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# PROBLEMS OF MARKETABLE SURPLUS*

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Production is "one end" of the food problem in India, the other being distribution. Along with production, distribution of foodgrains may thus be an equally important problem to be faced within a developing economy. This has got two facets—distribution machinery and creation of marketable surplus.

The existing distribution machinery which is primarily in the hands of private traders is already being substituted by marketing co-operatives so as to narrow the farmer's mark-ups to the point that they no longer sap producer's incentives. Substantial rise in the average level of government stocks is contemplated today. Once the market has been appropriately conditioned in these ways by allowing it free play as a pricing and allocating device, long term outlook for food distribution would possibly improve.

But then the basic question of collecting enough food from farmers to meet the demands of ever rising non-farm population will still remain. This would involve problems relating to 'marketable surplus' which represents the theoretical surplus available for disposal with the producer, left after his genuine requirements of family consumption, payment of wages in kind, feed, seed, and wastage have been met. This may, however, be distinguished from the 'marketed surplus' which represents only that portion of the 'marketable surplus' which is actually marketed and is placed at the disposal of non-producers. What is, therefore, important for all practical purposes is the 'marketed' as against the 'marketable surplus'.

Marketed surplus may be less, equal to or even more[1] than the 'marketable surplus' depending upon the external factors operating on the market economy. Both the 'marketable surplus' and 'marketed surplus' will be equal only under ideal conditions. The process of economic development is accompanied by a faster rate of urbanisation or a reduction in the percentage of population engaged in agricultural production. The resultant rise in the standard of living both of the producer and the non-producer generates forces which result in larger retention on the farm and restricted flow to the market.

Bigger crops do not thus necessarily mean larger market arrivals, and thus larger sales by the farmer. This will be substantiated by what is known as 'scissor crisis' in U.S.S.R. and the experience of India during the last year when in spite of a record crop of 73.5 million tons (12 million tons more than the previous year), larger marketable surplus did not flow out of the agricultural sector. Marketed surplus does not, therefore, depend on production alone but also on farmer's behaviour regarding retention on farm.

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* This represents the personal views of the author.

1. This was said to be the situation in the pre-war period when the cultivator was driven to what are known as 'distress sales'.

## PRESENT POSITION

Existing information about the marketed surplus and factors influencing it is quite inadequate to enable one to come to any definite conclusion. Based on the scattered information contained in the different Marketing Reports, an attempt has been made in Table I, to have a rough idea of the marketable surplus. Production data under column 2 are for the year 1958-59 while the ratios in column 3 relate to earlier periods according to the availability of data for different commodities.

It is quite possible that due to a number of factors militating against the normal flow of marketed supplies as discussed later, the figures calculated may turn out to be an over-estimate. Actual marketed surplus during recent years may thus be less than 19 million tons as calculated in Table I.

TABLE I—A THEORETICAL ESTIMATE OF MARKETABLE SURPLUS OF CEREALS AND GRAM IN 1958-59

| Foodgrains | Production (000 tons) | Marketable Surplus percentage of 2 | Total Marketable Surplus (000 tons) |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Rice .. .. .. | 29,721 | 30 | 8,916 |
| Wheat .. .. .. | 9,694 | 30 | 2,908 |
| Maize .. .. .. | 2,990 | 24 | 718 |
| Jowar .. .. .. | 8,689 | 24 | 2,085 |
| Bajra .. .. .. | 3,791 | 27 | 1,024 |
| Ragi .. .. .. | 1,722 | 19 | 327 |
| Other millets* .. .. | 4,688 | 16 | 750 |
| (a) Total Cereals .. | 61,295 | 27·3 | 16,728 |
| Gram .. .. .. | 6,826 | 35 | 2,389 |
| Total Cereals and Gram | 68,121 | 28.1 | 19,117 |

* includes barley.

This much quantity of foodgrains constituting roughly 28 per cent of the total should normally be sufficient to meet the day-to-day requirements of about 20-22[2] per cent of urban population. More so when it is known that the per capita cereal consumption of urban people is roughly 75 per cent that of the rural areas.[3]

The fact that a bumper crop of 73.5 million tons during 1958-59 and an all time high import of 3.8 million tons in 1959 failed to have anappreciable effect on prices, would show that the estimated surplus (Table I) did not have its normal flow. This would call for an investigation of the causes leading to this malady.

2. Urban population increased from 12.8 to 17.3 per cent during the decade 1941-51. This might have gone up to 20-22 per cent by now.
3. *Cf.* P. C. Bansil: India's Food Resources and Population, 1958, p. 222.

Prices are undoubtedly determined by the interaction of the forces of supply and demand. Insofar as agriculture is concerned, agricultural prices would depend on the volume of marketed surplus, *i.e.*, surplus of the agricultural sector which is exchanged with the non-agricultural commodities. To be more precise, in the case of foodgrains, supply is not total production, but what comes into the market at a particular time and demand is also not the demand of the total community, but only that of the non-producers who depend upon the marketed supplies.

During recent years a number of factors have tended to restrict the 'marketed surplus'. They are :

(*i*) various land reform measures,

(*ii*) increased income of the cultivator,

(*iii*) speculative tendencies due to uncertainty about prices.

## LAND POLICY

Abolition of intermediaries has placed the entire produce from land in the hands of small tillers. This has affected the 'marketed surplus' in two ways. First, the theoretical surplus available with the big landlords is placed in the hands of a larger number in smaller units. Secondly, the small cultivators who were previously not in a position to meet their home requirements from their total produce or wages in kind, would now consume or at least retain more with them. Net result of both these factors is a shrinkage in the absolute quantity of marketed grain. Marketed surplus is actually directly related to the size of holding as shown in Table II.

TABLE II—DISTRIBUTION OF MARKETED SURPLUS BY SIZE-LEVEL OF HOLDING
(685 FARM-FAMILIES: 1953-54)

| | Farm-size (Acres) | Marketed Surplus as percentage of total produce |
|---|---|---|
| 1. | 1.25 and less | 5.8 |
| 2. | 1.25 — 2.50 | 32.0 |
| 3. | 2.50 — 3.75 | 34.6 |
| 4. | 3.75 — 5.00 | 15.1 |
| 5. | 5.00 — 7.50 | 35.5 |
| 6. | 7.50 — 10.00 | 37.3 |
| 7. | 10.00 — 15.00 | 34.2 |
| 8. | 15.00 — 20.00 | 36.6 |
| 9. | 20.00 — 25.00 | 26.8 |
| 10. | 25.00 — 30.00 | 23.8 |
| 11. | 30.00 — 40.00 | 26.2 |
| 12. | 40.00 — 50.00 | 21.7 |
| 13. | 50.00 — 100.00 | 50.0 |
| 14. | 100.00 — 150.00 | 53.5 |
| 15. | 150.00 — 200.00 | 39.5 |

*Source:* A. M. Khusro: Reflections on Redistribution of Income, Wealth and Opportunities in India: 1950-60, Enquiry No. 4.

The problem is likely to be further aggravated by the imposition of ceilings, which will reduce the quantity of foodgrains available for feeding the urban population. Agriculture in India is carried on mostly for subsistence. The small cultivator grows food primarily for his own consumption and parts with just enough to pay off his rent and interest charges and to buy his minimum requirement of consumer or other goods. On the larger farms a much greater percentage of output goes to the market. A reduction in the size of large farms would immediately reduce the marketed surplus. We have before us the example of Poland, where land reforms after World War II brought about a reduction not only in the rent and size of holdings, but also abolished old debts. This had the effect of reducing marketed surplus.

The larger producers (whatever their number) now occupy a position of great importance in the rice economy of the country. On the one hand, they extend credit to small producers on conditions of repayment in paddy and thus acquire command over paddy stocks after harvest. On the other hand, they have combined in themselves the functions of wholesale trade and in some cases even milling. They have also increased the practice of buying the produce of small cultivators and holding it back from the market.[4]

## INCREASED PURCHASING POWER

Huge sums of money are being pumped into the rural sector of the development of agriculture. A number of programmes were also subsidised during the first two Plans. There has been a rapid increase in the co-operative credit facilities to the growers. This increase in the case of some villages near Chandausi and Hapur is reported to be about 60 per cent during recent years.[5] All this plus implementation of land reforms, increase in the production of commercial crops and higher prices of agricultural produce[6] have placed more of purchasing power in the hands of the cultivator. 'Cash needs of the cultivator are never very large and most of them, such as rent and land revenue, have remained unchanged over a long period.[7] The share of land revenue and taxes in total cost of cultivation has accordingly been reduced to an insignificant figure of 2-3 per cent. An increase in his purchasing power, other things remaining constant, would thus mean lesser sales for meeting inescapable cash needs of the farmer.

This has *inter-alia* improved the retentive capacity of the cultivator. In the earlier period, he was forced to sell a portion of his produce soon after the harvest in order to meet his immediate cash requirements. But under the changed circumstances, along with the trader and the middleman, another hoarder has appeared on the scene. As the number of these producer-hoarders is appreciable, even small quantities hoarded by each of them make a marked difference in the total quantity of marketable surplus. Such small changes in the holdings of stocks

4. Report on Market Arrivals of Foodgrains, Season 1958-59, Directorate of Economics and Statistics, Ministry of Food and Agriculture, Government of India, 1959, pp. 9-10.

5. *Ibid.*, p. 22.

6. Comparatively higher prices for oilseeds, gram and pulses in 1958-59 led to withholding of wheat from sale in many parts of the country. High prices of gram relatively to wheat in Madhya Pradesh, led to the payment of wages in wheat instead of the usual practice of payment in gram. (Report on Market Arrivals, pp. 2-4).

7. Report of the Foodgrains Policy Committee, 1943.

tend to modify significantly the marketable surplus resulting in an aggravation of food prices.[8] This is because even 1 per cent of hoarding in the rural area will worsen urban supplies to something like 6 per cent.

### CHANGES IN PRICES

Agricultural prices are subject to wide fluctuations not only from year to year, but also from season to season. As a result of his experience during the past few years, the cultivator has found that in spite of his best efforts, the Government has failed to have a check on the prices of foodgrains during the lean period.

This coupled with his enhanced retentive capacity to hold has encouraged the cultivator to take to speculative hoarding. Such a tendency should normally mean only a staggering of the total produce in expectation of higher prices. This evening out of supplies during different seasons should normally be a welcome sign. But in a period characterised by general or even psychological shortage, deferred sales by farmers may have an unsettling effect. This may even result in a reduction of the total market arrivals.

### GOVERNMENTAL INTERFERENCE

A rational human being would normally respond to prices in the sense that an increase in prices would induce him to put up more in the market for sale so as to earn maximum profits. This may be true in the case of advanced economies where agriculture is more a business than a profession. In under-developed countries like India, the phenomenon of 'backward sloping curve' operates. As we have already seen if the cultivator is better off and had more of purchasing power, his propensity to hoard increases. A rise in prices leads to a similar situation. Instead of being an incentive to produce more and sell more, the tendency on the part of the cultivator is to produce less and sell less just to be liquid enough to meet his bare needs. A decline in prices would correspondingly induce the cultivator to produce more and sell more for at least meeting his minimum requirements.

This is true under free market conditions, when the cultivator has no inhibitions and acts on his own. But if prices are controlled by the Government at a level lower than the open market price, the cultivator develops a psychological resistance towards the imposition of controls and manifests his displeasure by withholding stocks just against the normal principle of bigger sales during lower prices.

Such an interference by the Government does not, therefore, help to relieve the situation, but accentuates it as is said to be the case during 1958-59.

### REMEDIAL MEASURES

Having examined the various factors which affect marketed surplus and the problems connected with its proper flow, it becomes necessary to find out solutions, both short and long term, for a proper mobilisation of agricultural surplus. A failure of this would otherwise result in a distorted price structure and hinder

8. Report on Currency and Finance, 1956-57, Reserve Bank of India.

the planned growth of not only agriculture but the whole economy. If necessary supplies needed for urban consumption, industries as well as export are reduced, the tempo of development is bound to be hindered.

This in any case is a problem which is not peculiar to India. Most of the agricultural countries which have passed through this phase of rapid economic development when put in a similar situation adopted different measures suitable to the occasion.

The result of agrarian reforms and the breaking up of large *kulak* estates in Russia was that marketed surplus during 1923 fell there by about 60 per cent of its quantity in the pre-war period. What is known as 'scissor crisis' in Russian economic history was overcome by the setting up of large scale state farms and collectivisation of agriculture. Marketable surplus of grain went up by about 250 per cent in 1938 as compared to 1928.

Japan when faced with a similar situation during the period of rapid economic development (1887-1914) siphoned off agricultural surpluses by heavy land taxes. In 1893-94 such taxes constituted about 45 per cent of the total tax revenue. After World War II, in order to encourage the flow of marketed supplies, Poland provided greater credit facilities and increased the supply of consumer goods for the peasants. Even the investment policy had to be reversed for the purpose.

Land Reforms in China resulted in distributing land into tiny holdings. For a smooth flow of marketable surplus, Chinese agriculture was organised into co-operative farms. Agricultural tax accounting for about 10 per cent of total revenue was collected in kind. Total state purchases including agricultural tax were thus of the order of 44 million tons out of a total production of milled rice of 144 million tons in 1955.[9]

The present problem in India has already been analysed. Additional surplus resources will have to be mopped up by more taxes, rural savings and direct investment. Whatever additional taxes can be collected from land under the existing political situation will be most welcome to all those who are up against the task of finding resources for carrying out the plans. But in a voluntary development effort taxation beyond a certain limit may not be possible. Compulsory procurement of foodgrains, at the same time, may be rather difficult in the context of democratic planning and free economy.

Besides taxation and encouragement of rural savings, some of the additional withholdings can be taken away from the rural sector by re-orientating the policy of loans. Loans may as far as possible be advanced as well as recovered in kind. The cost of one ton of fertilizer which produces two tons of grain can, for example, be recovered by procuring one ton of grain. The cultivator will still be left with the additional ton of grain at practically no cost. Similar ratios can be worked out for the other loan schemes.

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9. *Cf.*, R. N. Poduval, "Economic Development and Marketed Surplus in Agriculture", *Agricultural Situation in India*, August, 1958 for further details about the experience of Russia, Japan, Poland and China.

The present policy of the Government to build up buffer stocks by importing foodgrains under PL 480 may pay rich dividends by building up market psychology and holding the price line. In the history of the food economy, the Government is having the biggest food reserves with them now. This will surely serve as a disincentive for any type of hoarding, speculative or otherwise.

Real solution of the problem, would, however, lie in increasing actual production. The Government is no doubt making a vigorous effort in this direction. But this is not likely to bear fruit unless we take some bold measures with regard to the implementation of land reforms. Both the tiller and the landowner must know their actual position on the land. They will not otherwise take any interest in bringing about an improvement in the land.

A further opening up of rural areas so as to enable the ruralites to have a closer and more frequent touch with the urbanites and reduction in the rural urban price-spread by reducing the transport expenditure, will be another handy measure for not only encouraging marketable surplus, but also rural development as a whole.

As for the long term solution of the problem, it needs stimulating farmers' desire for the things they can do with cash. They have to be induced to make cash consumption purchases, away from the farm. Besides making terms of trade favourable for agriculture,[10] a major hurdle will be crossed if conditions are created for the cultivator to improve his standard of living. Once he is awakened to this need, he will be automatically forced not only to develop agriculture but also resort to investment in human capital. For all this he will need more of cash. Once the vicious circle is broken and further monetization of the rural market is made easy, the cultivator in India will naturally behave just like his counterpart elsewhere in the world. This is anyhow a slow process and has to be preceded by a continued extension work among the rural masses.

Again, the question of land revenue in kind has been discussed from time to time. But the whole case needs a re-examination under the changed conditions. The present considerations, perhaps never figured in the discussions before the Taxation Enquiry Commission. By the widespread construction of warehouses and godowns and the construction of village roads, some of the practical difficulties envisaged may be solved.

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# THE PROBLEM OF MARKETABLE SURPLUS IN INDIAN AGRICULTURE

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That an increase in agricultural productivity is an indispensable basis for rapid economic development of an undeveloped and under-developed economy

10. This may serve as a sufficient incentive for the farmers to part with their crops.

like that of India, hardly needs any emphasis. However, an overall increase in agricultural production or agricultural productivity in general may not by itself be sufficient to sustain the tempo of development. What is far more germane to the process of development is the marketed surplus (the actual quantity marketed) out of the increased production. If marketed surplus does not increase *pari passu* with the increase in production, it may well constitute a fundamental limiting factor on the tempo of development, by reducing the supplies, necessary as a source of funds for capital formation and for increasing foreign exchange earnings through exports of surplus produce or for relieving the strain on the balance of payments by reducing imports of foodgrains and raw materials. How crucial the role of this marketable surplus has been in economic development may be illustrated by the experience of predominantly agrarian economies which have seen rapid economic growth, such as Soviet Russia, Japan and China.

It is the experience of several countries such as Russia, China and Japan that a substantial increase in the marketable surplus in agriculture has to be striven for as a necessary element in the development and expansion of the general economy on a suitable pace. A comparative study of the process of economic development highlights in the first place the importance of increasing agricultural productivity as a basis for rapid industrialisation and secondly the flow of marketed supplies to sustain and quicken the tempo of development. Increase in productivity has been brought about by organisation of collective farms and by heavy input of capital in Soviet Agriculture. Japan has solved the problem of marketable surplus by the State's appropriating through heavy land taxes, a substantial part of the gain in the productivity in agriculture. It may be said that land taxation played in Japan the same role as compulsory grain collections from collective farms played in Soviet Russia and these measures constitute the means by which the agricultural surplus due to increase in productivity is diverted for industrial development. China has sought to increase the flow of marketable surplus for urban consumption and for industrial development by the organisation of agrarian co-operatives, collection of agricultural tax in kind, facilitation of rural-urban exchange through supply of consumer goods to the peasants, provision of liberal credit facilities for production purposes and guarantee of reasonable prices for agricultural products. Increase in the flow of marketable surplus has been brought about in Poland by the offer of various incentives to peasants like greater credit facilities, increased supply of consumer goods and even by reversing its investment policy. Compulsory grain levies, have been adopted in Poland as in Russia to augment the marketable surplus.

With the quickening tempo of development, the need for increasing the magnitude and flow of marketable surplus of foodgrains is bound to pose a serious problem for the Indian economy as well. This has been particularly underlined by the Foodgrains Enquiry Committee.[1] On the one hand, with increase in the level of incomes consequent on development, consumption of foodgrains particularly by the lower groups is bound to increase substantially. The pressure of demand arising from higher incomes has to be matched by increase in supplies if inflationary pressures in the economy are to be avoided. On the other hand, the increasing pace of industrialisation would lead to an increase in demand for

1. Report of the Foodgrains Enquiry Committee, Government of India, 1957, p. 118.

marketed surplus. Thus the peasant would have to be induced to part with a larger amount of marketable surplus to feed the non-farm and urban population.

In a predominantly subsistence economy like that of India, the marketed surplus in foodgrains will necessarily be small. The percentage of marketable surplus for food crops in Madras State has been varying from 16 for ragi to 25 for rice and for commercial crops, from 62 for gingelly to 98 for cotton lint. All the amount of marketable surplus may be valued at 60 per cent of the total agricultural output. The marketable surplus in India is estimated to be about 31.4 per cent of the production of rice and 32.7 per cent of the production of wheat. While this may be taken to be the order of marketable surplus of foodgrains, the marketed surplus depends on the level of prices and the expectations entertained of that level. Hence production cannot be equated with supply and it is the variations in marketed surplus even more than variations in production which are important from the point of view of prices. Even if the marketed surplus of the farmer increases, it does not follow, with the existing set up of the marketing structure of the country that the supplies available to the consumer should increase *pari passu*, because there is a chain of superfluous number of intermediaries between the producer and the consumer, and any tendency to build up larger stocks by these intermediaries reduces the flow of marketed supplies. Stock holding no doubt evens out supplies throughout the year but speculative holding of stocks by withdrawing larger supplies from the market in anticipation of a further rise in prices has most deleterious effect on the economy and more so if the speculation is in foodgrains. In a developing economy there will be rise in price but if it generates speculative tendencies, resulting in withholding of stocks from the market, it will tend to aggravate inflationary pressures. Because of this instability in the market brought about by the operations of wholesale trade, there must be some sort of control over the wholesale trade so as to bring about stabilisation of foodgrains prices. This has been also particularly emphasised by the Foodgrains Enquiry Committee.[2]

Thus to sustain an increasing tempo of development, it is imperative that the magnitude as well as the flow of marketable surplus should be augmented. To have this objective realised, side by side with steps to raise agricultural productivity, measures have to be taken to ensure a larger flow of marketed surplus out of the increased productivity At present 45 per cent[3] of the total consumption in the rural sector is non-cash. With progressive monetization of the economy consequent on development, it can be expected that the peasant will tend to part with a larger amount of his produce to meet his cash transactions. But it should not be forgotten that progressive monetization of the economy is only a long term process. Therefore to increase substantially the flow of marketable surplus, some other measures will have to be resorted to. In the first place as in China, steps must be taken to collect land revenue and irrigation charges in kind. This measure, if well planned and implemented will enable the procurement by the State of fairly large quantities and will secure farm products worth about Rs. 80 crores.[4] This measure looks in fact simple and practicable and is also in conformity with the canons of taxation, *viz.*, principle of convenience. But as most of the payments will be small and in driblets, the cost of collection will be inordinately high. This

2. *Ibid.*, p. 86.
3. Consumer expenditure surveys conducted by the National Sample Survey.
4. Total cropped area 360 million acres. Average land revenue per acre of cropped area Rs. 2.24.

means that the collection of land revenue and irrigation charges in kind as a means of garnering the marketable surplus is not justifiable from the principle of economy. If this measure cannot be put into practice owing to reasons more than one, as an alternative we can resort to the measure directed to collection of the price of fertilizers in the form of grains. In the case of distribution of fertilizer like ammonium sulphate, we can well collect for every ton of fertilizer distributed, more than one ton of rice, if not two, because the application of one ton of ammonium sulphate is found to result in an additional production of two tons. Here again difficulty of collection from a large number of small producers is great. To lessen the difficulty of collection, the co-operatives are the best agency for the distribution of fertilizers to the peasants, thus progressively eliminating the traders. The difficulty of collection is bound to persist if any other arrangement is made.

