTOR

(100 million yuan)

	Peasant Nonagricultural Labor Income (1)	Other Non-borrowing Income (2)	Subsidies to Teams (3)	Expenditures on Trans., Commun., and Other Services (4)	Taxes[a] (5)	Trade Surplus of the State Agricultural Sector (6)	Trade Sulplus of the Agriculture in the Narrow Sense (7)	Current Account Balance of the Commune Farm Sector (1)+(2)+(3)−(4)−(5)−(6)−(7) (8)
1952	6.3	28.9	0.1	2.2	33.5	0	6.2	5.8
1953	9.5	30.5	0.1	2.4	33.5	0	5.0	9.2
1954	11.9	26.1	0.2	2.6	40.0	0	9.1	4.7
1955	12.1	34.8	0.4	2.8	37.3	0	8.9	16.1
1956	21.0	55.2	0.6	2.9	37.5	0	−14.1	22.3
1957	19.8	43.7	0.7	2.6	37.6	0	8.8	32.8
1958	24.8	37.8	0.4	2.7	42.4	−3.4	−8.4	12.9
1959	32.9	38.5	10.8	2.4	47.2	2.4	12.1	42.3
1960	37.4	44.7	23.0	2.2	38.6	−6.2	−64.3	6.2
1961	22.6	50.0	30.9	2.7	29.8	1.4	−24.1	45.5
1962	15.3	48.1	5.7	2.8	31.0	1.9	−46.8	−13.4
1963	21.0	63.0	9.4	3.1	32.1	−4.2	−32.3	30.1
1964	23.0	66.0	8.5	3.5	32.8	−6.5	−5.6	62.1
1965	26.0	63.5	8.7	4.0	35.5	−3.9	15.4	78.0
1966	32.0	63.8	15.3	4.4	38.2	−1.9	18.8	89.2
1967	34.0	63.8	10.8	4.4	36.5	0	0.8	12.7
1968	30.8	63.7	9.3	4.5	37.6	1.4	17.6	77.9
1969	35.0	64.0	9.2	4.5	37.0	−3.4	−36.8	33.3
1970	42.3	65.1	11.6	5.1	36.0	−2.7	−66.6	14.0

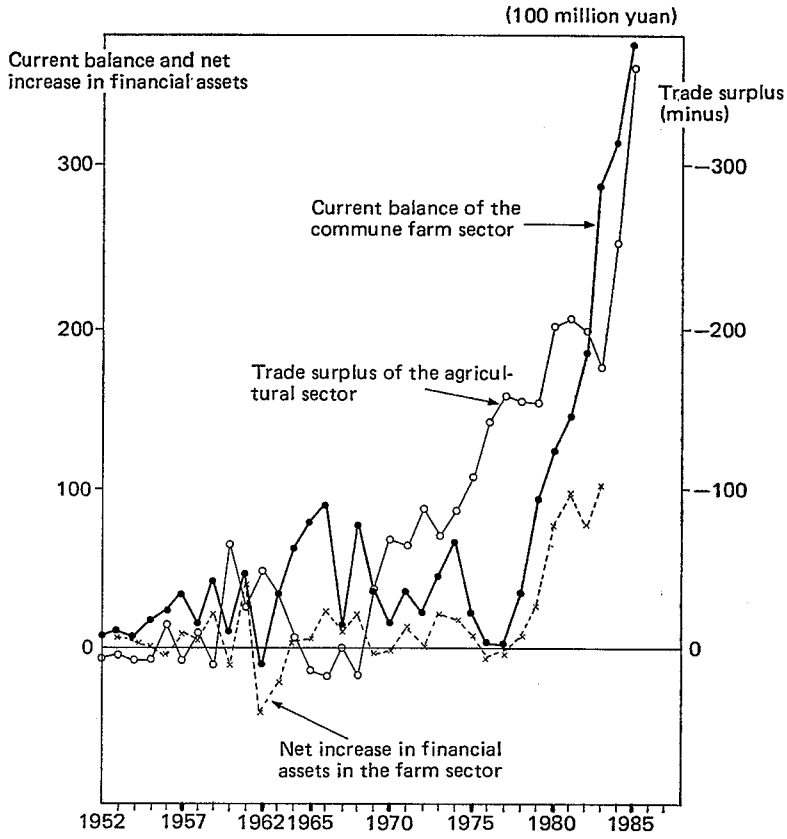
TABLE V (Continued)