Secondly, as experience has shown that the regulated markets are an effective inducement for the farmers to bring produce to the market, fairly steady and uniform flow of marketable surplus should be encouraged by the establishment of more regulated markets. At present there are only 523 regulated markets established in seven States.

Thirdly, there must be a well-defined price policy which may well constitute a powerful instrument for facilitating a larger flow of marketable surplus. At different markets in different parts of the country there is shrinkage of marketed surplus because of delayed disposal of surplus by producers due to market uncertainties. Hence to impart a certain measure of stability to the market and induce the growers to dispose of a larger amount of their marketable surplus, it is imperative that reasonable minimum prices for principal foodgrains should be announced at the time of harvest and the price is to be kept stable for over a period. In fixing the reasonable minimum prices for principal foodgrains of wide consumption proper care should be taken to see that there is parity between the prices of agricultural products and those of other commodities indispensable for day-to-day life of a peasant.

Fourthly, as inflation is an inevitable accompaniment of the process of rapid development, and in fact it is the price to be paid for development, the peasants must accept some inflationary pressure and develop certain degree of inflation tolerance. With a view to ensuring that inflationary pressures do not mount up too much and that prices do not fluctuate too widely, it is necessary to have a careful watch of all the parameters that affect the economy. This can be done only by a high powered authority which will have the power to study and report to the Cabinet, suggesting measures necessary to secure a balance in the economy. Such a body should function independently of the Planning Commission but should be in touch with Planning Commission. It would have a small economic and statistical unit to supply it with necessary data. But primarily it would function as the authority to advise the Cabinet on price policies and related problems.

Fifthly, it is necessary to establish floor prices for some of the more important foodgrains like wheat, rice, jowar, etc. The establishment of such floor prices will be no innovation. The argument that at present food prices are high and therefore there is no need to have floor prices, is very weak. Fluctuations of agricultural

commodities are so frequent as to cause unexpected economic distress similar to that in 1954. Hence a permanent scheme of incentives provided by a system of floor prices must be part of a sound food production and food price policy.

Of the two major foodgrains of wide consumption wheat presents no serious problem. With increased production and large imports planned under P. L. 480 wheat prices can be held pretty firmly. But in respect of rice, both production and imports will not be adequate. Some measures of control of rice procurement and distribution would seem to be necessary. It is desirable to keep the margin of prices between rice and wheat sufficiently wide to tempt the consumer to switch over to wheat. Some shift has taken place recently but this should be strengthened. It is, however, likely that rice will continue to be a problem with us for sometime.

Sixthly, to increase substantially the flow of marketable surplus, assured and stable prices for the agriculturists, would have to be linked with co-operative marketing of their produce. This would lead to the expansion of production credit, as this expansion is itself dependent on expansion of marketing. The close link-up of credit with co-operative marketing would be an important means of building up one of the pillars of the integrated structure that the Reserve Bank Rural Credit Survey has placed before the country.

Seventhly, compulsory levies resorted to in countries like Russia and China, to increase substantially the marketable surplus are hardly suited to Indian environment where planned development is sought to be brought about by democratic processes. The compulsory levies, if resorted to in India, apart from retarding production, would defeat the very object by inducing the farmers to underestimate their surplus. Today even Russia has given up compulsory deliveries of farm produce as it is too complex to act as an incentive and too mechanical to be just. Therefore in the democratic set up of our country, physical controls are to be replaced by a form of price mechanism aimed at furnishing a greater incentive to the farmers to raise the level of their output.

Lastly, no large programme of agricultural development in a predominantly subsistence economy like that of India, could make any headway unless the actual cultivator is given his due status and importance in Society. The cultivator has to be made to feel that he gets a fair deal. No doubt he has come to realise the value of fertilizers and manures and other techniques which will secure for him a much higher return from land. Even with these developments, the tempo of agricultural development will not gain momentum, unless the cultivator feels an active sense of participation and is entrusted to carry out the programmes. Therefore, an Agricultural Commodities Advisory Committee to advise the Government not only on price policy for agricultural commodities but also on the various programmes relating to agricultural production, should be set up.

*Conclusion*

Bearing in mind the solutions to different problems of marketable surplus in Indian Agriculture outlined above, if a concentrated, comprehensive and co-ordinated programme of intensified cultivation comprising of schemes of land reclamation, development of double-cropping, better and economical use of ma-

nures and improved seeds, plant protection and improved practices as major items, is chalked out and implemented to increase agricultural productivity and consequently the value of agricultural production, there is no room for anxiety whether there would be substantial increase in marketable surplus or not. The increase in production envisaged in the programme would be obtained to some extent through more land coming under plough. But the bulk of the increase would come through more and better balanced inputs, more efficient crop and land use planning and improvement of agricultural techniques and organisation.

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# PROBLEMS OF MOBILISATION OF THE MARKETABLE SURPLUS IN AGRICULTURE IN INDIA

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## ROLE OF AGRICULTURAL SURPLUSES IN ECONOMIC DEVELOPMENT OF BACKWARD ECONOMIES

For the development of a backward and predominantly agricultural economy the importance of the marketable surplus in agriculture is now well recognized. For transformation of an unbalanced and low-income economy into a more balanced higher income state, industrialisation is inevitable, together, of course, with simultaneous expansion of the other sectors of the economy, secondary or tertiary. The necessary capital equipment for industrialisation is ex-hypothesis unobtainable internally, and has therefore to be imported from abroad. Since the country in question is, by definition, mostly agricultural, no other sector of the economy except agriculture is likely to have any capacity for export. Hence agricultural exports must go up to finance the growing imports of capital equipment necessary for rapid and balanced development.

Even without any deliberate programme of economic development, of course, in its foreign trade, a predominantly agricultural country naturally specialises in exporting agricultural produce and in importing manufactures or semi-manufactures. When industrialisation starts, even under private enterprise, the same process continues and the character of exports at the earlier stages remains unaltered, though the character of the imports may be undergoing a change with growing emphasis on producer rather than on consumer goods. The magnitude of the export surplus, in the absence of foreign aid, initially almost directly regulates the rate of growth of industries, though subsequently, as the other sectors develop export capacity, the strain on the primary sector is correspondingly reduced. The burden on agriculture proper is lightened further to the extent that the primary sector in the economy possesses important and developed sections other than agriculture, *e.g.*, mining or plantations.

This has been the familiar pattern of economic development, *e.g.*, in the U.S.A. in the 19th century under private enterprise, as also in the more recent history of planned development of the U.S. S.R. after 1917. The second half of the 19th century saw a similar pattern of trade evolve in India with the construction of the railways and the beginnings of modern industrialisation in the country, though the degree of industrialisation was limited. Food exports continued from India throughout the last quarter of the 19th century largely uninterrupted by the famines of the period.

The quantum of the surplus, of course, diminishes where the agricultural sector, though numerically preponderant, is an inadequate supplier of the needs of the population. But even in conditions of scarcity a country may be compelled to maintain agricultural exports, as in India in the 19th century and also in Czarist Russia, if not as a real surplus over local needs, yet as "distress sales" under the compulsion of the economic obligations on the farmer towards the Government, the absentee landlord or other urban economic interests. In India it constitutes a part of the "economic drain" from the country in the special context of Indo-British political and economic relations.

The concept of the marketable surplus of agriculture is of significance not only in the context of economic development, but also in the context of the relationship between the rural and urban sectors of a country. In a predominantly agricultural country the non-rural sector is too small to pose much by way of problems of essential food supplies. These problems grow in importance as development of the non-agricultural sectors proceeds. Taking a very long range view, as the economy gets substantially diversified, transfers of labour force are effected from the rural to the urban sectors and the quantitative importance of the flow of the "surplus" and of its regularity increases, as any interruption in food supplies will interfere with the progress of internal industrial growth besides making difficult import of capital goods from abroad. Dislocation of the normal trade channels supplying food to the towns constituted an important factor in the general economic breakdown of the period of War Communism in the U. S. S. R. In India the exigencies of the Second World War's production requirements saw the beginnings of rationing and food control in the major industrial towns of the country, illustrating the importance of maintaining the flow of food stuffs to non-rural areas. In brief, as development proceeds and non-agricultural occupations and non-rural centres of population grow in importance, the importance as also the difficulty of mobilising agricultural surpluses grows. In the case of India the problem is further complicated by the overall inadequacies of the country's productive capacity in agriculture, both absolutely as also relatively to needs. With persistent overall shortages yet to be overcome India cannot, in the near future, think in terms of developing an export surplus in foodgrains, though the possibilities of export of some commercial crops need not be ruled out. The plantation and other commercial crops, grown entirely for the market or for export, of course stand on a different footing and do not present problems of mobilisation. The real problems of mobilisation arise with regard to the foodgrains, occupying about 80 per cent of the gross sown area.

## THE PROBLEM OF THE SURPLUS IN INDIA

Even while admitting the overall shortage of agricultural produce in general and foodgrains in particular in the country, there is a general presumption that

there is substantial scope for increasing the flow of agricultural produce from the growers to the market in India.

*Factors Governing the Market Flow*

Three basic factors may be listed as affecting the flow of agricultural produce to the consumer: (i) the volume of the output, (ii) the level of consumption by the grower, (iii) stocks maintained by the grower and the trade. While the size of the output is the most important of the factors, and maximum possible efforts should undoubtedly be made for increasing it, this is not a problem of mobilisation as such, thus lying outside the scope of the present discussion. The second factor also is largely, but not entirely so. Insofar as the quantum and flow of the surplus represent a vital element in the process of economic development, regulation of the volume of consumption may be regarded as an aspect of the wider problem of mobilisation of the community's resources, of generating "real savings" in the rural sector. With standards of consumption precariously low, there appears, *a priori*, to be little scope for reduction in the existing levels of consumption, though the levels are going up, and the last decade or more has witnessed a shift from the coarse foodgrains to the finer cereals on the part of the poorer sections of the rural population. While in the context of our pre-existing low consumption levels, no absolute lowering of the same is feasible, it is clearly the task of the resource mobiliser to see to it that the improvement in output is not entirely absorbed in greater consumption. Further, inequality in the distribution of land holdings, as recently confirmed by the N. S. S. indicates the existence of surpluses at some points even if average consumption levels in villages may be low.

*The Problem at the Level of the Grower*

The grower may dispose of his produce in three possible ways—self-consumption, sales and building up of stocks. It may be presumed that while the grower may have, compared to a decade or two earlier, marginally raised his food consumption level, he will not be perpetually raising it *pari passu* with growth in his output. The real problem therefore, relates to the manner of disposal of the surplus after consumption, *i.e.*, to induce the grower to part with the largest possible part of this surplus and to minimise his personal stocks.

*The Grower's Diminished Liabilities*

The traditional non-rural demands on rural incomes are in the form of the land tax and payment for the purchases by the rural producer of non-agricultural urban manufactures. With agricultural prices standing several times above the pre-war levels, the real burden of tax demands in fixed monetary terms has become much lighter. This *prima facie* warrants assumption of larger stocks with growers who can now meet their tax liabilities by parting with smaller physical quantities of output. A study of price changes of agricultural commodities and of consumer goods of industrial origin leads generally to the conclusion that the terms of trade of agriculture have improved over the last two decades. The relative improvement in the bargaining position of the agriculturist has long been, of course, one of the objectives of reform of agricultural marketing conditions, but has, in the context of the requirements of planning, to be modified in terms of social needs. Between 1939-40 and 1947-48 while the Price Index of Agricultural Commodities (with the index on 19.8.39 as the base) moved from 127.5 to over 356, that for

Manufactured Articles moved to about 288 from 131.5. The disparity in price movements between these two groups of commodities was reduced in the subsequent years upto the end of the First Plan, mainly due to the success of the food programme, though even in this period agricultural produce, other than food articles continued to remain relatively costlier than manufactured articles. The Second Plan period's agricultural shortages, despite some good food harvests have again witnessed price indices of both Food Articles and Industrial Raw Materials move faster than that for manufactured articles.

## METHODS OF MOBILISATION

Assuming the existence of mobilisable stocks large or small the essence of the problem, of course, is its *modus operandi.* No single method obviously could succeed in tackling a problem of the magnitude that exists in this country, keeping particularly in view the inadequacies of our administration.

### *Price Manipulation*

One obvious method of preventing the enhanced bargaining power of the grower from getting the upper hand over social interests is price manipulation. The objective of price manipulation would be to compel the grower to disgorge his stocks purchasing his requirements of manufactured goods, akin to the Scissor's Policy followed in Soviet Russia in the period of the N.E.P. Any such price policy will, of course, have to be on very careful guard against running into the opposite extreme of generating price disincentives in agriculture. A late application of price support after the bumper harvests of the First Plan (1953-56) is generally held to be partly responsible for the subsequent shortages in agricultural output. As the Food Grains Enquiry Committee put it, "while the cultivator is encouraged to part with his grain after harvest, he must not be left high and dry in the subsequent lean part of the year." Excessively low prices may not only affect production incentives but encourage wasteful consumption at the grower's level and too great a fall in the farmer's power to purchase manufactures may similarly induce him to withdraw fully from the market.

Theoretically, price policy may be a powerful device to bring out stocks from growers but fixation of appropriate relative price rates is analytically a ticklish job, the machinery necessary for such comprehensive price manipulation has to be extremely elaborate and powerful and is unlikely to be available in this country in the near future. Without complete socialisation of trade, including trade in manufactures in rural areas a "Scissors" type price policy is not practicable. Attempts have, therefore, to be concentrated on lowering or keeping in check rise in prices of agricultural produce through measures of physical, fiscal and monetary controls, rather than by any upward manipulation of non-agricultural prices which will, in addition, affect the non-agricultural population as well and may be otherwise undesirable.

### *Revision of Land Revenue Charges*

Revision upwards of land revenue and other charges on the peasant is a much clearer policy decision though not an easy task administratively. For the entire period of the Second War and post-war years till 1949-50, land revenue receipts

remained virtually static, though agricultural prices went up by over three times. Land revenue receipts have been increasing steadily over the last decade, more due to the State progressively appropriating the share of the former intermediaries than to any substantial increase (neglecting occasional surcharges, etc.) in the tax liability on the land.

Despite the absolute increase in the total land revenue receipts, the proportionate importance of land revenue in the total revenue of the State and Central Governments, has been going down. Between 1938-39 and 1953-54 it went down from 16.1 to 8.6 per cent of total Government revenue receipts and there is a very good case for a general revision of land revenue assessments on various grounds, including rationalising the system and making the revenue burden more equitable *inter se*. It is difficult to justify inaction on this score on grounds other than those of political expediency, except in the former permanently settled and zamindari areas where the necessary governmental machinery has first to be brought into being.

Suggestions have been made for realisation of land revenue in kind. The practical difficulties of the Revenue Departments themselves in handling diverse forms and qualities of agricultural produce and in their valuation would of course, be enormous. An experiment may, however, be made in co-operation with licensed warehouses and warehouses under the control of the Central Warehousing Corporation or the State Warehousing Corporations, in compulsory collection of revenue in kind, particularly in areas where Gram Panchayats are functioning as revenue agents, by getting the warehouses do the valuation and disposal of the grains, the sale proceeds being subsequently credited to the revenue agency concerned. The warehousing programme, of course, has to be properly organised and implemented before it can be charged with this very great responsibility.

The Food Grains Enquiry Committee referred to the practice of repayments of fertilizer loans given by co-operatives in Orissa in the form of grains depositable in grain *Golas* which extend to and collect from farmers paddy loans with interest accrued, a system that may be applied to revenue collection.

*Co-operative Marketing and Warehousing*

Location and institutionalisation of surplus stocks is the first pre-requisite of their mobilisation. Therein lies the significance, in the current context, of co-operative marketing and warehousing. The Integrated Credit Scheme recommended by the Committee of Direction of the Rural Credit Survey was accepted officially in 1955 and subsequently incorporated in the Second Five-Year Plan. Progress so far, however, has been quite inadequate. The co-operative marketing unions and warehouses that have been established have yet to find their feet firmly on the ground before any significant stocks come into their possession. Once substantial stocks start being held by these institutional agencies, the problem of their physical location is solved, whereafter physical and price controls over them may be initiated.

In 1956-57, in the ten major States of the country, the total value of sales transacted by the primary marketing societies amounted to Rs. 87 per cultivating family; taking the Central Marketing Unions or Federations, another Rs. 72

worth of goods were sold per cultivating family in the ten States jointly. Of these amounts, however, the two States of Bombay and Uttar Pradesh accounted for the bulk of the transactions. According to the Rural Credit Follow-Up Survey, out of the ten districts reviewed, in only two (Broach and Dharwar) were any substantial proportions of the total marketed produce sold through co-operatives, these being the two districts where Pilot Integrated Rural Credit Projects were in operation.

The total number of warehouses set up so far by the Central Warehousing Corporation amounts to 26 (till March, 1960) and those by the State Corporations to 138. Besides the warehouses, godowns are run and constructed by large sized credit and marketing societies. The Second Plan provided for 4,000 godowns for large sized societies and about 1,500 for marketing societies. According to the report of the Central Warehousing and Co-operative Development Board about 1,360 godowns of the large sized societies and 648 godowns of the marketing societies were financed by the Board in the three years ending with 1958-59.

Primary marketing societies in 1951-52 numbered 8,264, the number of Marketing Unions and Federations being nearly 2,000. In 1957-58 the primary societies numbered 9,368, the number of Supervisory Societies being 2,871. Of these the bulk are Sugarcane Societies (the number of primary cane societies in 1957-58 being 7,469 and that of Central Cane Societies being 187). Thus progress though steady, is not rapid enough for using the apparatus of co-operative marketing for the purpose in view extensively in the near future.

The Second Plan adopted a target of 1,900 additional primary and district marketing societies by 1960-61.

*Rural Credit*

Insofar as credit sustains the power to hold stocks, control of the volume of credit should have a considerable influence in regulating the quantum of stocks at all levels. To the extent, however, that institutional credit has failed to reach the grower, the effectiveness of the credit instrument is weakend. The Rural Credit Survey of 1951-52 revealed that co-operatives constituted 3 per cent and organised banking institutions only 1 per cent of the total supply of rural credit. No quantitative estimate of changes, if any, in the field of All-India rural credit are available since the 1951-52 Survey. The Follow-Up Survey of 1956-57, covering only 11 districts throughout the country does not give data of a strictly comparable nature, as only 3 of the districts selected were such as were included in the 1951-52 Survey. Except in the four districts of Broach, East Khandesh, Dharwar and West Godavari, co-operatives supplied only between 1 and 11 per cent of the total borrowings of cultivators from all sources. In the four districts mentioned above co-operatives supplied between 22 and 48 per cent of the total borrowings as a result of concerted efforts under the Pilot Integrated Rural Credit Schemes. Government lendings, except in two districts were confined to between 1 and 3 per cent of the total lendings by all agencies.

These comparative data indicate, no doubt, the possibilities of co-operatives playing a significant role in rural credit supply, provided concentrated efforts are undertaken as under the Pilot Schemes in the four aforesaid districts. These

are also the areas where the Follow-Up Survey reported substantial progress of marketing co-operatives.

It is further important to note that in 8 out of 11 districts surveyed, commercial banks contributed nothing to the supply of rural credit.

The last four years have, of course, witnessed a substantial expansion of the co-operative movement including co-operative credit. There has been considerable growth in the number of societies and of membership and working capital has gone up by more than 100 per cent (compared to 1951-52). Supposing each member of a co-operative to represent a family, nearly 30 per cent of the population has been covered by the movement, but the very large number of dormant societies and the as yet low capital per member leaves the co-operatives an inadequate force to reckon with in rural areas. The use of credit control as a direct regulator of stocks with growers will, however, have to wait till the time when the organised financial institutions will supply a substantial part of rural credit.

*Credit Control*

Restricting the volume of bank credit advanced to trade is a natural method of diminishing excessive stocks with the trade, and is the line of action followed recently by the Reserve Bank. Selective credit control was instituted by the Reserve Bank from 1956-57, and continues, with certain changes and relaxations till now, the objective being to keep advances against foodgrains by banks in check. The measure has been a considerable success insofar as advances secured against foodgrains in 1958, 1959 and in 1960 in the month of May could be kept significantly lower than the 1957 level, as the following figures illustrate :

| Date | Secured advances of Scheduled Banks against food articles (in lakhs of Rupees) |
|---|---|
| 17.5.57 .. .. .. .. .. | 37,70 |
| 16.5.58 .. .. .. .. .. | 24,25 |
| 15.5.59 .. .. .. .. .. | 24,71 |
| 27.5.60 .. .. .. .. .. | 27,76 |

Total secured advances, total of secured and clear advances as also total bank credit, however, steadily increased, which while demonstrating the formal success of selective credit control, does not exclude the possibilities of leakages.

| | Total secured advances | Total of all advances | Total Bank credit |
|---|---|---|---|
| | (in lakhs of Rupees) | | |
| May 17, 1957 .. .. | 751,76 | 747,52 | 936,98 |
| 16.5.58 .. .. | 780,03 | 790,28 | 941,87 |
| 15.5.59 .. .. | 848,25 | 875,12 | 1,021,33 |
| 27.5.60 .. .. | 943,90 | 961,40 | 1,123,55 |

Indeed recent experience indicates considerable possibilities of leakages from non-restricted to the restricted channels due to intensified general inflationary trends. The latest phase of credit control is more in the nature of general rather than selective control, which has its usefulness, of course, as a general anti-inflationary measure but could not operate specifically as a dishoarding agent on agricultural stocks. Insofar as in a food shortage economy inflation, due to the high income elasticity of food, would tend to inflate food prices more than the general price index, all anti-inflationary measures are welcome. If, however, money keeps on increasing continuously, as recently, anti-inflationary measures are unlikely to reduce prices. Excess liquidity of the banking system as now would make stoppage of leakages from selective credit control increasingly difficult. During the last few years of selective credit control total deposit liabilities of commercial banks have gone up by Rs. 517.89 crores and bank credit by Rs. 254.83 crores.

*Procurement*

Starting from the Second World War period authorities in this country have had a considerable experience of procurement operations. The magnitude of procurement of foodgrains by the State was the highest in 1950 when over 4.6 million tons of cereals were procured, *i.e.*, roughly 10 per cent of the total cereal production in that year.

The basic problem in monopoly procurement or compulsory levy as sometimes practised in the past is to locate the surplus producer. The size of the farmer's holding, viewed together with the size of his family, is a reasonable index of the saleable surplus possessed by him. During the last war Bombay Province adopted a system of compulsory and graduated levy of a portion of the surplus of each producer. With monopoly trading by the State, monopoly procurement also follows as a matter of course. It is not necessary for the State, however, to monopolise trade and therefore to monopolise the saleable surplus, if the bulk of the surplus manages to reach the market even through private trade channels, though evasion becomes difficult to prevent when no restrictions are placed on the farmer's liberty of disposal of stocks.

The existing inequality in the ownership of land should render identification of the surplus producers easier as it makes surpluses possible amidst a generally poor peasantry : but for administrative purposes detailed surveys of distribution of land holdings would be necessary rather than sample surveys as have been conducted in the past.[1]

The actual procurement operations may be undertaken by the Administration itself or, as was done in some States in the past, through market purchases from traders. Appointment of traders with experience of handling agricultural produce on a large scale, as in the past, works well if abuse of his position by the agent can be successfully checked. As marketing co-operatives, Grain *Golas* and warehouses get organised they may usefully take over these agency functions.

1. The First Report on the sample survey of land holdings by the N. S. S. revealed that 92.4 per cent of households possessed holdings of 15 acres or less in size, comprising less than 50per cent of total area held by the families surveyed. This should leave only 8 per cent of rural households as potential "savers," who should not be too difficult to tackle administratively if holders of over 15 acres only are regarded as large surplus producers.

A common difficulty of State procurement is inadequate storage space, involving further dependence on the private trader or stockist. It is only with construction of more warehouses by the statutory corporations that this difficulty can be overcome.

*Co-operative Farming*

On the analogy of the collectivisation drive in the U.S.S.R. in the pre-war Five-Year Plans as also of the current example of the Chinese agrarian co-operatives, it is sometimes suggested that co-operativisation of our agrarian structure would be the best possible method for getting at the agricultural produce surplus or otherwise. In fact, it is thought that with co-operatives functioning at the dictates of the Government the quantum of the "surplus" itself as the difference between the product and its local disposal for consumption would be a matter for decision. Apart from the point that "co-operatives" which merge their identity in the Government would cease to be genuine co-operatives and that such notions about the role of co-operatives would slow down rather than popularise their growth among peasants, it is clear that a pretty long time has to elapse before a significant number of co-operatives, voluntary or otherwise, may be established and be of assistance in institutionalising the agrarian structure.

## CONCLUSIONS

Possibilities in the near future, thus of any significant change in the agrarian or marketing structure are remote. Effective mobilisation of agricultural surpluses will be dependent partly on organisational and administrative factors and partly on general policy manipulations. The former will include measures like expediting and strengthening the warehousing and the co-operative programmes, extension of State trading and strengthening of the State procurement machinery, and a general extension of transport and communication in rural areas and a growing emphasis on co-operative farming societies. These appropriate institutional reforms will have to be accompanied by policy measures like fiscal, monetary, physical and price controls.

The broad objective of these measures will thus be to exert a combined pressure on the growers to part with the surplus through a lowering of their holding power, or a general lowering of the grower's elasticity of supply. But it has to be borne in mind that in a country of small holdings, the number of really surplus producers cannot be large and that while economic pressure may compel many growers to part with their stocks, their sales could be done under duress, and though a necessary sacrifice for growth is likely to be overdone in a country of overall shortages. Price manipulation has to be very cautiously done, as it would strike at all growers big or small.

The semi-official Food Survey carried out in Bihar in 1946 under the guidance of Prof. G. N. Sinha found that families owning 15 acres or more of land only could be expected to contribute a true surplus to the market, the supplies coming from the rest being made under duress.

The surplus, it would bear repetition, is not a static quantity and would vary with both the output level as also the level of consumption. With standards of

consumption known to be among the lowest in the world, scope for further tightening of the belt is limited. Policy has therefore to aim not so much at further cutting down of existing standards as at preventing accretions to the output from being appropriated for consumption at the grower's level. Insofar as the cultivator has escaped till now his due share of the burden of development, relatively sterner calls for sacrifice may indeed now be made on him. The instrument of the land tax has to be pressed into service for this.

While stock-building at the levels of the grower or of the trader may be a factor of some importance in the current Indian context it would be wrong to think that stocks can continue to be added to indefinitely. The present position may, to a certain extent, be regarded as a corrective of the past when the cultivator with little bargaining power had to dispose of the bulk of harvest soon after it was ready. The basic problem of inadequate surpluses is the absolute shortage of supply in relation to demand. Within a given physical situation of demand and supply, all that policy and institutional reform may aim at is to make the most of the available real resources, to prevent any section of the community from having an undue advantage in a situation of scarcity, and for the community as a whole to manage with lower inventories. Structural changes in agrarian, credit or marketing organisation or improvements in transport and storage facilities are but aids to greater mobility of stocks through space and time, but these by themselves cannot remedy a situation of absolute scarcity. It is important to remember, therefore, that creation rather than mobilisation of surpluses is the prime need of the situation. In a free society, the scope of mobilisation efforts is, thus, limited to effective readjustments within the distributive machinery and not to changing the economic structure itself, which at any rate, is not a problem of "mobilisation."

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# PROBLEMS OF MARKETABLE SURPLUS IN INDIAN AGRICULTURE

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On the basis of a past study by the Directorate of Marketing and Inspection, 25 per cent may be taken as the average marketing margin for all surplus foods in India. The Indian Council of Agricultural Research Memorandum has estimated that 30 per cent of the foodgrain produced within the country is marketed. These estimates, however, do not include that part of farm produce which is exchanged in the village of origin, although it is a knowledgeable fact that such sales occur for almost all the crops. The Bench Mark Survey Report on Bhadrak Block mentioned for example, the sale of paddy by small cultivators on the threshing floor itself. The Report on the Marketing of Rice in India stated that large proportions of the grain tended to be disposed of in the village where it was pro-

duced. The quantity of rice sold locally was not estimated and the report conceded that it was almost impossible to do so. In view of the fact that such local sales are typical of Indian rural marketing and apply to almost all crops, relatively accurate estimates of the quantities involved would contribute much to agricultural planning and provide new dimensions to the total of India's marketable surplus.

Estimates of arrivals in unregulated markets are not assessed methodically. Spot inquiries of the arrivals at only a few selected markets serve as the basis for making estimations and these are related to production in the area surrounding the chosen centre. The result is an inadequate sample and unreliable estimates of the population parameters. Moreover, arrivals are not separated by year of production. In the cases where arrivals include production from both the previous and the current crop year, estimates are in error to the extent that they contain the previous year's production. In addition, large quantities from a particular crop year move from a market of first sale to another market for resale and the transactions are recorded twice giving, as a consequence, an inflated figure of the quantities marketed. All these inadequacies conduce to erratic, unreliable estimates of marketable surplus.

At least statistically valid estimates of marketable surplus may be obtained through the random sampling technique. Correctly used, the method secures a close approximation to population characteristics from only a fraction of the universe being measured. Stratified random sampling may be applied at unregulated markets to determine the surplus attributable to that part of the marketing area. To the figure so derived could be added data collected in regard to arrivals at regulated markets. The result would be more reliable estimates of the total surplus moving through the different marketing channels.

Cognizance must be taken of the fact that the marketing year and the production year differ in the case of "*Rabi*" crops. To quote an example, arrivals of *Rabi* foodgrains during the 1959-60 (April-March) marketing year would be largely from the crop raised during the 1958-59 production year. It is quite possible, however, that some of the arrivals belong to the 1957-58 crop year. In order that estimates of marketable surplus of *Rabi* foodgrains for the year 1959-60 be relatively correct, arrivals originating from the old crop year need to be separated out.

In the case of *Kharif* foodgrains, the marketing year and the production year coincide. Arrivals during the marketing year 1956-57 (October-September) would, therefore, be predominantly from the 1956-57 production year. Small quantities from old crops, however, may arrive as releases out of wholesale stocks or from government holdings under open market operations conducted under price support policy programmes. These also should be separated from arrivals out of the new crop to obtain a correct estimate of the marketable surplus.

Since the demand for agricultural products is relatively inelastic, the appearance of a small surplus has a disproportionately depressing effect on prices of the farm products. Particularly prices in under-developed economies are highly sensitive to changes in supply relative to demand. Even a slight supply deficiency causes an excessive upward price movement and a small surplus results in a sharp

price decline.[1] As a result, surplus in foodgrains, though marginal in nature, has a significant effect on the general price level.

Some recent shrinkages in India's marketable surplus have been observed and are attributable, largely, to the increased consumption of producers resulting from high marginal propensity to consume. And although overall increases in agricultural production have been effected, such shrinkages in marketable surplus have been sufficient to influence prices upward. These developments emphasise the need to adjust supply to demand through orderly marketing as a means to prevent undue price fluctuations. A pre-requisite for achieving that goal is the reliable measurement of the size of marketable surplus.

The real significance of having exact estimates of marketable surplus may be better appreciated in the context of a price support policy. Minimum guaranteed prices are becoming an integral part of agricultural policy for stimulating agricultural production with almost all governments of the world. The success of a suitable price support programme, however, depends upon the correct estimates of open market operations which, in turn, are related with the marketable surplus of a commodity. Not only must estimates of marketable surplus be correct, but in the interest of an effective, continuing price support programme, they must be so maintained year after year.

The farm sectors' marketable surplus determines, very largely, the volume of non-farm employment. Since India's development plans are employment oriented, correctly estimating marketable surplus will help to determine the volume of non-farm employment under the plan to the extent given by the value of the consumption multiplier.

*Factors Determining the Size of Marketable Surplus*

The extent of the marketable surplus of a commodity depends very largely on the consumption habits of the people within a producing area, the nature of the crop, relative price levels of different farm products and the economic status of the farm population.

Table I which presents information collected on arrivals in the regulated markets of the Punjab and Pepsu States[2] for the year 1954-55 illustrates the relationship between consuming habits and marketable surplus.

TABLE I—MARKETABLE SURPLUS OF IMPORTANT FOODGRAINS IN THE PUNJAB (I) AND PEPSU: 1954-55

| State | Commodity | Arrivals (in mds.) | Total production (000 tons) | Marketable surplus as percentage of total production |
|---|---|---|---|---|
| Punjab .. .. | Wheat | 90,03,956 | 1,299 | 24.8 |
| Pepsu .. .. | Wheat | 35,27,000 | 436 | 28.9 |
| Punjab .. .. | Gram | 55,85,000 | 990 | 20.15 |
| Punjab .. .. | Jowar | 2,41,000 | 48 | 17.94 |
| Pepsu .. .. | Jowar | 55,212 | 7 | 28.0 |
| Pepsu .. .. | Rice | 2,38,590 | 116 | 53.3 |

1. Second Five-Year Plan, p. 40.
2. The Punjab and Pepsu States have been integrated. The year 1954-55 was selected only for the purpose of illustration.

As will be seen from Table I, marketable surplus for the year 1954-55 was 24.8 per cent, 20.15 per cent and 17.94 per cent for wheat, gram and jowar respectively for the Punjab, and 28.9 per cent, 28 per cent and 53.3 per cent for wheat, jowar and rice respectively for the Pepsu States.

The surplus was low for a commodity such as wheat because it forms a staple food in that area. It was high for a commodity such as rice, because of little rice consumption by the people in this area. The Bench Mark Survey of Batala Community Project supported this thesis. Whereas the proportion of wheat marketed was 9.4 per cent, it was as high as 70 per cent in the case of paddy because of local consumption habits. The marketable surplus was as high as 90 per cent in the case of the *Toria* crop because it is a cash crop and the farmer grows cash crops primarily for the market.

That the marketable surplus is low for foodgrains that form the staple food in different parts of the country and is high in case of cash crops, is also supported from a marketable surplus estimate for Hyderabad State.[3] Table II presents information for the year 1954-55.

Table II shows that marketable surplus was 66.6 per cent of the total product in case of wheat because of the low wheat consumption habits of the people. The surplus for rice and *jowar*, the staple items of food consumption in the area, was as little as 33.8 per cent and 20.5 per cent of the total production respectively. It was as high as 82.8 per cent and 93.7 per cent in case of the oilseeds and the cotton lint cash crops that are grown primarily for the internal market and for export abroad.

TABLE II—MARKETABLE SURPLUS IN HYDERABAD STATE: 1954-55

| Commodity | Estimated production (000 tons) | Total marketable surplus (000 tons) | Marketable surplus as percentage of total production |
|---|---|---|---|
| Rice .. .. .. | 590 | 200 | 33.8 |
| Jowar .. .. .. | 1,460 | 300 | 20.5 |
| Wheat .. .. .. | 90 | 60 | 66.6 |
| Gram .. .. .. | 140 | 80 | 57.1 |
| Oilseeds .. .. .. | 960 | 795 | 82.8 |
| Cotton (Lint) .. .. .. | 80 | 75 | 93.7 |

*Impact of Relative Price Level on Marketable Surplus*

Marketable surplus of a commodity is not only related to total production and price level of that commodity, but is also related to the supply and price level of its competitive and complementary goods. In the case of wheat, for instance, the chief *Rabi* foodgrains which influence the marketable surplus of that cereal, are grams and barley. The relative supply and price level of *Kharif* crops such as maize, rice, bajra and jowar may also affect the marketable surplus of wheat and other *Rabi* foodgrain crops. When the relative price level of a bumper *Kharif* crop such as bajra, jowar or maize, etc., is low and that of a *Rabi* crop such as wheat

3. Hyderabad State has been integrated. Table II was selected for the purpose of illustration and a contrast with Table I.

is expected to be fairly high, the farmer may consume more coarse foodgrains and sell more wheat, thus increasing the marketable surplus of the latter and diminishing that of the former.

*How to Absorb Marketable Surplus*

Expansion of the marketing outlets is, to a great extent a necessary accompaniment of the process of economic planning. The accelerated pace of general economic development and the expansion of social and economic overheads should reduce institutional difficulties and bring about a balanced growth of towns, urban marketing centres, village and rural marketing centres. This will forge new links in the marketing system. Production, processing and all levels of selling should become highly co-ordinated units of a single market system. The development of a single market system should expand the demand for farm products and provide the farmer an easy access to the organized market. This will induce the farmer to produce more and to sell more in the regulated market. "The Government of India (P. E. O.) Bench Mark Survey report on the evaluation of Batala Community Project shows that cultivators in those villages did not dispose of their marketable surplus in the village because all these villages were situated within the radius of five to seven miles from Batala Market Centre." These developments, it is hoped, will help to expand marketable surplus and at the same time extend the area of orderly marketing to absorb surpluses when they occur without resulting in a steep fall in the farm prices. This should be possible because farm surpluses in India are marginal and manageable. It should not be difficult to dam up the marginal surpluses through Co-operative Development and Warehousing Board and feed them into the market gradually so as to stabilize the price structure and leave little to be done through the price policy.

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# THE MARKETABLE SURPLUS OF AMAN PADDY IN EAST INDIAN VILLAGES

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*Significance of Marketable Surplus*

Marketable surplus in the agricultural sector of an under-developed economy is a crucial question from three points of view. First, marketable surplus in the agricultural sector would contribute to capital formation in the non-agricultural sector. Secondly, it would contribute to an improvement of the standard of living in the agricultural sector by making available to it the industrial consumer goods; thirdly, it would contribute to capital formation in the agricultural sector by fetching it the requisites of agricultural production.

*Estimation of Marketable Surplus*

Marketable surplus of foodgrains is arrived at by deducting from net output (net of rent in kind) received by the farmers, their consumption and disposals in the form of seeds, kind-loans and wage-payments in kind. The excess of receipts over sale is partly held for consumption, partly spent up in other disposals stated above and partly held in stock as a hoard potentially capable of further contribution to market supplies.

Speaking in general, the marketable surplus in the case of a household is the excess of net receipt of output over its own consumption and other disposals. What is actually marketed may fall short of this estimated surplus. The divergence of marketed and marketable surplus may be due to various factors. Households with very small holdings may not have surplus at all. But wherever the surplus emerges, the part of it which will be actually marketed would be affected by the general condition of the village in question—particularly the extent of market facilities open to it, the standard of living of the households and the investment opportunities within their reach. If the standard of living of the villagers is high they would be selling more of their produce to meet the financial requirements of a high standard of living. Similarly if the investment opportunities are wide and easily available sale of agricultural produce will be larger to meet larger demand of funds for investment.

*Villages Surveyed*

Data relating to receipts, sale, consumption and other disposals of chief agricultural products are collected by the Visva-Bharati Agro-Economic Research Centre in East Indian Villages through village surveys covering all households in the villages selected for investigation. The reference-period for these data is the year preceding the year of investigation. Since opening-stock of produce is rarely disclosed by a village farmer, quantities of net receipts are mostly exclusive of carry-over. This paper attempts an analysis of such data in respect of '*Aman*' paddy collected in the 1957-58 round of surveys from eight villages.

*Receipts and Sales*

Turning to an examination of the data relating to receipts and sales of '*Aman*' paddy, it is evident that the proportion of sale to receipt is lower in the case of lower holding groups and higher for the upper groups (Table I).

This is normally the case since the excess over consumption could be negligible in the case of poorer farmers and larger for the richer ones. In the villages of Orissa, however, excepting Kutra the proportion of sale in all groups is definitely and sharply smaller than in the villages of other States. In one village Gundrigora there is no sale. This may be explained by an extremely low standard of living of the Orissa villages. In the village Kansar the proportion of sale in the case of small holding groups is a little higher than for the corresponding groups of other villages. It is possible that the easy access of the village to market-opportunities bringing within its reach a variety of consumer goods has induced a larger sale of paddy even among the poorer farmers who badly wanted money for purchasing these goods. The proportion of sale to receipts among richer farmers in this village has, however, been smaller in comparison with other villages. This may be due to speculative hoarding which is larger in urban areas.

The analysis of data pertaining to the receipt and sale of '*Aman*' paddy is carried one step further by probing into per capita surplus over sale of paddy in different holding groups (Table II). Thus it is evident that larger farms hold a larger per capita surplus over sale for consumption, other disposals and hoarding—even after selling a larger proportion of their produce in comparison with the smaller farms.

*Rate of Consumption and Other Disposals*

Data relating to per capita consumption of rice (converted into annual quantity of paddy) and per capita other disposals are given in Table III. The limitation from which the consumption-data suffer is that they are based upon conversion of fortnightly figures into annual estimates irrespective of seasonal variation. Making allowance for some seasonal variation, these data, however, can be used for whatever they are worth in the present connection. It will be seen that consumption of rice is low in Bihar villages—Harnichak, Samahuta and Brahmsia—where it is supplemented by other cereals and millets. Rice-consumption in Gundrigora (Orissa) is also extremely low; this is because the people of this village are extremely poor, living mainly on inferior millets, *e.g.*, '*Ragi*', '*Kodo*' and '*Khosla*'. When consumption and other disposals are compared with excess of receipts over sale, it will be seen whether there is at all any absolute surplus in the hands of the farmers. This amount may be interpreted as hoarding.

*Hoarding*

The extent of hoarding defined above is also shown in Table III. It is evident that per capita hoarding varies from 2.65 mds. to 6.83 mds. in some villages, while there is also deficit to the order of 1.09 mds. and 2.68 mds. in two villages.

It is quite apparent that surplus with the bigger farms would be pretty large. On the liberal assumption that per capita "other disposals" in the case of bigger farmers would be four times as much as the average figure, per capita surplus for the holding-group 7.51-10.00 acres at Kansar can be estimated at 6.06 mds.; similarly the per capita surplus for the holding-group 10.01—15.00 acres would be as large as 19.05 mds. The corresponding figure for the holding-group 5.01-7.50 acres at Jungul and Harnichak would be 5 mds. and 10.72 mds. respectively; similar surpluses would be observable in other villages also for the higher holding groups.

When the surplus is considered at the village level by taking into account the consumption requirements of the village population as a whole at the average consumption rates given in Table III, it is found to be dwindling except in the case of Samahuta, Brahmsia and Darlimunda. There is no doubt that the poor villagers having no land are subject to under-consumption.

*Conclusion*

The surplus stock in the hands of big farmers may be looked upon as potentially equivalent to an investible fund. If investment opportunities in the rural sector are widened, if the opportunities of technical innovation requiring capital investment are brought within the reach of the farmers and its prospects made known, if rewards of hoarding in the form of enhanced prices are curbed, it is likely that larger quantity of foodgrains would be flowing out of stock of the farms to find their way into active investment.