	Peasant Nonagricultural Labor Income (1)	Other Nonborrowing Income (2)	Subsidies to Teams (3)	Expenditures on Trans., Commun., and Other Services (4)	Taxes[a] (5)	Trade Surplus of the State Agricultural Sector (6)	Trade Surplus of the Agriculture in the Narrow Sense (7)	Current Account Balance of the Commune Farm Sector (1) + (2) + (3) − (4) − (5) − (6) − (7) (8)
1971	53.5	65.4	14.5	5.3	34.8	−4.7	−63.3	34.7
1972	59.0	65.5	17.6	5.4	32.2	−2.5	−86.2	20.8
1973	61.9	65.6	24.4	5.9	34.8	−4.1	−69.9	45.4
1974	65.5	65.7	25.6	6.1	34.1	−5.2	−84.5	67.3
1975	73.4	66.5	26.8	6.4	31.9	−0.3	−105.7	23.0
1976	78.5	66.7	32.9	6.6	33.3	−3.4	−139.9	1.7
1977	94.3	65.6	32.5	6.7	31.7	−5.0	−157.7	1.3
1978	118.7	74.3	40.0	7.5	39.8	0	−153.0	32.7
1979	146.0	114.7	36.6	9.1	40.7	4.4	−152.1	91.0
1980	186.7	165.5	38.0	10.5	39.1	19.0	−199.8	121.8
1981	212.8	186.0	35.5	11.8	42.7	30.8	−205.0	144.0
1982	242.0	202.6	34.2	13.4	48.8	34.1	−198.4	184.1
1983	299.2	235.3	36.2	15.0	54.1	38.2	−174.1	289.3
1984	379.1	267.3	(38.8)	18.2	57.2	44.1	−251.9	313.8
1985	516.0	316.0	(45.7)	22.0	69.4	50.3	−360.7	375.3

Sources: For column 1, ZTN, 1986 edition; for columns 2, 4, 6, and 7, author's calculations; for columns 3 and 6, MWTZ, p. 18.

[a] Excluded the agricultural tax which is included in the trade surplus as part of the sectoral export.

Fig. 2. Current Balance and Net Increase in Financial Assets in the Commune Farm Sector



data for the national level seems to be that from the MWTZ and ZTN, although data for localities are available in some volumes of *shengqing* (Provincial affairs). Because of this we had to confine ourselves here to rearranging the available data related to rural assets/debts and compare these with the current account balance of the farm sector estimated in the previous section.

Let us first compare the annual increments of deposits and cash with those of loans and down payments for reserved purchases in the rural area (see Table VI). From the table we can see that in rural China annual increases in deposits and cash have exceeded the amount of increased loans and down payments for reserved purchases since around 1965, except in a few years. This tendency has become so significant since the late 1970's that we can infer that the saving surplus has been structured into the Chinese countryside.

Compare the figure of column 7 in Table VI with the current account balance estimated above. They are largely consistent with each other at least in their

TABLE VI

ANNUAL INCREASES IN FINANCIAL ASSETS/DEBTS OF FARM HOUSEHOLDS

(100 million yuan)

	Savings Deposits of		Amount of Cash Held by		Total of Savings Deposits and Cash (1)+(2)+(3)+(4) (5)	Agricultural Loan and Down Payment (6)	Balance (5)−(6) (7)
	Rural Residents (1)	Teams[a]	Rural Residents (3)	Teams (4)			
1953	0.1	1.0	8.6	—	9.7	2.6	7.1
1954	1.5	1.7	0.5	0.1	3.8	1.1	2.7
1955	1.4	0.4	−0.7	0.3	1.4	2.3	−0.9
1956	1.3	0.6	9.5	1.1	12.5	19.3	−6.8
1957	3.0	6.9	−3.2	1.2	7.9	0	7.9
1958	12.8	−2.9	4.5	1.8	16.2	11.2	5.0
1959	0.9	19.5	0.3	1.7	22.4	0.9	21.5
1960	−5.8	7.5	3.6	0.3	5.6	17.5	−11.9
1961	1.0	5.3	36.0	1.0	43.3	3.2	40.1
1962	−6.5	−18.1	−10.5	−0.9	−36.0	6.0	−42.0
1963	0.4	2.6	14.3	−0.6	−11.9	10.1	−22.0
1964	6.0	10.4	−9.7	−0.2	1.1	3.9	−2.8
1965	2.2	2.3	6.2	0.5	11.2	6.5	4.7
1966	1.7	11.1	14.3	0.7	27.8	5.3	22.5
1967	−0.5	6.9	7.6	0	14.0	3.7	10.3
1968	1.9	12.1	5.7	1.0	20.7	0	20.7
1969	−1.1	−3.8	2.2	0	−2.7	3.1	−5.8
1970	0.1	4.8	−3.8	−2.9	−1.8	1.5	−3.3
1971	2.0	8.2	5.9	0.4	16.5	5.3	11.2
1972	3.1	−5.2	8.3	0.7	6.9	6.3	0.6