TABLE I—PROPORTION OF SALES TO RECEIPTS OF AMAN PADDY BY HOLDING SIZE-GROUPS: 1956-57

| Village | Kansar, West Bengal | Jungul, West Bengal | Harnichak, Bihar | Samahuta, Bihar | Brahmsia, Bihar | Kutra, Orissa | Darlimunda, Orissa | Gundrigora, Orissa |
|---|---|---|---|---|---|---|---|---|
| Holding Size-Group (in acres) | Per cent of sale to receipts | Per cent of sale to receipts | Per cent of sale to receipts | Per cent of sale to receipts | Per cent of sales to receipts | Per cent of sales to receipts | Per cent of sales to receipts | Per cent of sales to receipts |
| 1. 0.01— 1.25 .. | — | — | — | 25.84 | — | — | — | — |
| 2. 1.26— 2.50 .. | 9.09 | 2.17 | 2.54 | — | — | — | — | — |
| 3. 2.51— 3.75 .. | 6.64 | 2.73 | 15.38 | — | 11.74 | — | — | — |
| 4. 3.76— 5.00 .. | 25.29 | 21.05 | — | — | 30.00 | — | — | — |
| 5. 5.01— 7.50 .. | 9.50 | 30.11 | 25.00 | 6.52 | 15.15 | — | — | — |
| 6. 7.51—10.00 .. | 11.40 | 33.83 | — | 2.98 | 56.15 | — | — | — |
| 7. 10.01—15.00 .. | 12.00 | 35.79 | — | 20.47 | 57.14 | — | 4.85 | — |
| 8. 15.01—20.00 .. | — | — | — | 19.44 | — | — | — | — |
| 9. 20.01—25.00 .. | — | — | — | 33.33 | — | 31.11 | — | — |
| 10. 25.01—30.00 .. | — | — | — | 11.43 | — | 30.43 | — | — |
| 11. Above 30.00 .. | — | — | — | 28.37 | — | — | 12.46 | — |
| Total (Average) | 11.70 | 29.58 | 6.24 | 19.04 | 28.21 | 9.17 | 8.69 | — |

TABLE II—PER CAPITA SURPLUS OVER SALE OF AMAN PADDY BY HOLDING SIZE-GROUPS: 1956-57

(in Maunds)

| Village | Kansar, West Bengal | Jungul, West Bengal | Harnichak, Bihar | Samahuta, Bihar | Brahmsia, Bihar | Kutra, Orissa | Darlimunda, Orissa | Gundrigora, Orissa |
|---|---|---|---|---|---|---|---|---|
| Total population | 653 | 389 | 528 | 366 | 172 | 490 | 401 | 94 |
| Holding Size-Group (in acres) | Per Capita Surplus | Per Capita Surplus | Per Capita Surplus | Per Capita Surplus | Per Capita Surplus | Per Capita Surplus | Per Capita Surplus | Per Capita Surplus |
| 1. 0.01 — 1.25 .. | 1.27 | 0.50 | 1.17 | 7.00 | 1.03 | 1.04 | — | — |
| 2. 1.26 — 2.50 .. | 4.14 | 1.99 | 5.48 | 4.06 | 3.02 | 2.69 | 2.67 | 1.54 |
| 3. 2.51 — 3.75 .. | 8.67 | 4.65 | 6.29 | 3.50 | 6.20 | 3.20 | 5.00 | 1.55 |
| 4. 3.76 — 5.00 .. | 7.77 | 6.35 | 6.45 | 4.32 | 6.63 | 4.27 | 5.10 | 3.00 |
| 5. 5.01 — 7.50 .. | 9.82 | 8.95 | 15.00 | 3.58 | 11.67 | 4.57 | 5.00 | 2.42 |
| 6. 7.51 — 10.00 .. | 15.55 | 17.05 | — | 5.91 | — | 7.63 | 7.33 | 3.00 |
| 7. 10.01 — 15.00 .. | 29.33 | 10.39 | — | 12.40 | 8.41 | 5.15 | 9.80 | 2.67 |
| 8. 15.01 — 20.00 .. | — | — | — | 11.15 | 12.50 | — | 0.56 | — |
| 9. 20.01 — 25.00 .. | — | — | — | 10.00 | — | 5.17 | 25.00 | — |
| 10. 25.01 — 30.00 .. | — | — | — | 31.00 | — | 12.31 | 9.33 | — |
| 11. Above 30.00 .. | — | — | — | 17.34 | — | — | 55.62 | — |
| Total (Average) .. | 9.45 | 6.33 | 5.22 | 7.70 | 6.29 | 5.36 | 13.74 | 2.27 |
| Cultivating population .. | 401 | 264 | 242 | 427 | 167 | 388 | 302 | 84 |

TABLE III—ANNUAL CONSUMPTION OF PADDY BY HOLDING SIZE-GROUPS AND PER CAPITA SURPLUS: 1956-57

(in Maunds)

| Village | Kansar, West Bengal | Jungul, West Bengal | Harnichak, Bihar | Samahuta, Bihar | Brahmsia, Bihar | Kutra, Orissa | Darlimunda, Orissa | Gundrigora, Orissa |
|---|---|---|---|---|---|---|---|---|
| Holding Size-Group (in acres) | | | | | | | | |
| 1. 1.01 — 2.25 .. | 11.76 | 4.97 | 3.66 | 1.50 | 1.22 | 5.91 | — | — |
| 2. 1.26 — 2.50 .. | 5.20 | 6.28 | 3.84 | 1.87 | 2.06 | 9.66 | 5.06 | 1.78 |
| 3. 2.51 — 3.75 .. | 6.14 | 6.66 | 4.59 | 1.50 | 2.44 | 8.63 | 5.81 | 2.16 |
| 4. 3.76 — 5.00 .. | 5.11 | 7.31 | 2.81 | 1.59 | 1.78 | 7.50 | 4.78 | 0.94 |
| 5. 5.01 — 7.50 .. | 6.60 | 7.03 | 3.56 | 2.06 | 2.44 | 6.09 | 4.22 | 1.88 |
| 6. 7.51 — 10.00 .. | 7.71 | 7.78 | — | 1.87 | — | 7.88 | 7.03 | 1.88 |
| 7. 10.01 — 15.00 .. | 9.00 | 6.56 | — | 2.63 | 2.72 | 7.97 | 6.56 | 0.66 |
| 8. 15.01 — 20.00 .. | — | — | — | 2.81 | 2.34 | — | 2.06 | — |
| 9. 20.01 — 25.00 .. | — | — | — | 1.31 | — | 18.09 | 9.38 | — |
| 10. 25.01 — 30.00 .. | — | — | — | 1.89 | — | 1.13 | 7.50 | — |
| 11. Above 30.00 .. | — | — | — | 2.15 | — | — | 5.90 | — |
| Total (Average) .. .. | 6.48 | 6.47 | 3.65 | 1.97 | 2.25 | 7.59 | 5.44 | 1.78 |
| Per capita other disposals (average) .. .. | 0.32 | 0.95 | 0.18 | 0.01 | — | 0.45 | 1.47 | — |
| Per capita surplus of *Aman* paddy in the hands of farmers over sales, consumption and other disposals .. | +2.65 | −1.09 | +1.39 | +5.72 | +4.04 | −2.68 | +6.83 | +0.49 |

# PROBLEMS OF MARKETABLE SURPLUS IN INDIAN AGRICULTURE

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In a developing economy like India marketable surplus of agricultural products has an extremely significant role to play. The rate at which agricultural production expands, affording an increasing supply of food and raw materials, largely determines the pace of economic development. What is even more important than a mere increase in production is the actual quantity of marketable surplus available from such an increase. In fact, one of the most significant indices of economic development is the quality and quantity of marketable surplus found in the economic system. It is this feature which distinguishes a highly developed economy from an under-developed economy.

By and large, under normal conditions, a producer would market that portion of his produce which is over and above his consumption requirements. Since he is free to arrive at this quantity, it constitutes his real surplus. On the other hand, if the amount of produce which the farmer sells is not solely determined by his own needs, but also by some other compelling economic factors, then his marketable surplus is not a free variant, but a forced surplus. The general presumption is that the element of forced surplus is more predominant in the less developed economies like India.

## IMPORTANCE OF MOBILISING THE SURPLUS

The pace and flow of marketable surplus will play a very important role in the next few years for two basic reasons: (i) increase in the country's population; (ii) expanding food needs of the urban areas as the tempo of development and urbanisation increases. The rate of growth of the industrial sector and of non-agricultural employment depends, to a great extent, on the success with which we are able to transfer the increased production of food and raw materials to the urban/industrial sector. If the quantity of food required to sustain a given increase in industrial employment is not forthcoming, either industrial development will be slowed down or inflationary pressures will develop in the economy. Part of the increased employment will take place in the investment sector. Hence the mobilisation of agricultural surplus is ultimately a part of the problem of augmenting the investible surplus or savings in the economy.

Creating a marketable surplus poses no great problems in the case of commercial crops since most of the production is anyway intended for the market. In the case of foodgrains, however, the consumption demands of the agricultural population are large relatively to total production. Since population is increasing and since the majority of farmers are at a near subsistence level, an increase in the output of foodgrains tends to be absorbed by increased consumption. Since the rate of growth in non-agricultural employment depends to a large extent, on the magnitude of transfer of food to the urban sector, means have to be devised

to transfer a part of the increased production of foodgrains if this is not brought about by the automatic working of the market forces.

There are three aspects to the problem of indentifying and mobilising agricultural surplus in the economy:

(a) the transfer of produce from the rural to the urban sector;
(b) inter-State transfers;
(c) creating a surplus within the country for exports.

The most popular and the most widely treated issue relates to the rural-urban transfers of agricultural produce. Agriculture being the backbone of our economy with over 70 per cent of the population depending on it for their daily bread, it is of vital importance to gain a full understanding of the limitations of the Indian farmer and also, the behaviour of his market supplies in relation to price. It is in the context of these factors that effective solutions ought to be suggested.

The basic problems which confront the Indian farmer spring mainly from the inherent rigidities of the rural economy. The physical productivity of the farm being low, the marketable produce seldom exceeds the requirements of the village or some adjoining areas. Cultivation on small and fragmented plots of land with a disproportionately large population yields but a negligible amount of marketable surplus. Another striking feature is the total lack of participation in the produce market. Absence of complete monetization of the rural economy, lack of proper storage facilities on the farm and the seasonal nature of the production of farm products, etc., have been mainly responsible for this.

## MARKETABLE SURPLUS AND ITS BEHAVIOUR IN THE MARKET

The conclusions of the various commissions appointed during the last decade to make a study of the issue, all point to a narrow margin of the marketable surplus in India. According to a recent Report,[1] "By far the largest portion—over 75 per cent — of India's foodgrain production is never marketed.....The total marketable surplus represents less than 25 per cent of total foodgrain production in an average year." And, this includes both the quantity sold in the villages to meet local needs and the quantity brought to the assembling markets to meet the urban needs. Even according to the most liberal estimates, the marketable surplus in foodgrains is only one-third of the total production. Cereal-wise, it is 32 per cent for rice, 35 per cent for wheat and 25 per cent for millets. The marketable surplus is, however, very large in the case of commercial crops where the margin is as big as 90 or 95 per cent of total production. Since only a small portion of the total foodgrains production enters the market, the variations in the marketed surplus of this commodity sharply affects the supply available for non-agricultural sectors.

But the extent of variation in quantity marketed varies directly with the prevailing price-level and the expectations entertained at that time about future prices. Increased production is not always reflected in the market because of the existence of a chain of intermediaries who control the flow of stocks to the

1. Ministry of Food and Agriculture (Ford Foundation) : Report on India's Food Crisis and Steps to Meet It, Part I, Ch. III, p. 98.

market. Stock holding is, no doubt, necessary in trading, but unhealthy speculation in wholesale trading leading to inflationary pressure, and instability in price-level has an adverse effect on the economy. It is mainly to check this evil that the Food Grains Enquiry Committee stressed the need for social control in wholesale trading. Operations in this direction should be concentrated mostly in the villages as the bulk of the marketed surplus is usually sold in the village. According to the All-India Rural Credit Survey (1955) nearly 65 per cent of the total sales of crops are effected within the village limits, the proportions varying among the different crops and different regions.

Owing to the dearth of statistical information, it is very hazardous to equate variations in production with variations in market supplies. "On *a priori* grounds it may be said that if production increases and prices fall, marketed surplus will increase more than proportionately, owing to the tendency of de-hoarding initiated thereby. Similarly, if the production falls and prices rise, marketed surplus will increase more than proportionately owing to the stimulus to greater hoarding imparted thereby. But a situation may arise with prices and production moving in the same direction, when marketed surplus may behave quite erratically."[2]

For instance, during the latter half of 1955-56 and the first half of 1956-57, despite a general rise in the price-level, market arrivals did either decline or fail to increase proportionately. This could have been due to the following reasons: (i) The producers consumed more than before ; (ii) A tendency for holding grains for a longer period than usual developed because (a) an increase in the availability of credit significantly enhance the cultivator's holding power, (b) the tendency to invest in stocks of grains became more marked and (c) the cultivators anticipated a further rise in prices; (iii) The producer's cash needs could be met with smaller sales.

Contrary as it seems to normal producer's response, the above instance is very representative of the situation likely to occur in a country where the surplus is at best a marginal one for most of the producers. In other words, "in the economist's jargon, the income effect of a change in price on consumption tends to be stronger than the substitution effect."[3]

*Experience of Other Countries in Mobilising Marketable Surplus*

A glance at the Chinese method of building resources for industrialisation would prove useful. During 1950-58, the Gross National Product (GNP) in India did not rise beyond 30 per cent, while foodgrains production rose by 37 per cent (Base: 1950). In China, on the other hand, according to calculations made by Prof. Malenbaum, there was a 100 per cent increase in foodgrains production during 1950-58 (from 122.7 million tons to 225 million tons). Industrial output also doubled between 1952 and 1958. As a result, gross investment as a percentage of GNP increased more than two-fold, from 9.7 in 1950 to 22 in 1958; in India gross investment showed only a 50 per cent increase, from 9.3 to 13.5.[4]

2. Report of the Foodgrains Enquiry Committee, 1957.
3. *Ibid.*
4. See Wilfred Malenbaum, "India and China : Contrasts in Development Performance," *American Economic Review* June 1959 pp 287 and 292

Naturally China could pay for her imports by exporting foodgrains, and finance her investment programmes from domestic savings out of the current income. This success is largely accounted for by the larger investment in agriculture and industry than that devoted to services. No doubt, the Plans in India have laid special emphasis on the need for investing in both these sectors. Direct taxes on agriculture still account for less than 10 per cent of the total tax revenue. The magnitude of tax burden on the rural sector is relatively small in India. Hence we have not been able to tap fully our agricultural resources. The crucial role of mobilising agricultural surpluses in economic development is also illustrated by the experience of such countries such as Soviet Russia, Japan and Poland.

In Russia, the increase in the flow of marketable surplus was achieved by collective farming and by the setting up of large scale State farms which acted as agencies for channelling a larger percentage of the surplus to the urban sector. The system of compulsory delivery contracts at fixed prices not only provided the non-agricultural sector with a guaranteed supply of agricultural produce, but also put pressure on the farmers to maximise their produce.

In Japan, the increased use of fertilizers and adoption of improved techniques resulted in a considerable expansion of domestic output which outstripped population growth. But a large part of the agricultural surplus was siphoned off by the Government for capital formation in industry by heavy land taxes. The latter compelled the farmers to part with a larger proportion of their produce, and this solved the problem of feeding the urban population.

In Poland, the creation of small farms combined with exaggerated emphasis on industrialisation and output of capital goods, left little attraction for the farmer to increase his production. It also reduced his capacity to get consumer goods in exchange for his produce. Hence, the Polish Government had to offer special incentives in the form of credit facilities, etc., to increase the flow of market supplies.

In China, the organisation of agrarian co-operatives resulted in a substantial increase in agricultural production and made possible the transfer of a large part of it to the Central Government at fixed prices. The Government's declared policy in China is to restrict purchase of foodgrains to 80 per cent of the surplus, leaving the farmers free to dispose of the balance.

In India, however, these methods may have only limited applicability because of various political and institutional factors. Besides, some of the problems which our economy faces are peculiar to India. Therefore, the ways and means of mobilisation of marketable surplus should be preceded by an understanding of difficulties in the structure of our market mechanism.

## WAYS AND MEANS OF MOBILISING AND REGULATING AGRICULTURAL MARKETABLE SURPLUS

(*a*) *Increased monetization and inducement to increase production:* The most important means of effecting the transfer of agricultural surpluses is the price mechanism itself. Whatever is transferred through the normal price mechanism is in the nature of a voluntary transfer. Increased monetization of the rural

economy will not only bring a greater proportion of the output into the mechanism of the market, but will also induce the farmers to produce more. For, contact with the market forces changes the outlook of the producers and reveals to them the scope for earning profits by producing even for distant markets. Also, increased production often springs from a desire to acquire consumer goods brought to the notice of the farmers by the spread of the monetized section of the market. Establishment of adequate means of communication in rural areas is an important method of speeding up the extension of market and the monetization of the economy.

(*b*) *Taxation:* Not all of the transfer of agricultural surplus can be paid for in the form of consumer goods required by the farmers. This is because part of the surplus goes to support the workers in investment goods industries which do not immediately and directly produce goods for consumption. This part of the surplus must therefore be transferred in the form of saving, voluntary or forced. The role of agricultural taxation must be viewed in this light. Taxes on commodities generally consumed by the agricultural population offer the most "painless" way of extracting some forced saving from the agriculturists. But indirect taxation must be supplemented by increased direct taxation of the more well-to-do farmers. A progressive surcharge on land revenue seems to be a suitable method of raising the level of direct taxation. The poorer farmer can of course be exempted from the surcharge. It would be realistic to assume that at least 25 per cent of the extra surplus needed should be mobilised through the mechanism of taxation.

(*c*) *Control of trade links:* It has been noted that what is marketed by the farmers does not often reach the ultimate consumers because of the activities of the intermediaries. A more direct and close relationship should be established between the producers and the ultimate consumers. Improvement in marketing arrangements has already been taken on hand, and efforts in this direction will do doubt continue. However, what is ultimately needed is the establishment of co-operative marketing societies of farmers which will establish direct links with consumer co-operatives in towns. This will ensure a social control of the flow of surplus to urban consumers, and at the same time eliminate artificial scarcities engineered by anti-social elements. In all, the country has now about 15 State Marketing Societies, about 2,000 Marketing Unions and nearly 10,000 Primary Marketing Societies. And it is estimated that by the end of the Second Plan, Co-operative agencies may be able to handle about 10 per cent of the marketable surplus. It should be our aim to raise the proportion to at least 30 per cent by the end of the Third Plan.

(*i*) *Regulated markets:* In the interest of the primary producer, regulating markets and market practices needs more emphasis. Regulated markets promote fair market practices and save the cultivator sellers from the arbitrary deductions and other malpractices. It has been proved by experience that wherever markets have been regulated, the farmer has felt encouraged to take his grain to them in preference to unregulated markets. Regulated markets should be concentrated more in areas with large agricultural marketable surpluses, and areas within bullock-cart distance from the cultivator's field.

(*ii*) *Co-operative farming:* Co-operative farming societies are the most potent instruments for mobilising agricultural surpluses. For one thing, the little

surpluses emerging on a number of small farms, which may otherwise be frittered away, are brought together to form a sizeable pool in the co-operative farm. Secondly, it becomes easier to identify and take count of the surplus when the units of production are large and organised. Thirdly, co-operative farms will be more amenable to social control and it will be more easy for the organs of the Government to establish contacts with the representatives of the farmers to the mutual benefit of the farmers and the sections of the population. Above all, co-operative farming will make possible improvements in technique and raise productivity and thereby raise the level of the potential surplus.

(*iii*) *State trading:* Since the formation of co-operative farming societies has to proceed on a voluntary basis, it is doubtful whether they will become widespread in the near future. Even if co-operative farming is to be the ultimate goal in the coming few years, we have to think of other means of establishing control over the distribution of agricultural products in the economy. The importance of State trading arises from this fact. State trading must be designed to supplement the normal activities of the market.

(*d*) *Farm credit:* Another way of augmenting the marketable surplus in the rural areas would be to link the supply of credit with the sale of agricultural produce. In the Community Project areas, special efforts may be made to make the farmer market-conscious, encourage him to sell more of his produce in exchange for industrial goods and thus ensure that increased production in these areas is reflected in the marketable surplus. Attention should also be given to create storage and warehousing facilities in every village.

(*e*) *Price policy:* A well-defined price policy is essential for maintaining a regular flow of marketable surplus. Since a large majority of our farmers live in a non-market oriented economy, special efforts have to be taken to bring the rural sector within the influence of price incentives. The agriculturists suffer from too much competition among themselves. The introduction of measures of control over supply will help to reduce the sharp fluctuations in prices and fall in incomes. Some element of monopoly trading is necessary in order to save the agriculturists from the bad effects of ineffective competition and lack of command over supply and prices. This would make agriculture more productive in the long run.

(*f*) *Income-support programme:* Where the ceiling and floor prices are fixed in advance it is necessary to ensure that the prices do not fall below the fixed minimum. For, in that case, income support programmes should be instituted. But this may not be feasible on a large scale, because in a country where there are a large number of cultivators, it calls for a big financial commitment. The only alternative is to maintain buffer stocks.

(*g*) *Grain silos:* Facilities provided in the rural areas should be such that while the farmer is encouraged to part with his grain after the harvest, he should not be left high and dry in the lean part of the year. For this purpose, the setting up of grain silos (as done in Orissa) would be very useful. The emphasis should be on local grain collections by way of shares and deposits. The Government should also participate in it.

(*h*) In order to guide the farmer in the allocation of his resources so as to obtain the maximum benefit Pilot Farm Planning Projects are being initiated at important agricultural centres in the economy. But such projects should be started in all parts of the country. After all, agriculture is the largest private sector in the economy, and the future pace and volume of agricultural output and its marketable surplus depends on the decisions of the numerous farmers.

## CONTROL OF THE MARKETABLE SURPLUS WITHIN A STATE

So far we have discussed the various issues connected with the problems of general mobilisation of marketable surplus. A further analysis of the issue is, however, possible in the light of inter-State transfers of agricultural produce. Because, in our country, the relative positions of various States regarding food production are not uniform.

Even with regard to foodgrains alone, a similar picture holds true. Kerala and Bihar, for instance, are among the principal deficit States in the country where the present gap in foodgrains is bound to assume serious dimensions as population increases and the process of industrialisation develops fresh demands for food production. It is in this light that the role of State trading, creation of food zones and buffer stocks assume great significance.

The ever-expanding demand for foodgrains in our country calls for a very even distribution of available supplies so that the relatively vulnerable sections of our economy are not distressed by an undue rise in prices. In order to keep an effective check on the flow of marketable surplus along proper channels, it is very essential to create more or less self-sufficient zones and cordon off heavily deficit areas or other important consuming centres where Government could release adequate stocks of foodgrains from the Central reserves. The creation of Southern Rice Zone, for instance has practically solved the problem of Kerala as the surplus of Andhra Pradesh can now meet the deficit of Kerala and the zone is, on the whole, surplus in rice. Similarly, the creation of three wheat zones have been very useful. For instance, Punjab's surplus wheat can now take care of the deficit of Delhi. The resulting stabilisation of prices at a reasonable level creates great confidence in the mind of the farmer who will naturally part with a larger part of his produce in the market.

Besides, by proper husbanding of available food supplies in each State and zone, it is possible to build up small stocks of foodgrains at focal points in the economy. This would not only relieve the shortage of market supplies on some occasions but will also have a salutary effect on the prices of foodgrains in the country and exercise an indirect check on the speculative hoarding of stocks.

If the maximum amount of marketable surplus is to be mobilised in every State, then, internal procurement of such surpluses at reasonable prices either by the State or Central Governments, would go a long way in helping to build up buffer stocks. This is particularly significant in such surplus rice areas as Orissa, Madhya Pradesh and Andhra Pradesh. However, in view of the limited market supplies of rice, it would be wise on the part of the State Governments to continue

the policy of conserving rice supplies and distribute wheat instead. If a completely satisfactory result is to be attained, it is necessary to make a thorough survey of the extent of marketable surplus (crop-wise) in every district of the various States. A regular machinery has to be instituted to work on it and strike a balance between the surplus and deficit areas. This is an important task, because with the increase in purchasing power and growing urbanisation, there is a gradual shift from the consumption of coarser foodgrains such as Jowar, Bajra, Barley, *Ragi*, etc., to superior grains like Rice and Wheat. It means, that in future more concentrated efforts have to be directed towards mobilising the marketable surplus in the case of superior grains.

## CREATION OF AN EXPORTABLE SURPLUS

Yet another problem that we have to consider is the creation of a large exportable surplus in agricultural commodities which enter into export market. Since India is a net importer of foodgrains it would be idle to seek any surplus for export in that sphere. Whatever contribution there is will be in the form of cash crops or commercial crops. The problem of mobilisation of marketable surplus does not exist so much in the case of commercial crops, because once the internal needs are met, the rest of the produce are exported. There is, however, a great need to check the overall consumption of these items within the country and expand the export bag if possible. Increase in exportable surplus can be effected by (i) undertaking measures to increase production and productivity, and (ii) ear-marking a certain portion of the produce for exports. This may be done either in the case of raw materials or manufactured and semi-manufactured goods.

The importance of our exports arises from two basic factors. Firstly, our export items are traditionally honoured and secondly, they are very good foreign exchange earners. A larger export will naturally mean a better buying capacity on our side. Juxtaposed with the increasing magnitude of our import of foodgrains, the significant role of our exports in reducing our debt burden can hardly be over-emphasised.

## CONCLUSIONS

To sum up, the approach to the problems of marketable surplus in Indian agriculture is three-pronged: (i) the rural-urban transfers, (ii) inter-State transfers and (iii) exportable surplus. This calls for a vigorous programme of mobilisation of surplus at various levels, right from the producing centre to the ultimate consumer. Equally vital is the need to step up production and raise productivity in the long run. It means that agriculture should become one of the most scientifically managed industries in the economy. Unless and until we undertake this twin responsibility it will not be possible either to reap the full benefits of increased marketable surplus or remove the spectre of shortage in agricultural commodities which will continue to remain a long-term phenomenon.

# A STUDY OF PROBLEMS OF MARKETABLE SURPLUS OF FOODGRAINS IN A VILLAGE IN BIHAR

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A case study of the problems of marketable surplus of foodgrains was made in a village in the Champaran district of Bihar. The objective of the study was to know the percentage of the farmers of the village who have marketable surplus in grains, the nature of the farms which have marketable surplus, the extent of the surplus of each farmer and the form and manner in which the marketable surplus is disposed of. The results of the study are presented below.

The village does not possess canal irrigation facilities. Cereal cultivation entirely depends on rains. The cereals grown in the village are rice, maize and *kodo* (millet). The villagers also produce pulses like *arhar* and cash crops like sugarcane, jute and vegetables. *Kodo* is usually used for giving wages to labourers. Cent-percent of the jute and sugarcane is sold in the market. Except a small amount used for family consumption, all the vegetables grown by farmers are also sold in the market. From the amount of rice and maize produced, the farmers retain a large percentage for family consumption and seed, etc., and sell the surplus in the market. The study was mainly concerned with the marketable surplus of rice and maize of the farmers. The information was collected by means of a questionnaire filled in on the statement of the head of a family. Altogether forty farms in the village selected on random sampling method were covered by the investigation. Non-cultivating families were excluded from the sample. The size of the farms in the sample families and the volume of their marketable surplus of foodgrains (rice and maize) are given in Table I.

TABLE I—DISTRIBUTION OF THE FAMILIES ACCORDING TO THE SIZE OF THE FARM AND AMOUNT OF MARKETABLE SURPLUS OF FOODGRAINS (RICE AND MAIZE)*

| Size of the farm in acres | No surplus | 1-10 mds. | 11-20 mds. | 21-40 mds. | Above 40 mds. | Total No. of farms |
|---|---|---|---|---|---|---|
| 1—3 | 13 (32.5) | 4 (10.0) | — | 1 (2.5) | — | 18 (45.0) |
| 3.01—5 | 8 (20.0) | 1 (2.5) | 1 (2.5) | 1 (2.5) | — | 11 (27.5) |
| 5.01—8 | — | — | 2 (5.0) | 3 (7.5) | 1 (2.5) | 6 (15.0) |
| Above 8 | — | 1 (2.5) | 1 (2.5) | 2 (5.0) | 1 (2.5) | 5 (12.5) |
| Total | 21 (52.5) | 6 (15.0) | 4 (10.0) | 7 (17.5) | 2 (5.0) | 40 (100) |

* Figures within brackets indicate percentage.

The table shows that out of the 40 families, 18 (45 per cent) cultivated 1 to 3 acres of land, 11 (27.5 per cent) cultivated 3.01 to 5 acres, 6 families (15 per cent) 5.01 to 8 acres and 5 families (12.5 per cent) cultivated more than eight acres. As to marketable surplus of foodgrains, 21 families (52.5 per cent) had no marketable surplus. All these 21 families cultivated five acres or less of land, and 62 per cent of them upto three acres of land. Twenty-five per cent of the sample families had small surpluses, between 1 and 20 maunds and 17.5 per cent between 21 and 40 maunds. Only 5 per cent of the families had more than 40 maunds. All families who cultivated more than five acres of land had marketable surplus, but they formed only about 27 per cent of the total, while more than 70 per cent of the total number of families cultivated upto 5 acres and very few of them had marketable surplus. It may be noted that the present land reform measures in most of the States in India are leading to decrease the number of large holdings and to increase the number of small holdings. This is expected to have an adverse effect on the total volume of marketable surplus of foodgrains in the country.

Table II gives the size of the families and the volume of marketable surplus of foodgrains.

TABLE II—DISTRIBUTION OF THE FAMILIES ACCORDING TO SIZE OF THE FAMILY AND AMOUNT OF MARKETABLE SURPLUS OF FOODGRAINS (RICE AND MAIZE)*

| Persons in the family | No surplus | 1-10 mds. | 11-20 mds. | 21-40 mds. | Above 40 mds. | Total No. of families |
|---|---|---|---|---|---|---|
| 1—3 | 4 (10.0) | — | — | 1 (2.5) | — | 5 (12.5) |
| 4—6 | 9 (22.5) | 2 (5.0) | 1 (2.5) | 2 (5.0) | — | 14 (35.0) |
| 7—9 | 3 (7.5) | 3 (7.5) | 3 (7.5) | 1 (2.5) | — | 10 (25.0) |
| 10 and above | 5 (12.5) | 1 (2.5) | — | 3 (7.5) | 2 (5.0) | 11 (27.5) |
| Total | 21 (52.5) | 6 (15.0) | 4 (10.0) | 7 (17.5) | 2 (5.0) | 40 (100) |

* Figures within brackets indicate percentage.

Of the forty families studied, 12.5 per cent were small, 35 per cent medium, 25 per cent large and 27.5 per cent very large. The figures in the table do not suggest any correlation between the size of the family and the amount of the marketable surplus. The majority of the small families had no marketable surplus of grains while more than 50 per cent of very large families had some marketable surplus. It may be noticed that the majority of families having more than 20 maunds of marketable surplus were either large or very large. It was due to the fact that large families generally cultivated larger holdings consisting of owned and leased-in land.

Table III shows the marketable surplus as a percentage of the total normal produce.

TABLE III—DISTRIBUTION OF THE FAMILIES ACCORDING TO THE PERCENTAGE OF THE MARKETABLE SURPLUS OF RICE AND MAIZE TO THE NORMAL PRODUCE*

| Marketable surplus as percentage of normal produce | Rice | Maize |
|---|---|---|
| | No. of families | No. of families |
| No Surplus | 21 (52.5) | 17 (42.5) |
| Upto 10% | 8 (20.0) | 1 (2.5) |
| 11 to 20% | — | 1 (2.5) |
| 21 to 40% | 6 (15.0) | 3 (7.5) |
| 41 to 60% | 5 (12.5) | 11 (27.5) |
| Above 60% | — | 7 (17.5) |
| Total | 40 (100) | 40 (100) |

* Figures within brackets indicate percentage.

It may be noted that in the case of rice, 52.5 per cent of the families had no surplus, 20 per cent had surplus upto 10 per cent of the normal produce, 15 per cent between 21 and 40 per cent and 12.5 per cent between 41 and 60 per cent of the normal produce. None of the families had marketable surplus amounting to more than 60 per cent of their normal production of rice. In the case of maize, 42.5 per cent of the families normally did not have any surplus though in the year previous to the survey, 52.5 per cent had no surplus. About 27.5 per cent of the families sold between 41 and 60 per cent of their normal production of maize and 17.5 per cent sold more than 60 per cent of their normal production.

The percentages of normal production of rice and maize retained for home consumption are given in Table IV.

TABLE IV—DISTRIBUTION OF THE FAMILIES ACCORDING TO THE PERCENTAGE OF THE NORMAL PRODUCE OF RICE AND MAIZE RETAINED FOR HOME CONSUMPTION*

| Percentage of the normal produce | Rice | Maize |
|---|---|---|
| | No. of families | No. of families |
| Less than 50% | 1 (2.5) | 13 (32.5) |
| 50 to 60% | 6 (15.0) | 7 (17.5) |
| 61 to 70% | 2 (5.0) | — |
| 71 to 80% | 3 (7.5) | 1 (2.5) |
| 81 to 90% | 7 (17.5) | 1 (2.5) |
| 91 to 100% | 21 (52.5) | 18 (45.0) |
| Total | 40 (100) | 40 (100) |

* Figures within brackets indicate percentage.

The table shows that more than 50 per cent of the families in the sample retained 91 to 100 per cent of their production of rice for family consumption. Another 25 per cent retained 71 to 90 per cent of the grain for the purpose. Except one family all families retained 50 per cent or more of the rice produced by them for family food. In the case of maize, 45 per cent of the families retained 91 to 100 per cent and another 5 per cent 71 to 90 per cent for family consumption. Unlike the position in the case of rice, 32.5 per cent of the families retained less than 50 per cent of their normal production of maize for family consumption. In general it appears that a higher percentage of the superior grain is retained for family consumption than that of the inferior grain.

With regard to other purposes of retention, it was noticed in the case of both rice and maize, all families retained 1 to 3 per cent of the grains for seed. For payment of wages in kind, 75 per cent of the families did not retain any amount of rice and maize, the rest 25 per cent retained 1 to 6 per cent of the grains. Of the total number of families 25 per cent produced *Kodo* and they used 100 per cent of the grain for payment of wages.

With regard to the manner of disposal of the marketable surplus of rice and maize by individual families, it was seen that out of the 19 families who had marketable surplus of rice, 12 (63 per cent) sold it in the shape of hand pound rice and the rest in the shape of paddy. About 30 per cent of them sold the grain directly in the market while the rest sold it to village merchants or wholesale merchants. There is no rice mill in the area. The farmers did not sell the marketable rice to mill agents. When asked to state their preference for different agencies, the majority of farmers indicated their preference for wholesale merchants. Very few liked to sell the surplus directly in the market places due to the difficulties of communication.

The period of retention of the marketable surplus of rice varied from 6 to 9 months and of maize from 2 to 9 months. None of the families had any carry-over from one year to another. The majority of the farmers were conscious of the seasonal variation of prices but due to various difficulties, the majority did not retain the grains till the off-season. The usual difficulties were, the need for money for various purposes, the fear of deterioration of the quality of the grains, difficulties of marketing during the rainy season and loss in storage due to rats, weevil and white ants. Some of them also were not sure that the price in the off-season would be higher. Of the difficulties mentioned the majority thought that the need for money and the loss in storage due to rats, etc., were the most important difficulties for retaining the marketable surplus for a longer period. The loss in storage varied generally between 1 and 3 per cent of the marketable surplus. In one case it was stated to be as large as 5 per cent. The farmers had no permanent arrangement for storing grains. The grains were stored for the season in gunny bags which were the major item in the storage cost. Generally farmers having marketable surplus in rice or maize did not repurchase the grains in the off-season after selling it in the post-harvest months. Only one farmer reported that he purchased some grains in the off-season though he sold the same grain after the harvest. Enquiries regarding the existence of facilities for warehousing, grading and co-operative showed that no such facilities existed in the village or near about. There was a co-operative society for the sale of sugarcane, 100 per cent of which

was sold to the mill agents. Asked to state their own suggestions for the improvement of marketing facilities, the majority of the sample families suggested the provision of a metalled road connecting the village with the market centre and co-operative societies providing credit and warehousing facilities.

Thus in general the study showed that more than 70 per cent of the families surveyed cultivated upto 5 acres of land and as such more than 50 per cent of the total number of families had no marketable surplus in foodgrains. Of the rest 50 per cent, except a very small per cent, all had small surpluses. The major part of the grain produced by all the farmers was used for family food. The farmers experienced the difficulties of marketing usually noticed in the rural areas of India. There has not been much of improvement. The facilities for marketing cash crops like jute and sugarcane were better than those for foodgrains. Provision of facilities for communication, credit and warehousing will help the farmers in getting good returns for their small surpluses and will induce them to increase their marketable surplus. But the economy of the majority of the farmers is not being upset due to inadequate facilities for marketing foodgrains. The greater problem is inadequate production in comparison to family needs, so that very little surplus is left for sale. Even a guarantee of fair price for marketable surplus of foodgrains does not help much the cultivators in general, as most of them have no surplus to sell. The situation is the same in all parts of the country. Measures for greater production is the primary need. Provision of facilities for marketing should supplement the measures so that production itself will be encouraged and regular market supply will be ensured.

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# PROBLEMS OF MARKETABLE SURPLUS IN INDIAN AGRICULTURE

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There are two aspects of the problem of marketable surplus in agriculture. First is the basic question of continuing growth in the output of agricultural commodities, in order to generate an increasing proportion of absolute surplus, over and above the productive and personal consumption of the producers. This, we might call the problem of generation of potential surplus. The other is the question of the conversion of this potential into actual marketed transaction, that is its movement from the producing point to the consumers in the villages and cities.

So far as the first aspect of the problem is concerned, our economists, planners and administrators have long been aware of the need to pay close attention to it, until its numerous technological, organisational and institutional constituents

have been discussed threadbare and the last two Five-Year Plans have seen efforts to raise agricultural output, in order to make the volume of potential surplus increasingly bigger. No doubt, much more needs to be done in this connection and far more effectively for the desired end to be achieved, than has so far been done. Nevertheless, it must be recognised that there has certainly been no absence of the appreciation of the problem and a certain measure of success has undoubtedly been achieved in raising agricultural output and the potential surplus of farm products.

The other aspect of the problem, that of actual marketing of the potential surplus is a comparative newcomer on the stage of our consciousness. Indeed, the collapse of agricultural prices in 1954 and 1955 had created an impression that given a good harvest, the problem would not be one of attracting surplus to the market, but rather one of providing price support to the producers, in order to protect them from utter ruination. However, the developments in the agricultural field, since 1956, when we found ourselves faced with the paradoxical phenomenon of rising prices of agricultural products, along with a rise in their output and an alarming change in the traditional pattern of market arrivals and seasonal price fluctuations, have forced us to begin to give closer attention to the problem of actual marketing of agricultural products and its various aspects.

A number of recent marketing studies undertaken by academic institutions in various parts of India have revealed that: (1) immediate post-harvest arrivals have been declining in volume, the new pattern being more substantial arrivals in the rainy season, when prices show a tendency to rise; and (2) decline in prices during the immediate post-harvest period, is no longer, as substantial, it used to be, until a few years ago. This naturally leads one on to the conclusion that stocks are being held up somewhere outside the market, waiting for prices to rise, under the growing pressure of demand, particularly in the expanding urban areas, faced with arrival of shortages.

Traditionally, we have tended to hold the traders responsible for hoarding. However, now the traders complain that as a result of the credit squeeze policy of the Reserve Bank and their own ruinous experience of the working of, what they characterise as the unpredictable policies of the government and the prosperous state of the agriculturists, they are no longer in a position to secure adequate supplies at reasonable prices. According to them, it is now neither a traders' market, nor a consumers' market, but a producers' market.

The traders are further of the opinion that it is the producers who hold on to their stocks and release them as and when they find the prices sufficiently attractive to them. Indeed, this finds surprising confirmation in a number of recent market surveys of market arrivals of foodgrains.

Another interesting phenomenon of recent growth, discovered by some surveys is that the proportion of their produce marketed by the small producers has been going down. This, it has been explained by the analysts, is due to an improvement in the economic condition of the small producers, as a result of which they are now consuming a much larger proportion of their produce than hitherto, and

sell only a part of their produce, and that also when it fetches an attractive price. On the other hand, the big producers are found to be marketing an increasingly larger proportion of their produce than they used to do until a few years ago.

Thus, it *appears* pretty conclusive that it is the small producer, who is the villain of the piece. Since the huge bulk of output of foodgrains is produced on the millions of farms tilled by the mass of small producers, once they start consuming more and more of their own produce, the potential surplus would decline in volume and conditions of scarcity and high prices are bound to be the result at least so far as foodgrains are concerned. This, it is claimed, is the basic explanation of the decline in the volume of arrivals in the market in the immediate post-harvest period.

Now, few would dispute that the large producers, the erstwhile big landlords and the rich peasants have considerably improved their position *vis-a-vis* the market. The big landlords have received huge amounts of money or bonds on account of compensation and both they and the rich peasants are now in a strong position to hold on to stocks, partly also because of a greater volume of bank credit available to them. Indeed, our recent personal observations in the three States of Punjab, Maharashtra and Bengal, reveal that at least sections of big producers are turning towards direct participation in trading operations. The recent growth of marketing co-operatives were found in several cases to be combinations of big traders, who themselves act as *Kuchha Arhatyas* and compete with the established commission agents for the arrivals from the villages.

As a matter of fact, it was learnt on enquiry, that in the villages the large producers buy up the produce of the small producers, immediately after harvesting and quite frequently keep the purchased stocks in the *golas* of the small producers themselves, in order to escape discovery of their actual stock position by the government, in case the latter goes in for levies, etc. The fact that small producers are usually indebted to the big producers, further facilitates this process. This development, may, on the one hand, explain the complaint of the established traders regarding low arrivals and on the other account for the decline in open direct marketing by the small producers.

We of course, do not seek to deny the assertion that the small producers have begun to consume more of their own produce. However, we should take note of the generally known fact of mass evictions of sub-tenants by the large landlords. This and the large-scale expansion of the system of share cropping (which we discovered, even on the express admission of some landlords themselves, were subject to annual changes from one plot of land to another, in order to circumvent the provisions of the land reforms, which grant certain conditional proprietory rights to the sub-tenants), must have necessarily weakened the economic position of the small farmer. Even if certain sections of small producers are better off, it is undeniable that the overwhelming mass of them are still poor and debt-ridden, as amply shown by the rural credit and other economic surveys.

Thus, what one finds is the emergence of large farmers as traders, in their own rights, with a strong staying power and a grip over the produce of the small farmers. On the other hand, the big established trader is still powerful and competes with

the new farmer-traders for the control of the grain. Both naturally, tend to hold to whatever stocks they are able to acquire. When we find a certain established market receiving less of agricultural products, it would be, indeed, useful to examine the supply situation in other markets and States, to which conditions of scarcity may have attracted these stockists, old and new, in search of better returns, than in the traditional markets.