TABLE VI (Continued)

	Savings Deposits of		Amount of Cash Held by		Total of Savings Deposits and Cash (1) + (2) + (3) + (4) (5)	Agricultural Loan and Down Payment (6)	Balance (5) − (6) (7)
	Rural Residents (1)	Teams[a]	Rural Residents (3)	Teams (4)			
1973	7.0	8.9	7.4	0.6	23.9	2.9	21.0
1974	3.6	12.5	5.7	0.4	22.2	4.9	17.3
1975	4.3	9.2	4.3	0.2	18.0	9.3	8.7
1976	1.9	−2.1	4.3	7.9	12.0	16.8	−4.8
1977	9.6	−3.1	0	−0.6	5.9	8.0	−2.1
1978	9.2	2.0	9.3	1.2	21.7	16.5	5.2
1979	22.7	−10.3	33.1	3.7	49.2	20.9	28.3
1980	38.6	21.4	46.4	6.0	112.4	36.5	75.9
1981	52.6	14.1	42.1	−2.3	106.5	11.4	95.1
1982	58.5	6.4	39.1	−6.6	97.4	20.8	76.6
1983	91.8	−30.3	68.1	−1.7	127.9	26.4	101.5
1984							
1985							

Source: Calculated from the rearranged data in MWTZ, pp. 9–10, 18–19.

[a] Savings only.

movement. Thus when the increased deposits and cash exceed the increased loans and down payments for reserved purchases, the current balance generally increases (see Figure 2). The net increase in deposits and cash does not coincide with the current balance as shown in equation (3), partly because they are not perfectly corresponding in their statistical coverage of sectors, partly because statistical reliability of the deposits and cash data does not seem very high, and partly because the current balance is not equivalent to the net increase in financial assets in the farm sector in that it excludes some portion of financial assets or debts such as private borrowings from credit cooperatives.

C. *Savings and Investment in the Agricultural Sector*

We would have liked to be able to estimate the amount of savings and investment corresponding to each type of sector A, calculating directly the volume of its savings surplus, but we had to confine ourselves to estimating only the amount of savings in the agricultural sector in the narrow sense within the commune sector, then making an overview of the trend of investment in the agricultural sector as a whole.

The amount of savings in the commune agricultural sector was obtained as a balance between its net product and consumption, both of which were calculated, mutatis mutandis, on the basis of the total amount of "peasant consumption" and net agricultural product printed in the ZTN. The result is shown in Table VII, which indicates that the amount of savings in the agricultural sector was considerably small except in the 1950s. It declined as low as zero or was even negative in the 1970s. This does not imply that no savings existed in the farm sector, because net savings have been generated in that sector, particularly since the late 1970s with its invisible trade revenues, as is suggested by the figure for current accounts in the commune sector.

The amount of investment in the commune agricultural sector is more difficult to estimate. What we estimated are the annual increments of fixed assets in the agricultural sector as a whole, the present figure being provisional and to be revised in the future as more relevant information becomes available.[10] But we believe that the present estimate will suffice for the moment to show the general trend of agricultural investment. It is plotted vis-à-vis the savings in the commune farm sector in Figure 3.

It has to be kept in mind that these two statistical series of data are not perfectly consistent in their coverage, consequently their balance does not show the exact amount of net savings in any sector. However, we can infer from this figure that there was a savings surplus in the commune farm sector probably until 1961. While there must have been a savings shortage until the late 1970s followed by a short period of savings surplus around 1981. This inference is basically consistent with the movement of both current accounts and net increase in financial assets in the commune farm sector as we have seen above.

[10] For the estimation procedures, see [23].