It is well-known that the small peasants can neither avail of the warehousing facilities, which have a floor of volume to be stored, far above the stocks a small peasant can possess, nor of bank credit. Our observation in all the three States unmistakably showed that both the warehousing and the credit facilities of the banks were monopolised by the traders and large producers who use them for speculative purposes. For example, we learnt, in a Punjab town that central warehouse stocks there frequently changed owners, without actual physical removals. Some stocks changed owners as frequently as four times in the course of a short period.

Of course, our own observation refers to only a few villages and markets in some of the States and we do not make any conclusive claim on its basis. However, this does show the need for more frequent and widespread and continuous surveys in the villages and central and intermediate markets, if the various stages of the journey of the agricultural products from the actual producers to the consumers, and the specific trade margins accruing to the agencies concerned at these various stages, along with the actual economic roles, if any, that they may play in the process are to be uncovered.

The introduction of rent realization in foodgrains and other commodities, assurance of floor prices and adequate and easy credit and warehousing facilities to the small producers, could be an effective counter to the interception of large bulk of the potential surplus, produced by the small producers. This would further provide the State with reserves to be released in periods of scarcity and rising prices.

Further, the time seems to have arrived, for the State, to boldly decide to nationalise wholesale trade in the principal agricultural commodities, in order to loosen the hold of the big traders, old and new. Co-operative marketing would, no doubt, benefit the small producers, provided the large ones are not allowed to enter and dominate it, but it is no substitute and can only be a supplement to nationalised wholesale trading.

Again, State organised supply of consumer and producer goods in the villages at controlled rates to peasants willing to sell their products to State agencies would be another factor helping to attract potential surplus out of the villages.

The key problem, here as in the case of increasing potential surplus, is, of course, radical institutional changes, without which effective long-entrenched barriers in the route of surplus agricultural output to the consumer, in a smooth and growing flow, more and more urgent, in the light of our national development plans, would spell disaster.

# PROBLEM OF MARKETABLE SURPLUS OF FOODGRAINS IN INDIA*

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In India, farmers produce foodgrains and cash crops like cotton, jute, oilseeds, sugarcane, etc. Cash crops are available mostly for market, the retention by farmers being only a small proportion of total production. In the case of foodgrains, the position is different. The farmers are both producers and consumers of foodgrains and, therefore, dispose of only what is in excess of their requirements. In India, most of the farmers operate very small farms and are devoted to subsistence farming, oriented to family needs rather than market demand. The surplus, such farmers have for market is naturally of a marginal character. There are, of course, a number of medium and big farmers too who operate a substantial part of total cultivable area in the country. About 65 per cent of total area is operated by 14 per cent of farmers, each with a holding of 10 acres or above. Such farmers contribute significantly to the total fund of marketable surplus.

## TREND OF MARKETABLE SURPLUS IN RECENT YEARS

In view of the importance of marketable surplus for economic development of the country, the question may be asked — has marketable surplus of foodgrains increased in recent years ? It is difficult to answer this question since adequate data are not available. The Marketing Reports of various foodgrains issued by the Ministry of Food and Agriculture, Government of India, from time to time, have given some data on marketable surplus but these are rather out of date. More recently, the Ministry of Food and Agriculture have initiated a scheme to collect data on marketed surplus[1] from year to year.

Data regarding marketed surplus are available for both pre-war and post-war periods in the case of rice and wheat, and for either pre-war or post-war period in the case of coarse grains. An idea of the trend over time can, therefore, be had for rice and wheat only. Compared to the pre-war period, the proportion of total produce marketed has shown a considerable decrease in the post-war period. Thus in the case of rice and wheat, the proportion of total produce marketed had declined from 40.5 per cent and 55 per cent in the pre-war period (undivided India) to 31.4 per cent (1956-57) and 32.7 per cent (1955-56) in the

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* Views expressed in this paper are the personal views of the author.

1. Marketable surplus may be distinguished from marketed surplus, the former representing the proportion of the total produce that should be normally marketed at different levels of production, and the latter representing the proportion that is actually marketed. The figures relating to a single year may be taken to represent marketed surplus (*e.g.*, 31.4 per cent of production for rice in 1956-57), while those relating to an average of three or more years may be taken to represent marketable surplus (*e. g.*, 55.0 per cent of production for wheat in the four-year period 1930-31 to 1934-35).

post-war period, respectively. But, as will be indicated later (*vide* Table II), in the case of rice the decline in marketable surplus in the period 1946-47 to 1948-49 in comparison with pre-war period was due to increased retention by farmers mainly for making payments in kind and for barter ; the retention for household consumption and for seed showing a comparatively small increase. It is clear, therefore, that although the marketable surplus showed a considerable decrease, the total stock of marketable surplus plus the quantities paid in kind and used for barter, which are available for the consumption of non-agriculturists both in rural and urban areas, recorded a relatively small decline (from 52.3 per cent of total produce in pre-war period to 49.2 per cent of total produce in the period 1946-47 to 1948-49). The data regarding the proportion of the produce marketed at different periods does not, therefore, lead us to any definite conclusions about the quantities available for non-agricultural population, unless information is also available on the quantities paid in kind.

It will, however, be seen that even in the case of rice and wheat data are not available for the last three or four years, although there are indications that in 1958-59 in some of the States market arrivals recorded a decline despite increase in production over previous year, while in 1959-60 they showed an upward trend despite some decrease in production (data on marketed surplus for 1958-59 and 1959-60 are expected to be available shortly). However, in the absence of complete data for these years when the tempo of economic development has increased considerably, it is difficult to say whether the marketable surplus is tending to show an increase or not. Resort will have, therefore, to be made to some indirect evidences so as to determine the trend in marketable surplus in recent years.

One indirect evidence is the trend in inter-State movement of foodgrains over time. Apart from variations in production and marketable surplus, a number of other factors such as disparities in prices over space, development of transport, nature and extent of restrictions on movement between zones, imports from abroad, programmes for distribution in high-priced areas, extent of cross movement, etc., have determined the quantum of inland movement. Nevertheless, it has to be admitted that inland movement is primarily a function of marketable surplus and the trend over time in the former does indicate the general direction in which the marketable surplus may be moving over time. Table I gives the figures of inland movement between certain trade blocks, by rail and river, of foodgrains in comparison with total production of foodgrains during recent years. The figures of inland movement given in this table exclude movement from ports to interior areas since such movements are generally out of imported stocks and are not dependent upon marketable surplus.

It will be seen that the inland movement of all foodgrains has increased progressively in recent years except in 1955-56 when movement showed a decline compared to previous year possibly due to decline in production. Not only was there an increase in the absolute movement of foodgrains but also the proportion of total movement to production increased considerably. It is, therefore, obvious that if the quantum of inland movement in recent years is any indication of the trend of marketable surplus, there has been an increase in the latter in recent years.

TABLE I—INLAND MOVEMENT BY RAIL AND RIVER OF FOODGRAINS AS PERCENTAGE OF PRODUCTION

| Year | Production of all foodgrains (thousand tons) | Inland Movement* (thousand tons) | | | | | Col. (7) as percentage of Col. (2) |
|---|---|---|---|---|---|---|---|
| | | Rice | Wheat | Coarse Cereals | Pulses | Total foodgrains | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1954-55 | 67,227 | 1,406 | 739 | 792 | 1,653 | 4,590 | 6.8 |
| 1955-56 | 65,816 | 1,493 | 576** | 718** | 1,582 | 4,369 | 6.6** |
| 1956-57 | 68,752 | 1,540 | 677 | 797 | 1,907 | 4,921 | 7.2 |
| 1957-58 | 62,511 | 1,567 | 863 | 990 | 1,741 | 5,161 | 8.3 |
| 1958-59 | 75,503 | 1,767*** | 501*** | 786*** | 1,801*** | 4,855*** | |

* It is assumed that foodgrains produced in 1954-55 agricultural season are available for inland movement over the following financial year, *i.e.*, 1955-56, and so on. As such, against the year 1954-55 the inland movement figures given relate to 1955-56, and so on for succeeding year.

** Decline in inland movement compared to the preceding year seems to be due to decline in production.

*** Relates to 11 months, April 1959 to February 1960, and is subject to revision. March 1960, for which figures are not yet available is one of those months when movement is generally large.

## MEASURES TO EXPAND MARKETABLE SURPLUS

This brings us to the next important question — how to expand marketable surplus? As stated above, marketable surplus of foodgrains is the excess of production over the families' requirements. The requirements here should be considered in a broad sense, so as to include not only the quantities needed for consumption of the family, but also those needed to pay to the labour and other services in kind and also needed for stock feeding and seed purposes. The relative importance of the various uses of rice as indicated in the Marketing Report on Rice is shown in Table II.

TABLE II—UTILISATION OF RICE PRODUCTION BY FARMERS

| Purpose | Percentage of Total Production | |
|---|---|---|
| | Pre-War | Post-War* |
| Household consumption .. .. .. | 42.0 | 44.4 |
| Payments in kind and use for barter . | 11.8 | 21.7 |
| Seed .. .. .. .. .. .. | 5.7 | 6.4 |
| Total Retention by farmers** .. .. | 59.5 | 72.5 |
| Balance representing marketable surplus .. | 40.5 | 27.5 |

* Average of 1946-47 to 1948-49.

** In view of the difficult food position, the quantity demanded for stock feeding is now taken as negligible.

Obviously, the marketable surplus can be increased either by discouraging retention of the produce by the farmer for one purpose or the other and/or by encouraging production.

*Discouraging Farmers' Retention*

So far as retention by farmer is concerned, the most important purpose is household consumption, followed by payment in kind, utilisation for seed and stock feeding. With progressive monetization of the economy, the practice to pay in kind is declining. Since the emphasis in the Third Plan is to achieve the targets of agricultural production mainly through higher yields rather than extension of cultivation, the requirements of seed as percentage of production would also go down significantly. On the other hand, in view of the stress being laid on livestock and poultry development, it seems certain that a higher percentage of foodgrains production would have to be retained for stock feeding. The only way left to reduce farmers' retention is to discourage household consumption.

It is well-known that in a developing economy like India, the marginal propensity to consume is high. The income elasticity of demand for foodgrains is also very high — much higher than in countries of North America and Europe. Thus with an increase in the level of incomes consequent on development, many of the farmers being small producers, would tend to consume more of their farm produce or switch on to consumption of superior cereals. This would result in reduction of marketable surplus.

The income of the farmer in India has increased in recent years not only due to rise in prices but also due to some other factors. A number of measures have been undertaken to increase agricultural production. These very measures result in increase in the income of the farmer who spends most of the additional income on self-consumption. Some of these measures involve advancing of funds in the form of loans to the farmers for productive purposes, but since no close watch is kept on the utilisation of these funds, in many cases these are utilised for consumption which also encourages self-consumption. Lastly, certain institutional changes like land reforms which aim at bringing about more equitable distribution of productive resources may have raised the incomes of small farmers, which might again be expected to get spent largely on self-consumption of foodgrains. At the same time, the incomes of the bigger farmers who used to contribute significantly to marketable surplus have gone down, thus reducing the overall fund of marketable surplus.

It is, therefore, obvious that left to the forces of market, the retention by farmers of foodgrains for household consumption would increase at least in the initial stages of economic development. Governmental intervention is necessary if this tendency is to be halted. The programme of governmental action might take the following forms : (i) Putting restraint on consumption of foodgrains by agriculturists ; (ii) Changing the outlook of the farmers who are oriented to family needs rather than market demand ; and (iii) Utilising for productive purposes the surplus of produce made available through restraint on consumption. The whole programme of action will have to be an integrated one, including all the three measures indicated above so that the cumulative effect is as large as possible.

Consumption of foodgrains by agriculturists may be restrained either by taking the drastic step of acquiring the entire produce of the farmers at a certain fixed price and later rationing it among the whole population, or by adopting merely certain regulatory measures. The monopoly procurement of the entire produce involves huge administrative and financial resources and may be ruled out. The regulatory measures are intended to provide an incentive to the farmers rather than compel them to part with their produce. While most of the requirements of the farmers are met from within the farm, there are always some requirements, *e.g.*, cloth, kerosene oil, which are met from market and for which payment has to be made in cash. To the extent that the farmers' needs have to be met from market, it is really the relationship between the prices of foodgrains (which the farmer sells) and the prices of other articles (which he buys) that influences the consumption of foodgrains. If the relationship turns in favour of foodgrains, the real income of the farmer is increased and there is more of self-consumption of foodgrains which is the main article of consumption. If, on the other hand, this relationship turns against foodgrains, the real income of the farmer is reduced and there is less of self-consumption of foodgrains. Thus, the marketable surplus of foodgrains can be increased only if the terms of trade become somewhat unfavourable to agriculturists.

But an adjustment in the relationship between the prices of foodgrains and other articles can induce a small farmer to bring only that proportion of produce to the market which is equivalent to the value of the articles that he needs to buy in the market (plus any other cash payment he has to make, *e.g.*, payment of taxes). In case the marketable surplus of foodgrains is to be augmented, it is necessary to make the farmer more market conscious so that his requirements which are now very limited show a progressive increase. One way to stimulate payment is to encourage sales of articles of consumption like cloth and kerosene oil and provide facilities like education and recreation on payment basis in rural areas. The adoption of hire purchase system will also stimulate demand for such articles as bicycles, radios, etc.

Apart from the articles of consumption for which cash payments are made, there are a number of pre-requisites of production such as fertilizers, improved seeds, insecticides, cement, etc., which can be purchased mainly in the market. Again, according to the criterion laid above, the marketable surplus would increase only if the pre-requisites of production are made available at relatively high prices. But in actual practice, this may act as disincentive in the way of adoption of improved methods of cultivation. Moreover, some of the materials, implements, services, etc., required for productive purposes, *e.g.*, tractor, digging of a well or a tank may be beyond the means of most of the farmers. It is, therefore, very necessary to make these items of requirements available (in kind) on loan basis and also on subsidised basis in case there is not much demand for them. Further, the loan should be recovered at such times and in such a way that a substantial part of the additional produce that may result from year to year is siphoned off as early as possible.

The farmers have also to pay land revenue and other taxes in cash. In the case of small producers who are largely outside the money economy, these taxes may provide an important inducement to reduce self-consumption and to

bring the produce to the market. As a matter of fact, Japan solved the problem of marketable surplus by the State's appropriating through heavy taxes a substantial part of the gain in agricultural productivity. As Dr. Poduval has observed: "In 1893-94, land taxes constituted about 45 per cent of the tax revenue ; even in 1906-07, they represented 22 per cent of the tax revenue."[2] It may be noted that proceeds from land revenue showed a considerable increase during the First Plan period (from Rs. 48 crores to 80 crores), but have recorded a much smaller rate of increase during the Second Plan period (estimated at Rs. 101 crores in 1960-61). Further, it is to be noted that the additional proceeds from the land revenue in recent years are more or less equivalent to the rent paid previously by the farmer-tenants to the intermediaries who have now been abolished. Thus, the increase in the land revenue has left the farmers' net incomes, and, consequently, marketable surplus mostly unaffected. No doubt, in recent years most of the State Governments have resorted to agricultural income-tax for obtaining additional revenue necessary for investment in the public sector. But the incidence of the tax falls mainly on big farmers and the total revenue yielded by this is only Rs. 8 crores. Some such taxes as betterment levy have also been imposed in certain States.

Of all the agricultural taxes, the most important from the point of view of augmentation of marketable surplus would still be land revenue which is a highly regressive tax and discourages self-consumption particularly of small farmers to the extent of revenue paid. But unfortunately, the total proceeds from this tax have generally not increased much during recent years mainly because, in many parts of the country, the assessment was last done several decades back when both yields and prices were relatively very low. There is need to revise the assessment periodically, say, after every five years in the light of the changes in the yields and the prices. In case an increase in land revenue is resisted on account of its being a regressive tax, an alternative may be to induce savings by the creation of a provident fund to which all the cultivators may contribute. The necessary contribution may be realised along with land revenue. Loans may be allowed to the farmers from this fund in times of need.

Several other suggestions have been made from time to time for the augmentation of marketable surplus. These suggestions include *inter alia* setting up of grain *golas* in rural areas, setting up of service co-operatives, speedy regulation of markets, setting up of rural banks to attract savings, etc. All such measures might be included in the integrated programme for expanding marketable surplus. A suggestion is often made that land revenue and irrigation charges may be collected in kind instead of cash, and loans for productive purposes should also be offered in exchange for supplies of foodgrains. Although such a course can be of immense help in meeting the requirements of consumers in deficit areas at reasonable prices, it is uncertain if this will result in a substantial increase in marketings.

Compelling or inducing the farmers to bring additional produce to the market through various measures suggested above may encroach upon the subsistence living of the small producers and may even impair their health and efficiency. It is well-known that many small producers have to make distress sales at harvest

2. "Economic Development and Marketed Surplus in Agriculture," R. N. Poduval, *Agricultural Situation in India*, August, 1958.

time and purchase their requirements for later part of the season at high prices. These producers do not also generally get much benefit from the assistance given by Government for growing more food. It will certainly be against the principle of equity to expect the small producers to tighten their belt further. It will not be out of place to mention here that even at present, the terms of trade are not quite favourable to the agriculturists. Thus, while the index of wholesale prices (1952-53 as base) in August 1960 (the month of lean supply and high prices of foodgrains) was 109 for cereals group, 115 for rice, 90 for wheat, it was 131 for cotton cloth, 147 for steel, 129 for cement and 138 for oil cakes. It will, therefore, be both necessary and desirable to take steps to augment the production of foodgrains at a rapid rate so that the surplus of the producers flows to the market more or less automatically.

*Encouraging Production*

During the decade ending 1958-59, production of foodgrains has increased by 30 per cent. Even with this increase in production marketable surplus has not kept pace with increasing demand. This is partly because along with production population has also increased by about 16 per cent during this period and the per capita production has increased by 12 per cent only, or at the rate of 1.2 per cent per annum. The increase in per capita production in recent years has not been found to be sufficient to provide the required quantity of marketable surplus. This points to the need for increasing, at a faster rate, per capita production of foodgrains and not merely total production of foodgrains. In the Third Plan, population is expected to increase at the rate of 2.14 per cent per annum ; production will, therefore, have to be increased at a rate much higher than hitherto to meet the increasing demand in the country.

## PROBLEM OF PACE AND PATTERN OF MARKETED SURPLUS

While the basic problem before the country is to expand marketable surplus over period, the food administrator is faced with the problem of dealing with fluctuations in the quantum of marketed surplus or market supply from year to year. Further, the pace and pattern of market arrivals within a marketing season may show wide variations over the years. Such variations in market supply from year to year and within a year may be the result of changes in production, changes in prices which are the outcome of various economic forces at work in the country, changes in expectations of prices, transport bottlenecks, etc. To deal with the situation, the food administrator is to take various regulatory measures, *e.g.*, import from abroad, internal procurement, building up of stocks with Government, distribution in deficit areas, restriction on bank advances. Most of these measures have to be planned much before the crop comes to the market. The uncertainty about the expected pace and pattern of market arrivals, however, is the main limiting factor in planning the various regulatory measures. There is need, therefore, to undertake regular studies[3] of the pace and volume of marketed surplus in relation to fluctuations in production, prices and other important factors that influence market supply. The Ministry of Food and Agriculture have initiated some work in this direction, and, as a first step, data on market arrivals from week to week are being collected from important markets in the country. With

3. These studies were also suggested by the Foodgrains Enquiry Committee, 1957.

the help of these data and other market intelligence, it should be possible to make an appraisal of the factors responsible for given market supply and demand position which might be of considerable help to the administrator in keeping a close watch over the market, adopting corrective measures against abnormal changes in market behaviour and arriving at various policy decisions affecting food prices.

## CONCLUSION

From the above analysis, it will be clear that in recent years though the marketable surplus has shown some improvement, the increase has not been *pari passu* with increase in production. For expanding marketable surplus of foodgrains, there is need to step up per capita production as distinct from total production of foodgrains and to discourage consumption of foodgrains by agriculturists without impairing their health and efficiency. Some ways to discourage consumption of foodgrains by agriculturists are : making the terms of trade somewhat unfavourable to agriculturists ; making the small producers market conscious ; revising land revenue periodically, say, after every five years ; creating a provident fund to which all the agriculturists may contribute ; and utilising for productive purposes the surplus made available through restraint on consumption.

Apart from the problem of augmenting marketable surplus, there is also the problem of dealing with fluctuations in the pace and pattern of market arrivals from year to year and within each year. There is need to undertake regular studies of the pace and volume of marketed surplus in relation to fluctuations in production, prices and other relevant factors.

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# ESTIMATION OF MARKETED PRODUCE IN INDIA*

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The yield rate of foodgrains is, at present, determined by the method of random sampling technique and is considered fairly reliable for framing administrative policies. Although the reliable estimates of food production is important in itself for framing the export and import policy of the Government, it may not alone

* The following publications were referred in the preparation of this paper : 1. Report—Food-Grains Enquiry Committee, Ministry of Food & Agriculture (Department of Food), Government of India, 1957 ; 2. P. V. Sukhatme : Sampling Theory of Surveys with Applications (1953) ; and 3. Preliminary report on a statistical examination of the data collected in the pilot scheme of the marketable surplus.

serve the purpose so far as the internal food policy like distribution of foodgrains amongst the various regions, control over the prices, study of market behaviour etc., is concerned. In fact, it may happen that the food production may comparatively increase and if the same is not properly regulated in the markets the price of foodgrains may go up. That is what exactly happened in India during 1959. This was the main reason that the Foodgrains Enquiry Committee recommended that flow of the marketable surplus of foodgrains should be continuously studied to frame sound policy of price control.

The cultivated land in the country is distributed amongst several million cultivators, and in many cases, the size of the operational holdings is just sufficient to produce food only for their own requirement. Assuming that the farmers cultivating more than 7.5 acres may be producing foodgrains more than they require, the percentage of such farmers is rather small ranging from 15 to 20 per cent although they are responsible for cultivation of 60 to 80 per cent of the total cropped area in the country. The surplus foodgrains produced by such farmers is thus available for consumption to the persons either engaged in non-agricultural activities or those who produce less than their requirement. The latter category may be those, whose holding size is less than five acres and who are not producing sufficient foodgrains for their annual requirement. This category of farmers may range between 30 to 35 per cent. It is ultimately the responsibility of the Government to supply the foodgrains to those who either do not produce at all or those who do not produce sufficient quantity for their own requirement. Therefore, it becomes very essential for the Government to know the availability of foodgrains from the internal resources.

However, one serious limitation in getting reliable information on marketable surplus is that under the present conditions in the country fairly large fraction of the farmers sells out considerable portion of their produce at the time of harvest to meet their immediate obligations like, payment of land revenue, social functions etc., and later on when they require foodgrains for their consumption they purchase from the markets. Therefore, the foodgrains which is released by the farmers is not the actual marketable surplus. The marketable surplus should be considered that quantity which is a real surplus after the consumption and other requirements of the farmers are met. Since, it is very difficult to collect data on marketable surplus, because it will imply the collection of data of marketed produce of the farmers and the foodgrains purchased by them, an attempt is made in this paper only to study the estimation of the marketed quantity of foodgrains. The marketed quantity of foodgrains may be defined as that part of the agricultural produce out of a year's production which the farmers dispose of in exchange of money directly or through intermediaries. Such information must be based on arrivals in the markets directly from the producing areas. If, therefore, some quantities out of a year's crop production sold at a market and then are moved to another market for re-selling, such quantities of foodgrains should be included in the marketed produce only once and that at the market where it was sold first. Like-wise since the marketed produce out of a year's production has to be related to that year's production, arrivals from the previous year's production will have to be recorded separately.

Considering the size of the country and the number of crops grown it may not be feasible to collect reliable data on a continuing basis from all the markets where foodgrains are assembled. The sampling method which has been found successful in improving the quality of data in other fields of agriculture shall have to be tried to get information on marketed produce. An outline of the approach is indicated in the subsequent paragraphs.

At present there are large number of markets in India (according to some estimate over 3,000) where foodgrains are assembled from the producing areas. Of these markets nearly 600 are regulated ones, and of which only about 300 are those regulated for foodgrains. As the regulated markets maintain complete day-to-day record of the market arrivals and disposals of the grains, it is much easier to get reliable data from such markets, although supervision of the records will be necessary. The bulk of the remaining markets are unregulated, where no regular records are maintained. However, in recent years a suitable marketing agency has been appointed for keeping day-to-day records of the marketing activities in some of the important unregulated markets. From all such markets also with certain regulation and supervision of the work it may be possible to obtain reliable data on the marketed produce. The remaining markets, which are neither regulated nor any marketing agency at present exists, will have to be sampled to obtain a complete picture of the marketed quantity. Thus, we may consider three categories of markets in general — (1) the regulated markets from where it is possible to collect full data with a little supervision of the records, (2) the markets with permanent marketing agency from where the data can be obtained by suitably regulating and supervision of the work, and (3) the markets which belong to neither of the two categories (1) and (2) from which samples are to be obtained for arriving at reliable figures. Therefore, sampling problem will relate only to the third category of markets.

The sampling design to be adopted for estimation of the marketed produce from the non-regulated markets will depend upon a prior knowledge about these markets. Simplest sampling designs which can be adopted may be simple random sampling by which method a small sample of markets may be selected at random and regularly observed with regard to the arrivals of foodgrains from the producing areas. However, selection of a sample of markets presumes that the list of the total markets of this category is available and if this list is not available or it is incomplete the method of simple random sampling cannot be used. In that case, the first attempt, before the sampling method could be applied, is to prepare a complete list of markets for selection of the sample. If this has been done the problem of estimating the marketing surplus may be simpler for this type of markets.

Since the precision of an estimate is as important as the estimate itself it is, therefore, necessary to adopt the method of sampling which provides best estimate in the sense that the estimate is subject to smallest sampling variance. The simplest method which can be suggested in this connection may be stratified random sampling. This method implies that some supplementary information highly correlated with the marketed arrivals is available for each individual market and can be used for improving the estimate. For example, if, for the previous years, some rough estimates on the marketed arrivals are available for each market such in-

formation can be used for grouping the markets suitably so that variation between the markets within groups is as small as possible while the variation between the means of the groups of the markets is as large as possible. Once such grouping or stratification has been done further refinement can be adopted by allocating the sample markets in optimum way known as Neyman's allocation, or proportional method of allocation. This type of method was adopted in pilot survey planned during 1956-57 for the purpose. This, however, suffered from the defect that the list of the unregulated markets was not complete, which was revealed later.

When supplementary information for individual markets is available stratification can be easily adopted. In case, this information is not known, it may be easily collected in the course of the sample survey. This information may be used for building up better estimates usually known as ratio estimate. For example, in the pilot survey conducted during 1956 for estimating the marketed produce of rice, wheat, gram and jowar it was observed that marketed produce as given for 1954-55 was highly correlated with that for 1956-57 and this information was utilised for obtaining ratio estimate. Similarly, it may be found that the production of a crop in a given area may be highly correlated with the market arrivals of that crop. Since the estimate of production for most of the important crops is available for larger units of area, like districts or division, it may be used for obtaining ratio or some other better estimate. However, in this case there is a slight risk since all the produce of a given area may not be marketed only to the markets located in that area but a part might flow to other markets located outside the area. But, it may be equally true that the produce from outside the area might be coming to the markets located in the region. In fact, what is required here is that there should be high correlation between marketed produce and the produce of that area.

As mentioned earlier the information on marketed produce may be required annually for framing food and price policy of the Government. It will thus be necessary to obtain reliable estimate of marketed produce annually. To meet this requirement, the method of successive sampling can be efficiently used. This method consists of retaining a sub-sample of the markets selected in the earlier years and selecting a fresh sample from the remaining markets and suitably combining the estimate based on these two sub-samples. Normally, this will lead to reduction in the number of markets to be sampled from year to year.

For organising the field work for the collection of data it may perhaps be costlier to locate one investigator in each market to collect data on a regular basis. It may perhaps be feasible and advantageous too to allot to one investigator a group of contiguous markets since it may not be necessary to collect data on each day but it may be adequate to make visits to those markets in fixed periodicity, say, once a week or a fortnight and collect data on each of the dates of visit. For this purpose, it may be operationally convenient to select markets in form of clusters instead of selecting them by simple random method. This may, however, require the study of the operation of the field work.

However, before adopting any sampling design it will be necessary to examine, on pilot scale, its workability in the actual field.

# MARKET SUPPLY OF FARM PRODUCTS IN A GROWING ECONOMY[1]

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Often, apprehensions are expressed regarding the behaviour of supplies of food flowing into the market when the economy is growing. A few attempts that have been made to explain the behaviour of food prices in the recent past in India, especially for the period 1955-56 onward, have emphasised the influence of the market supplies. We attempt below a theoretical exposition of the behaviour of the market supplies of farm products mainly to pick up certain issues for discussion. To abstract from the complexities of a situation during any specific period, (for example, prices during 1955-59), we define the period of reference in general terms, *e.g.*, being larger than one year and shorter than very long period. We assume growth of both the farm sector as well as non-farm sector and hence rising demand for and supply of food. Further, we assume no inflation, *i.e.*, constant expectation of prices. Then, we ask the question : if an attempt is made to raise the total farm output to the expected level of the total demand for farm products when the latter is rising, how will the market supply of farm products match with market demand ? For simplicity we assume market demand constituted entirely of the demand from the non-farm sector. To anticipate the answer, the chances are that more often the market supply would tend to exceed the market demand. Section one below discusses the problem of matching aggregate and market demand supplies ; and section two, generalises the conclusions arising from section one.

## I

### LONG-TERM ANALYSIS

If we take sufficiently long period then everything will be in a state of flux, we can keep nothing constant and we shall lapse into the major and bewildering problem of growth. If we take period longer than stock period, but shorter than very long period, such as five-year-plan period, we shall be able to keep certain things constant. For instance, we shall not be far wrong if we assume during this period price and income elasticities of demand constant.

On demand side, we assume certain trend regarding both population and income. For convenience, we adopt Mr. G. S. Maddala's model for predicting the demand.[2] According to his model, these two shifters (*viz.*, population and

1. The author gratefully acknowledges the encouragement and advice of Professor D. T. Lakdawala. By way of discussion, he has benefited from various others particularly Professor M L. Dantwala, Mrs. Tara Shukla, Mr. A. C. Shah and even the students of the class of Agricultural Economics.

2. *The Indian Journal of Agricultural Economics*, Vol. XV, No. 2, April-June, 1960, "Demand for Food during the Third Five-Year Plan" by G. S. Maddala.

income) influence the demand for farm products and the percentage change in the total demand is made up of the weighted sum of the percentage changes in population and income, weights being income elasticity of demand (attached to a given percentage change in income) and the rest of the weight (unity minus income elasticity) for a given percentage change in population.[3] One important merit of this model is that it is simple and yet brings out the essence of the problem. For instance, according to this model, in countries having high income elasticity of demand for food, relatively larger shifts will be brought about by income, rather than by population for a given percentage change in either of them. During such period as 'thirties when income was stagnant or slowly moving but population was moving rapidly, the demand would increase less rapidly than during the war, post-war or Second Five-Year Plan period when incomes were rapidly rising resulting into larger demand increases. Mr Maddala's model can be applied even to a small section in the community, for example, to find the change in the demand for farm products by non-farm sector. We ignore in his model the problem of changing composition of demand (*i.e.*, in effect we assume the income elasticity for quality to be not significant).

To predict demand quantitatively, Mr. Maddala has assumed urban income elasticity .3, urban population increase .22, urban income increase .49, rural income elasticity .6, rural population increase .1 and rural income increase .224, and the relative weights of two sectors 1/6 and 5/6 and has estimated a total increase in demand for food .1853 (or 20 per cent as an outside limit) for the period of five years 1960-65.[4] If we keep all his assumptions the same, except regarding the rural income level, we can work out the varying levels of total demand corresponding to the varying rural income levels. They are as under :

| Percentage increase in Rural income | Corresponding increase in total demand for food in per cent |
|---|---|
| 5 | 10 |
| 10 | 12 |
| 20 | 17 |
| 30 | 22 |
| 40 | 27 |
| 50 | 32 |

There is some artificiality in the above procedure. The urban income level is in reality dependent partly on rural income level. We have considered the two incomes independent of each other. This artificiality we have allowed to creep

3. One minor omission is in regard to seed requirement for which either we have to assume it varies with the total demand and in the same proportion or if there is any divergence between the two demands, it is not significant.

4. A comment on the data used by Mr. Maddala is in order. He has used mostly the N.S.S. data and elasticities also based on the same data. These data show per capita consumption of food to be lower in urban areas than in rural areas. This implies that elasticity of quantity of food consumed with respect to income may be nil or negative for foodgrains at the border between urban and rural population. On account of this, though the percentage changes in population and in income in urban areas are higher, the weight attached to urban demand for foodgrains is relatively smaller.

in mainly for convenience of analysis and in a planned economy, this sort of assumption will not be quite unreal when the planning authorities take the two investment decisions separately and out of the market.[5]

Whereas it is relatively easy to work out the relation between farm income level and the total demand level, the relationship between the income level and total gross production is difficult to build up on the supply side. This relationship rests on the conditions of income distribution between farm and non-farm sector. Unlike the advanced countries, in which producers market nearly the entire output, in underdeveloped countries, the producer markets only a part of the total output. On account of this, whereas in the advanced countries the fluctuations in the marketed produce and the output are closely linked, in the underdeveloped countries, the two are only loosely linked. The major factor that dissociates variations in market supplies from those in the output is the income elasticity of demand by the producer for food produced on farm. It is very low or nearly zero in case of advanced countries. In case of underdeveloped countries, it is positive and high and we have already indicated it to be·6. The fluctuations in income which are different from those in the output affect, through the income elasticity, the market supply and cause in the latter variations which are very much different from those in the farm output.

We assume, farm peoples' income consists entirely of a share in the gross-farm income (*i.e.*, we ignore their income from non-farm activity for our analysis). Further, out of land, labour and capital required for production, we assume initially land, labour and substantial portion of capital are found from within the farm sector. Since the substantial additions to farm production are to be obtained within a short period of five years, we assume that substantial portion of additional inputs of capital are found from outside the farm sector. Then we have to find how the addition to gross farm incomes will be divided between the farm and non-farm sectors. The accepted theory of income distribution is helpful to solve our problem to a certain extent only.[6] According to the accepted theory, following Hicks. [7] an increase in the supply of any given factor will increase its relative share, if its elasticity of substitution is greater than unity (and we can add) vice

5. If income is allowed to rise very high, *e.g.*, by 40 or 50 per cent, then the income elasticity will fall though we have assumed it to be constant. When that happens the percentage increase in food demanded will be lower than that shown in the table.

6. If we made a simplifying assumption that all the additional inputs are supplied from within the farm sector and that in the pre-development stage also all the inputs came from within agriculture, we have not to invoke the theory of distribution but then we shall face a different problem, *viz.*, the problem simmar to one for the short-run period with only weather changing. We get close correspondence almost simultaneously between the total demand and supply and market demand and supply only at 10 per cent and 20 per cent increases in farm incomes, for 30 per cent increase in non-farm demand for food.

7. *The Theory of Wages* by J. R. Hicks, London, 1932, p. 117 and "Distribution and Economic Progress : A Revised Version", *Review of Economic Studies*, Vol. IV, No. 1, October, 1936 ; "Alternative Theories of Distribution", N. Kaldor, *Review of Economic Studies*, Vol. XXIII, June, 1955-56. See also "Economic Growth and Distribution Shares", Ronald Findlay, *Review of Economic Studies*, Vol. XXVII(3) June, 1960. Mr. Findlay has attempted reconciliation of two approaches. Mr. Kaldor has replied to Mr. Findlay in the same issue. The debate is narrowed down, though it is unresolved. Our problem is slightly different, being one of distribution of incomes between farm and non-farm sector. Since capital requirement is relatively much smaller for the farm sector, we have assumed constant price for it. Its increased application to production is assumed as planned and decision-making process is taken away. We would emphasise that if the supply curve of capital facing the farm sector is rising and/or elasticity of substitution between capital and the rest of the inputs in the farm sector is greater than one, the calculations given in the appendix at the end will apply *a fortirio* and income increases will be less and marketable surplus will increase more.

(*Contd.*)

versa. It implies that there are constant returns to scale and only two factors of production. These are serious limitations. Besides, it tells you only about the direction and not of the magnitude of the change in the share. However, if we know the value of marginal product (VMP) of the varying factor and the quantity supplied subsequent to the change, we can work out the magnitude of the share of this factor in the new equilibrium position. To know the post-change VMP we should know the elasticity of substitution. We can, however, arrive at the broad conclusion even without this knowledge; and, we can take account of more than two inputs too. We assume Cobb-Douglas production function and constant returns to scale in the first instance. This means constant shares to various inputs in the gross output. Yet we may obtain a change in the share of the farm sector if its contribution to inputs change. This may be easily illustrated. To obtain, let us say, 20 per cent increase in production,[8] proportionately larger inputs will have to come from outside the farm sector. To get a clear idea let us assume the production elasticity of land, labour and capital .33 each. To get 20 per cent increase in production, with 10 per cent increase in labour (corresponding to 10 per cent increase in rural population, a liberal assumption in any case) and no addition to land under crops, about 47 per cent increase in capital may be necessary, of which about 15 per cent may be internally obtained.[9] Then the relative share of farmers in the gross farm output will decline due to the change in the shares in inputs. This means the income earned by farm sector will increase less than 20 per cent. We have assumed the Cobb-Douglas production function which gives, if two factors are taken, a unit elasticity of substitution. If we have a function which gives more than unit elasticity of substitution, and if we can divide inputs only into two categories then, the decline in the farm sectors' share in the total output will be all the more. This decline in the farm sectors' share in the farm output will result, in turn, in relatively larger marketable surplus. If non-farm disposable income is unchanged then this may result in lower prices of food. But often capital supplied through the Government agencies might be heavily subsidised. If subsidy is nearly 4/5th of the market cost then the total income of the farm sector will increase beyond 20 per cent and hence the market supply will decline leading to a rise in the market prices of food. We have so far not relaxed our assumption regarding the constant returns to scale. We have also assumed infinite elasticity of supply of capital to agriculture within a certain range since government makes it available at constant prices.

Let us now relax the restriction of constant returns to scale the need for which is now obvious.[10] With new research results being made available from outside,

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Also refer to 'Thoughts on the Theory of Capital : Corfu Conference, J. R. Hicks: *Oxford Economic Papers*, June, 1960, p. 123. Hicks emphasises here the difficulties of determining factor shares in the case of increasing returns to scale. He visualizes a case in which shares of factors being disturbed in the first round if the relevant factor is to be obtained from the market at a constant price.

8. We assume 20 per cent increase in food production because Mr. Maddala has calculated this to be the likely increase in demand for food for the Third Five-Year Plan. If the percentage of marketable surplus to total output remains unchanged, then equilibrium can be reached in the market with 30 per cent increase in the urban demand for food during the same period.

9. Assuming 1 : 1 capital-output ratio and 5 per cent of income as annual savings invested in capital.

10. Implicitly we do assume some change in the technique of production because greater than unit elasticity of substitution between capital and rest of factors of production may obtain only when new form of capital is obtained to provide ease of substitution.

new cultivation techniques propagated by extension agencies, improved health and education of labour, improved communications and several organisational changes, increasing returns to scale in agriculture for a short duration of five years are not improbable. In this situation, we do not get clear guidance regarding income distribution from the accepted theory of income distribution. With increasing returns to scale if each factor gets its share according to its VMP and quantity supplied then all factors together will over-exhaust the value of output. This would imply then that some of the current factors of production (*i.e.*, those explicitly included in the production function) will get return less than the value of their marginal products. If so, we shall have to infer as to which factor will accept less reward for its services. With Government subsidy on cost of capital it will mostly be the capital. However, the self-employed labour as well may be made to have a share in the 'sacrifice.'

Increasing returns to scale may have any level beyond unity. Let us assume two levels of returns to scale resulting from individual production elasticities being .4 and .66 each. In these two cases, with no increase in land and 10 per cent increase in labour about 40 per cent and 20 per cent increase in capital will be required to obtain 20 per cent increase in gross output. If the supply of capital to agriculture is infinitely elastic at the market rate, only then, in the former case (.4 production elasticity of each factor) farm income will increase by less than 7 per cent and in the latter case (.66 production elasticity for each factor) farm income will increase by about 13 per cent. (For calculations see appendix at the end). In both the cases, in the new equilibrium prices of food may tend to be lower. However, as already noted the subsidy on capital cost may once again change the income distribution and may reverse the effect on equilibrium food prices. With 4/5th subsidy on capital cost, the farm income may increase in the former case (of .4 production elasticity for each factor) by about 17 per cent ; in the latter case (.66 production elasticity for each factor) by over 18 per cent. In both the cases, market supply will be only a little higher and the food prices may tend to fall slightly or be near to the old equilibrium level. We may note, with heavily subsidised capital the equilibrium position will be only marginally affected.

If we relax equality of production elasticity but retain increasing returns to scale, then we get yet another pattern of income distribution. Let us take an extreme case. We assume production elasticities of land, labour and capital each to be .4, .5 and 1.08 respectively (to take an extreme case) *i.e.*, returns to scale 1.9 or approximately two. Then additional capital required will be approximately 15 per cent and with no subsidy on capital cost and only additional capital borrowed, the farm income may increase by 10 per cent and equilibrium in the farm product market may again be achieved at lower price level.[11] With 4/5th subsidy on capital charges the market supply may be less, but not smaller than the initial position. If suppose production elasticity of capital is assumed lower

11. If 15 per cent increase in capital is internally available, there will be no change in the proportion of marketable surplus to total output in this case.

than 1.08 then the increase in income will be still less and that in the market supply more and the farm price level, lower.[12]

## II

### PROBLEMS AND POLICY

Ploughing through the above exercise yields some useful conclusions. In the moderately long-run context, the dichotomy of two equilibria, *viz.*, of aggregate demand and supply and the market demand and supply involves additional decisions by the community regarding the selection of alternative techniques and a combination of factors of production. If this decision is taken outside the market by a non-market agency like planning authorities, it is only by chance that the desired equilibrium will be achieved at all levels of market and non-market decisions. For most of the time, the error of judgment may result into market supply tending to exceed the market demand. To avert this situation, the cost of services of capital may have to be lowered to a point, that the capital virtually belongs to farmers. Then the disequilibrium, if any, will be only marginal.

The dilemma deepens further. If capital cost is fully charged, then, the income increase of farmers will be proportionately less unless either new technique raises production elasticity of land and labour or returns to scale are tremendously high ; either of these conditions are difficult to fulfil. If, therefore, income increase is small and capital to be borrowed somewhat sizeable, the farmer will be unwilling to undertake the disproportionate risk involved.

12. We have so far considered increasing returns to scale in place of constant returns to scale. Increasing returns to scale may be obtained through qualitative improvements of products and/or inputs, and external and/or internal economies and excess capacity of some of the inputs over certain range. Increasing returns to scale also take account of a technological change since in this arrangement addition to inputs leads to more than proportionate increase in output. By assuming increasing returns to scale but keeping production elasticities constant we assume a gently rising supply curve of product compared to one obtained where returns to scale are constant. We implicitly assume that the excess capacity of fixed factors does not dominate the diminishing products of the varying factors.