TABLE VII

SAVINGS OF THE COMMUNE AGRICULTURAL SECTOR

(100 million yuan)

	Consumption of			Net Agricultural Output of				Savings of the Commune Agricultural Sector (7) − (3) (8)
	Peasants (1)	Rural Nonagricultural Population (2)	Rural Agricultural Population (1) − (2) (3)	Whole Country (4)	State Agricultural Sector (5)	Brigade (Village) Industry[a] (6)	Commune Agricultural Sector (4) − (5) − (6) (7)	
1952	268	8	260	340	1		339	49
1953	332	8	324	374	2		372	48
1954	348	9	339	388	2		386	47
1955	389	10	379	417	3		414	35
1956	397	16	381	439	4		435	54
1957	412	14	398	425	5		420	22
1958	435	68	367	440	12		428	..61
1959	339	40	299	376	19		357	58
1960	346	24	322	332	29		303	−19
1961	418	20	398	432	30		402	4
1962	459	19	440	444	25		419	−21
1963	487	18	469	488	26		462	−7
1964	539	19	520	549	27		522	2
1965	581	20	561	641	30	1	610	49
1966	637	23	614	692	34	1	657	43
1967	679	25	654	703	35	2	666	12
1968	670	26	644	417	40	5	669	25
1969	705	29	676	722	33	6	683	7
1970	770	33	737	795	44	8	743	6

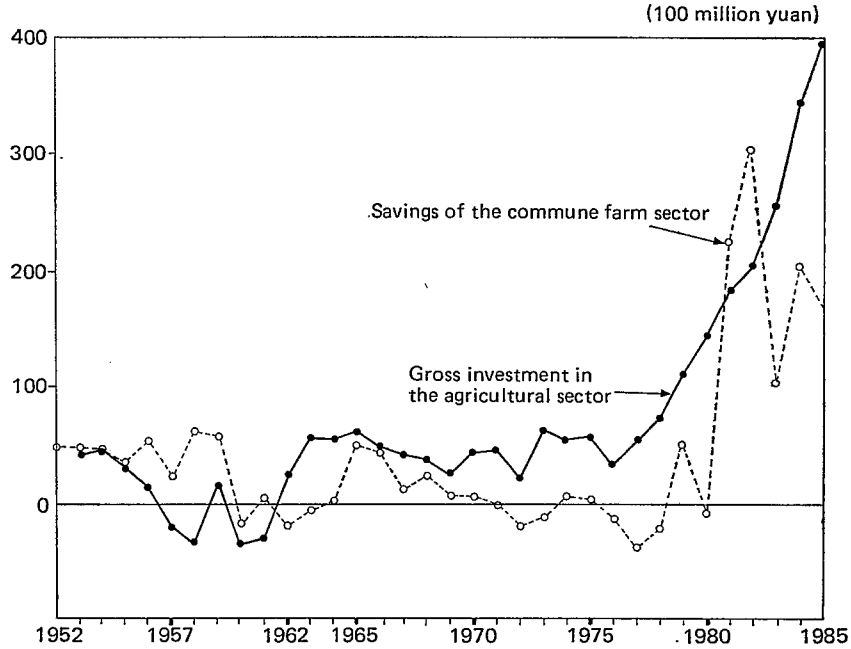
TABLE VII (Continued)

	Consumption of			Net Agricultural Output of				Savings of the Commune Agricultural Sector (7) − (3)
	Peasants	Rural Nonagricultural Population	Rural Agricultural Population (1) − (2)	Whole Country	State Agricultural Sector	Brigade (Village) Industry[a]	Commune Agricultural Sector (4) − (5) − (6)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1971	804	36	768	826	46	14	766	−2
1972	824	37	787	830	47	17	766	−21
1973	898	41	857	911	49	18	844	−13
1974	915	42	873	951	51	21	879	6
1975	946	46	900	985	53	29	903	3
1976	965	52	913	996	54	41	901	−12
1977	974	58	916	981	54	50	877	−39
1978	1,043	60	983	1,065	46	58	961	−22
1979	1,212	65	1,147	1,318	50	69	1,199	52
1980	1,384	76	1,308	1,442	54	89	1,299	−9
1981	1,572	84	1,488	1,640	50	96	1,712	224
1982	1,737	114	1,623	1,868	60	105	1,926	303
1983	1,941	139	1,802	2,097	66	127	1,904	102
1984	2,232	213	2,019	2,481	67	193	2,221	202
1985	2,732	368	2,364	2,828	63	334	2,431	67

Sources: For columns 1 and 4, ZTN, 1986 edition, p. 63; for columns 2, 5, and 6, author's calculations.

[a] Net output of the brigade (village) industry.

Fig. 3. Gross Investment in the Agricultural Sector and Savings of the Commune Farm Sector



V. CONCLUDING REMARKS

Based on our various estimates of intersectoral resource flows in China, we can conclude that the extent and amount of both trade and savings surplus in sector A varies depending on the definition of sector A and the period chosen for our analysis. Both Preobrazhensky's and Ishikawa's hypotheses seem to be relevant in some cases, but not in others when placed against the background of the Chinese experience; and no doubt the popular view stressing the lopsided squeeze on agricultural or farm surplus to provide industrialization funds is off the mark. The agricultural sector does appear to have suffered a shortage of savings from the early 1960s to the late 1970s.

This being the case, who actually provided the net accumulation funds for industrialization in China? It would appear that it was the urban industrial sector with its low wage workers that provided such funds as was the case, according to Ellman [5], for the Soviet Union during its early period of industrialization. We tried to test this hypothesis by measuring the amount of savings in the nonagricultural sector. The nonagricultural sector is defined here as a nonagricultural subsector within the material production sector, excluding rural industry which is included

in the agricultural sector in the broad sense. The result is recorded in Table VIII.

Several facts become apparent from the table. First, savings in the nonagricultural sector generally made up the larger share of accumulation, but exceeds it in some years. Second, a ratio of these savings to the total amount of accumulation funds shows cyclical fluctuations: it is relatively low in the 1950s, but rises from the end of the 1960s to the late 1970s then declines thereafter. This fact explains how the net savings in the agricultural sector have moved. It is consistent with what we have seen in the preceding section which showed a savings surplus generally in the 1950s and savings shortage in the period from the late 1960s to the late 1970s. Third, the savings rate in the nonagricultural sector has moved in almost the same direction with the accumulation rate of the entire economy. In some years it was even higher than 50 per cent.

This high savings rate in the nonagricultural sector was facilitated by the relatively low level of its consumption, particularly its personal consumption, which in turn was made possible by the stagnancy of real wages in that sector. Chapman [1] showed that in the Soviet Union there was a long-run decline in real wage after the first five-year plan. Almost the same phenomenon took place in China as well. It is nothing but a reflection of the Chinese traditional policy of a "rationally low wage system."[11]

Another factor supporting the low wage level in the nonagricultural sector was the cheapness of agricultural products. Following the introduction in 1953 and 1955 of "unified purchases and unified sales" of major farm products, markets for grains, oilseeds, and cotton disappeared in China, and the prices of these commodities were put under strict state control. This policy enabled the state to set farm procurement prices very low, allowing for the distribution of cheap agricultural products to consumers in the nonagricultural sector. Thus, a high accumulation mechanism was set into motion in the national economy; i.e., low prices for farm products → low wages in the nonagricultural sector → with its low level of consumption → and its high rate of savings. Certainly one of the ultimate objectives of the state forced procurement system and its collectivization of agriculture was to establish such a socialist accumulation mechanism.

As shown in Table VIII, the ratio of savings in the nonagricultural sector to the total amount of accumulation begins to decline from around 1979. Moreover, net savings seem to have been generated in the agricultural or farm sector, as was mentioned in the previous section. Thus it can be implied that a new accumulation mechanism in the national economy has developed since the late 1970s. This has come about in part because the sources of national savings have been diversified. The foreign sector, for instance, has become an effective supplier of investment funds. Township industry has also developed into a leading savings agent from within the rural sector which at the same time is providing the agricultural sector with part of the necessary funds for its capital formation. At the same time, the agricultural sector has rid itself of the various constraints placed on it twenty-five

[11] This policy was advocated openly during the period of China's Great Leap Forward.

TABLE VIII

SAVINGS OF THE NONAGRICULTURAL SECTOR AND TOTAL ACCUMULATION

(100 million yuan)

	Net Output of the Nonagricultural Sector (1)	Consumption of Nonagricultural Residents (2)	Public Consumption[a] (3)	Savings of the Nonagricultural Sector (1) − (2) − (3) (4)	Total Accumulation[b] (5)	Contribution by the Savings of the Nonagricultural Sector to Total Accumulation (4)/(5) (%) (6)
1952	249	136	43	70	130	53.8
1953	335	176	51	108	168	64.3
1954	360	179	43	138	195	70.8
1955	371	186	47	138	185	74.6
1956	443	216	58	169	217	77.9
1957	483	237	53	193	233	82.8
1958	678	248	55	375	379	98.9
1959	846	302	75	469	558	84.1
1960	888	337	80	471	501	94.0
1961	564	337	63	164	195	84.1
1962	480	322	68	90	99	90.9
1963	512	306	71	135	183	73.8
1964	617	302	80	235	263	89.4
1965	746	314	87	345	365	94.5
1966	894	332	96	466	470	99.1
1967	784	347	98	339	304	111.5
1968	701	350	91	260	298	87.2
1969	895	363	112	420	357	117.6
1970	1,131	375	113	643	618	104.0
1971	1,251	391	129	731	684	106.9
1972	1,306	439	141	726	648	112.0
1973	1,407	466	147	794	741	107.2
1974	1,397	481	154	762	741	102.8
1975	1,518	504	171	843	830	101.6
1976	1,431	537	174	720	748	96.3
1977	1,663	579	188	896	832	107.7
1978	1,945	630	215	1,100	1,087	101.2
1979	2,032	698	285	1,049	1,161	90.4
1980	2,246	839	308	1,099	1,165	94.3
1981	2,300	901	326	1,073	1,106	97.0
1982	2,393	951	366	1,436	1,236	116.2
1983	2,633	1,016	401	1,216	1,421	85.6
1984	3,149	1,163	500	1,486	1,766	84.1
1985	3,994	1,512	585	1,897	2,453	77.3

Source: ZTN, 1986 edition.

[a] The consumption of materials, fuels, and other commodities by "unproductive organs" such as state administration, the party, and armed forces, and the depreciation of buildings of these organizations.

[b] Almost equivalent to net fixed and inventry investment in the West.

years of collectivized agriculture, allowing it to become more self-financing under the household contract system.

Finally, the period covered in our study runs from 1952 to 1985. Many aspects of China's agriculture have changed since 1985. Many say that its dynamisms which were released by China's systemic agricultural reforms until the early 1980s had run its course by the mid-1980s. Agriculture is now encountering in particular a critical situation in grain production. The state of China's post-1985 agro-industrial relationship is the subject that now needs attention.

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APPENDIX

TWO KEY STATISTICAL CONCEPTS

It may be appropriate to give brief explanations for the two key concepts of Chinese statistics to which we have often referred in this study.

One is the total amount of "purchases of farm and sideline products," or *nongfuchanpin shougou zonge* (NSZ). The NSZ is the amount of purchases from agricultural producers by the state commercial network, firms and social organizations, and nonagricultural residents. The concept of NSZ employed in the *Statistical Yearbook of China* (ZTN) includes agricultural taxes. As has been noted in this study, agriculture in the broad sense includes part of rural industrial production; thus certain kind of industrial output may be included in the NSZ. According to the Chinese definition, (i) goods purchased from township enterprises with manufacturing and mining products as materials are not included in the NSZ, (ii) certain kinds of processed goods in the countryside with farm products as their materials, e.g., sugar, paper, and straw mats, are included if the selling producers are rural work teams or individual peasants, but not included if they are township factories or handicraftsmen.[a] Thus it seems highly probable that certain types of township-produced products which are less processed but made from materials of agricultural origin, such as milk, are purchased by the state commercial sector as NSZ.

The other key concept is the total amount of "rural retail sales of social com-

[a] For a more detailed definition of NSZ, see [3].

modities," or *xiangcun shehuishangpin lingshou zonge* (XSLZ). The XSLZ is composed of the amount of (i) the retail sales of the commercial sector, (ii) the sales of catering trade, (iii) the retail sales of the industrial sector, and (iv) the retail sales of other sectors, including agriculture, service, transportation, construction, public services, printing, and materials allocation.[b] What is important with regard to sectoral demarcation is that: (i) XSLZ covers the sales by state farms to their own workers and employees and to their dining halls, (ii) it does not cover the sales among rural producer cooperatives and peasants themselves, (iii) it excludes the sales of various implements and materials to township enterprises, and (iv) it also excludes the sales of agricultural producer goods to state farms, state run tractor stations, and irrigation and drainage stations.

Thus, it is obviously impossible to subtract XSLZ from NSZ to obtain the value of sector A's trade surplus, since their sectoral coverage is not corresponding in nature. But we are allowed to find a relatively meaningful balance between sectors A and N by revising each of these series of statistics to make them more consistent in sectoral demarcation as we did in this study.

[b] See [3]