All the three situations of increasing returns to scale are treated by us as independent of each other. We have deliberately avoided a change in production elasticities and their sum resulting from a change from the situation of constant returns to increasing returns to scale because as already mentioned, we have assumed if not short run, an intermediate run. If we assume a change in the production elasticities and their sum we get extreme results ; for given increase in output, the input of capital will decline, income will increase and marketable surplus may decline for some range and product prices may rise for some ranges. To take concrete illustration, let us assume the same three situations with individual production elasticities being .4 each, .66 each and .4, .4 and 1.08. Now we assume in addition that in each case the change is from an original position of individual production elasticities being .33 for each of the three inputs. If we keep production increase constant at 20 per cent then, we get decline in capital from 100 units to 14.34 units in situation one and to almost a vanishing point (.1285) in situation two and to 2.43 units in situation three. In all the three situations with constant prices of capital and product, income of the farm sector will increase more than proportionate to the increase in output. With a high income elasticity of demand for own produce the marketable surplus may decline, vanish or become zero, unless income elasticity declines rapidly to very low levels. It is absurd to imagine that capital can be eliminated from production. But this absurdity merely illustrates the extremeness of the results obtained when a big technological change of the nature illustrated here takes place. If capital is not reduced then in situation one production will be increased from 100 to 261 units and in situation two from 100 to 971 units. Extremeness of results is thus very clearly brought out. With this much increase in production and as much increase in income, income elasticity will be reduced ere-long to zero. For all these reasons we have avoided a change in the individual elasticities and their sum. Our assumption of constancy of individual production elasticities and their sum is both legitimate and realistic, at least during the short or intermediate run.

We may note that it is the positive and high income elasticity which is often feared to cause constriction of market supply. We have shown that under conditions of growth it brings about just the opposite result.

We have ignored to a large extent the institutional and organisational changes, not because they are less important in their influence on the market supply but because they rightly belong to policy decisions and hence are subsequent to analysis of market forces.

On demand side, within the farm sector, the effect of organizational changes will be mostly on the income elasticity for food. For instance, redistribution of income in favour of low income groups in farm sector will raise the income elasticity, but introduction of new consumer goods with high income elasticity may lower the income elasticity for food. Since most of the changes are likely to be of the former type, they would aggravate the short-run supply problem but may reduce the downward pressure on prices if any generated through errors of judgment in the moderately long run.

On supply side, we have already hinted at the type of organisational changes that mav influence the production function and analysed the consequences. Agricultural research, extension, etc., will fall in this category. All of them may affect the production function, and we have taken account of these in increasing returns to scale. The co-operative farming may have equal effect : (*i*) on production technique and (*ii*) on the capital rationing (*i.e.*, risks involved in borrowing both on the borrower's and the lender's side). Reduction in cost thus being from two sides, other things remaining the same (if we can keep other things the same), the co-operativisation may tend to have positive influence on farm incomes. Also, if there is reorganisation of credit, it will reduce mostly the lender's risk. The addition to capital may be smaller yet cheaper and income distribution may be affected in favour of the farm sector.

Further, if production has to be increased more rapidly without many organisational changes, inputs already provided from within the farm sector should have much larger increase in production elasticity and this might simultaneously solve the problem of matching market supply and market demand, and aggregate supply and the aggregate demand.

## APPENDIX

Let following be the form of production function :

$$P = K A^{\alpha} B^{\beta} C^{\gamma}$$

where P = gross product
K = constant

A = land
B = labour
C = capital

(A, B, C are measured in suitable physical units)

$\alpha$, $\beta$, $\gamma$ are coefficients, being production elasticities

Now let us assume :

(1) supply of capital to the farm sector is infinitely elastic at a given price level and for the given range,

(2) addition to capital is entirely from outside the farm sector,

(3) food prices unchanged,
(till the first round of the changing MS (marketable surplus) is over, *i.e.*, we consider the position of comparative statics.)

And let us feed in the following values :

(i) Value of production 100, and of individual inputs 33 each and in the initial position. Measures of physical inputs 100 units each for land, labour, and capital.

(ii) In the position of change $\triangle$ A *i.e.*, increment to land = O, $\triangle$ B, *i.e.*, increment to labour = 10 per cent and $\triangle$ P, *i.e.*, increase in gross production targeted = 20 per cent.

We have to find :

(1) increment in capital required, and

(2) increase in the share of the farm sector in the gross farm output going to farm sector. Let us denote it as $\triangle$ y.

*Constant Returns to Scale*

$$\alpha + \beta + \gamma = .33 + .33 + .33 = 1$$

To get $\triangle$ P = 20,

We should have,
$\triangle$ C = 47.4% or 16.7 units more of capital value.

$$\triangle Y = 20 - 16.7 = 3.3$$

If 15 per cent of $\triangle$ C is supplied from within, then $\triangle$ Y = 6
With 4/5 subsidy on cost of each unit of capital $\triangle$ Y = 16.6

*Increasing Returns to Scale—Case One*

Values of coefficients .4 each, *i.e.*,
$$\alpha + \beta + \gamma = .4 + .4 + .4 = 1.20$$

Now $Y = 100$, the family income in the initial period
to get $\triangle P = 20$
we should have $\triangle C = 40\%$ or 13 units more of capital value when $\triangle A = O$ and $\triangle B = 10\%$
$\therefore \triangle Y = \triangle P - \triangle C = 20 - 13 = 7$
and is 7% also since initial value of $Y = 100$

*Case Two*

Values of coefficients .66 each,
Therefore, $\alpha + \beta + \gamma = .66 + .66 + .66 = 1.98$ (or $\approx 2$)
to get $\triangle P = 20$
we should have $\triangle C = 11$ p. c. or about 3 units of additional value of capital
Therefore, $\triangle Y = \triangle P - \triangle C = 20 - 3 = 17$ or 17 p.c.

*Case Three*

Values of coefficients
$\alpha + \beta + \gamma = .4 + .5 + 1.08 = 1.98$ (or $\approx 2$)
To get $\triangle P = 20$ given $\triangle A = O$ and $\triangle B = 10\%$
then $\triangle C = 14$ p. c. or 5 units of additional value of capital
$\triangle Y = \triangle P - \triangle C = 20 - 5 = 15$ or 15 p.c.

We can have several variants of cases one, two and three. We select few illustrations.

*1a*

At the rate of 3 p.c. of annual savings and 1:1 capital-output ratio 15 p. c. increase in capital may be internally obtained. Then 40% — 15% = 25%, i.e., 8 units of value of capital are obtained from non-farm sector.

$\triangle Y = \triangle P - \triangle C = 20 - 8 = 12$
Percentage increase in income is 12

*1b*

Now suppose capital is subsidized by the Government to the extent of 4/5 of cost,

(*i*) with no internal contribution to addition to capital

$$\triangle Y = \triangle P - \frac{\triangle C}{5} = 20 - \frac{13}{5} = 20 - 2\frac{3}{5} = 17\frac{2}{5}$$

(*ii*) with 15 p.c. internal contribution to addition to capital

$$\triangle Y = \triangle P - \frac{\triangle C}{5} = 20 - \frac{8}{5} = 20 - 1\frac{3}{5} = 18\frac{2}{5}$$

Heavy subsidization reduces cost of capital and increases income to bring it close to 20 per cent.

*Marketable Surplus*

Calculations for marketable surplus: Initial 20% of the food produced assumed to be marketed. We have 80 units of food of which 16 units are marketed, 64 units are consumed within rural areas.

Now 20 p. c. increase in gross production gives 16 additional units.

(*i*) Additional consumption required to provide for population increase is 4 p. c. or *about* 3 units.

(*ii*) Additional consumption required to provide for income increase is

(*a*) when income is assumed to increase 20% income elasticity given being .6

.20 × .6 = .12 or 8 units

(*i*) + (*ii*) gives 3+8=11 units increase in consumption with 16 units increase in output of food we are left with 5 units addition to marketable surplus which comes to nearly 30 p. c. increase in marketable surplus.

Now for income increases less than 20 p. c. the increase in consumption will be less and marketable surplus will increase more.

To illustrate let us take,
Case 1 income increase 7 p. c.

i.e., .07 × .6 = .04 or 3 units increase in food consumption. This will leave 10 units of addition to the marketable surplus or about 60 per cent increase in M. S.

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# PROBLEMS OF MARKETABLE SURPLUS IN INDIAN AGRICULTURE

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## APPROACH

So far, use of two approaches has been made for defining and calculating marketable surplus of the various Indian agricultural crops. They are as follows :

* The views expressed in this article are of the author's own and the Government of India should not be regarded as assuming responsibility for all or any of the materials or recommendations contained in this article.

*Subjective Approach*

The subjective approach, which has been adopted by the Directorate of Marketing and Inspection, leads first to the determination of the farmers' retention for seed, wages, personal consumption, etc., and rest of the produce is taken as average marketable surplus of the crop. It is usually expressed in terms of the percentage of total production. In short, total production minus farmers' retention is equal to the marketable surplus. It is a sort of subjective guess rather than a result of arithmetical calculations of the actual quantity of the produce sold into the market. The figure, arrived according to this approach, after a careful, detailed and micro-study of the farmers' retention based on case-study method, can yield a reasonably satisfactory figure at least in the case of cash crops where the percentage of the crop retained by the farmers is very insignificant. For example, the farmers' retention in the case of cardamoms may be easily taken at not more than 0.25 per cent of its total production, resulting in a marketable surplus of 99.75 per cent of the cardamoms produced in the country. According to this method, there can hardly be any difficulty in arriving at reasonably accurate working figures of marketable surplus at least in the case of cash crops, *e.g.*, fibrous crops, oilseeds, sugarcane and tobacco because the percentage of farmers' retention in their case is very insignificant. But the results derived under this approach for commodities in which farmers' retention constitutes a significant portion of the produce, *e.g.*, in the case of food crops like wheat, rice, jowar and gram may not yield reasonably satisfactory results, particularly under the subsistence form of cultivation where the farmers' retention forms a major share of the farm-output.

*Objective Approach*

Another approach for calculating marketable surplus of agricultural crops is the objective approach, in which an attempt is made to calculate the actual quantity of the produce entering the monetary mechanism. This approach has been developed by the Panel of Experts appointed as a result of the recommendations of the Price Variation Inquiry Committee, 1956. Marketable surplus, as defined by the Panel of Experts, is to comprise only "arrivals, direct from the producing areas, out of the new crop. It is only these arrivals which can be correlated with the production of new crop to arrive at the proportion of marketable surplus out of the year's crop." Care is taken not only to eliminate arrivals of old crops but also arrivals through trade channels from assembling markets to wholesale markets so as to avoid double counting. The despatches to other markets are also assessed under this system.

This system is of course based on arithmetical figures but suffers from several limitations and consequential discrepancy, the magnitude of which may be so immense at times, that it may be difficult to calculate the probable margin of error as well. These limitations may be summarised below:

(*i*) *Production Year:* The production season of each crop differs from one region to other; therefore, it is very difficult to arrive at a common production year for the country as a whole.

(*ii*) *Old-Crop Arrivals:* The second difficulty is that of demarcating the arrivals of the old crop from the new ones.

(*iii*) *Double Counting:* In a secondary market, the produce is brought both from the farms and the assembling *mandies*, the latter being already recorded at the point of their first arrival. Therefore, if the same is not accurately assessed and accounted for, there is every possibility of double counting in market arrivals of the *mandi* concerned.

(*iv*) *Under-estimation due to Sales Tax:* In certain States, like Punjab and Uttar Pradesh, where sales tax has recently been introduced, there is a tendency among certain traders to collect the produce from the farmers and store the same in the villages near the road from where it is despatched direct to the consuming centres with a view to evade sales tax and even market charges in some cases. Such market arrivals are omitted altogether from the calculations.

(*v*) *Under-estimation in Regulated Markets:* In certain regulated *mandies*, particularly those of the market committees, which are weak and inefficient, the traders usually try to report under-estimated figures to the market committees regarding market arrivals at their shops with a view to evade a part of the market-fee.

(*vi*) *Mere Guess in Unregulated Markets:* The collection of the statistical data relating to marketable surplus in the unregulated *mandies* is a result of merely the guess-work of the reporting agent who is sometimes hardly capable of making reliable estimates of the same and at the same time he may not even try to exert himself fully and personally verify the figures by going into the market.

(*vii*) *Omissions:* The market arrivals are sometimes influenced by the State policies as well. During recent years (1958-59 and 1959-60) there is a trend in certain States, particularly Uttar Pradesh (where the Government fixed prices are considered uneconomic) to dispose of the produce outside the market-yard or even at the octroi barriers direct to the consumer-bidders. Near some of the big cities like Kanpur, small hats are reported to have been recently established. Such market arrivals are not likely to be recorded at all.

(*viii*) *Covering all the Markets:* Lastly, it is very difficult to collect statistical data from all the markets to which the farmer finds his way to sell his produce. Naturally, some sort of extrapolation device will have to be adopted to have all-India results, meaning thereby dependence on statistical methods rather than facts.

In view of these difficulties it may appear to depend more, even in case of food crops, on the Subjective Guess Method rather than Objectively Assessed Method based on arithmetical calculations.

## CONCLUSION

In view of the above mentioned merits and demerits of both the subjective and objective methods, a compromise of the above-mentioned two methods is likely to yield more accurate results in case of foodgrains. Accordingly, first an attempt should be made to arrive at tentative figures of the marketable surplus of a particular food crop in a homogeneous region by taking into consideration the following:—(*i*) Acreage under cultivation of the crop concerned in the region;

(*ii*) Average yield per acre in the region; (*iii*) Average size of the family and their stratification; (*iv*) Average size of holdings and their stratification; (*v*) Percentage of farming population to total population of the region; (*vi*) The cropping pattern of foodgrains; (*vii*) Social conditions prevailing in the region, particularly with regard to the payment of wages to the farm labour, carpenter, blacksmith, barber, washerman, etc; (*viii*) Economic conditions particularly relating to indebtedness and its repayment, whether the same is in kind or cash and to what extent; and (*ix*) Food habits of the rural and urban population in the region concerned.

The tentative figures drawn out on the subjective basis mentioned above should be confirmed and adjusted by the market arrival figures in about five typical markets in the region concerned. The statistical data collected in these markets may be used for comparison not only with the figures of the past years but can also serve as an index for the prospective market arrivals during the current season.

In the end, it may be desirable to note that the real importance of the method lies not in the collection of figures relating to marketable surplus of the years gone by but in measuring the variation in the quantity of marketable surplus and in forecasting the same for the coming year so that the State price policy may be adjusted accordingly well in advance. In order to forecast the probable quantity of marketable surplus for the next year, it is essential to have an idea of the prospective yield per acre and of changes, if any, in the various factors stated above. The tentative figures arrived thus should be further processed in the light of the following factors in order to assess the extent of variation in the coming year in comparison to the previous years:—(*i*) Variation in the rural indebtedness and availability of the credit facilities; (*ii*) Variation in the storage and warehousing facilities, if any; (*iii*) Improvement in the means of transportation; (*iv*) Changes in the availability of market intelligence; (*v*) General economic and social conditions prevailing during the year; (*vi*) Ruling price of the commodity concerned and its relation with those of other agricultural commodities and the general price-level during the year; and (*vii*) Changes in the State policies, if any.

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# THE PROBLEMS OF THE MARKETABLE SURPLUS IN AGRICULTURE IN BIHAR

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For the purpose of this paper an investigation has been made in three villages, namely, (1) Patabi in the district of Muzaffarpur, North Bihar, (2) Mainpura in the district of Patna, South Bihar and (3) Borea-Arsandey in the district of Ranchi, Chotanagpur. In all, the basic data have been obtained from 15 holdings of typical sizes in the year 1959-60. Five holdings are selected from each village.

* The views expressed in the paper are purely in the personal capacity of the author.

The size and distribution of holdings show that small holdings predominate. There is not enough land to go around. The average size of a holding is three and a half acres (compared to 7 acres for all-India) fragmented into 12 plots. The vast majority of cultivators' holdings (70 to 87 per cent) are of a size of less than five acres. A further break down of the small holdings based on a Sample Survey conducted in 1952 by the Agricultural Statistics Department, Bihar shows that one-third of the total holdings are of half an acre, and one-half of the entire holdings are of a size not exceeding one acre. Although holdings upto 5 acres constituted more than four-fifths (87 per cent) of the total holdings, the total area covered by these holdings formed less than one-third (31 per cent) of the entire area surveyed. On the other hand, holdings of 50 acres and above formed less than half a per cent of the entire holdings, yet they constituted almost one-third (32 per cent) of the total area surveyed. This no doubt reveals an unequal distribution of land which is a contributing cause to inefficiency in agriculture. Again, although the average size of the holdings in Bihar worked out about three and a half acres, it was 2.04 acres in North Bihar, 2.77 acres in South Bihar and as large as 6.41 acres in the Chotanagpur Plateau.

## EXTENT OF MARKETABLE SURPLUS

Table I shows the extent of marketable surplus in selected holdings in different agricultural regions of the States.

TABLE I—PROPORTION OF MARKETABLE SURPLUS TO TOTAL PRODUCTION IN SELECTED HOLDINGS BY CROPS

| S.No. | Crop | Name of Village | | |
|---|---|---|---|---|
| | | Patabi (North Bihar) | Mainpura (South Bihar) | Borea-Arsandey (Chotanagpur) |
| A. | *Food Crops* | | | |
| 1. | Paddy .. .. | — | 32.1 | 19.1 |
| 2. | Wheat .. .. | — | 11.8 | 42.0 |
| 3. | Barley .. .. | — | — | — |
| 4. | *Marua* .. .. | — | — | 16.7 |
| 5. | Maize .. .. | — | — | — |
| | Average .. .. | — | 29.2 | 19.4 |
| B. | *Pulses* | | | |
| 1. | *Arhar* .. .. | 40.0 | 33.3 | — |
| 2. | Gram .. .. | — | 11.4 | 36.0 |
| 3. | *Khesari* .. .. | — | 23.4 | — |
| 4. | *Kalai* .. .. | — | — | 30.0 |
| 5. | Others .. .. | 28.5 | — | — |
| | Average .. .. | 23.1 | 21.1 | 33.0 |
| C. | *Cash Crops* | | | |
| 1. | Potato .. .. .. | — | 81.8 | — |
| 2. | Sweet Potato .. .. | 86.7 | 90.0 | — |
| | Average .. .. | 86.7 | 84.4 | — |

It will be observed that holdings in Chotanagpur having about 85 per cent of their total cropped area under food crops recorded only 19.4 per cent of their total produce as marketable surplus. Rice occupying 71.45 per cent of total cropped area provided the major portion of marketable surplus amounting to about 102 maunds of grains. Wheat and *marua* provided about four and two maunds of grains respectively as marketable surplus. Gram and *kalai* (*urid*) are the main pulse crops grown in selected holdings and on an average recorded 33 per cent of its total produce as marketable surplus. In holdings in South Bihar the average marketable surplus in respect of foodgrains was 29.2 per cent. Marketable surplus of paddy and wheat was 85 and 4 maunds respectively constituting 32.1 and 11.8 per cent of the total production under each crop. Among pulses *khesari* provided the main bulk of marketable surplus amounting to 18 maunds out of a total of 22 maunds demarcated as marketable surplus. On an average marketable surplus accounted for 21.1 per cent of total pulses production. Potato and sweet potato are the main cash crops grown in selected holdings and on an average 84.4 per cent of the total cash crop production was found as marketable surplus. In case of holdings in North Bihar due to drought conditions during the year paddy failed entirely on most of the holdings. In the remaining cases too very poor yields were recorded. This situation accompanied by small size of holdings resulted into non-availability of marketable surplus not only in case of paddy and other *kharif* food crops but also of *rabi* food crops. Besides, all the cultivators surveyed purchased foodgrains ranging from 7 to 45 maunds per family to meet their domestic requirements. Among pulses *arhar* alone provided 10 maunds out of a total of 12 maunds demarcated as marketable surplus. On an average the marketable surplus in case of pulses was 23.1 per cent of its total production. Only in one holding sweet potato was grown as cash crop.

*Extent of Marketable Surplus in Bihar*

The extent of marketable surplus in the State as a whole is given in Table II.

TABLE II—PROPORTION OF MARKETABLE SURPLUS OF DIFFERENT CROPS IN BIHAR DURING 1954-55 to 1956-57[1]

| Crops | Years | | |
|---|---|---|---|
| | 1954-55 | 1955-56 | 1956-57 |
| Rice .. .. .. | 25.0 | 20.0 | 24.5 |
| *Arhar* .. .. .. | 20.0 | 18.0 | 21.0 |
| *Urid* .. .. .. | 38.0 | 34.0 | 37.0 |
| *Moong* .. .. .. | 30.0 | 32.0 | 29.5 |
| *Masur* .. .. .. | 44.0 | 45.0 | 42.0 |
| Gram .. .. .. | 16.0 | 13.8 | 13.0 |
| Potato .. .. .. | 65.0 | 68.0 | 60.0 |
| *Khesari* .. .. .. | 30.0 | 32.0 | N.A. |

1. Superintendent, Agricultural Statistics, Patna, Bihar.

It is evident from the data that the proportion of marketable surplus differs from crop to crop. In case of rice which covered more than 50 per cent of the total cropped area of the State marketable surplus was less than 25 per cent during all the three years. In the case of gram marketable surplus was lowest, being 13 per cent during 1956-57 and among cash crops, potato was responsible for the maximum percentage of marketable surplus amounting to 68 per cent during 1955-56. It may also be observed that the extent of marketable surplus is considerably larger in case of cash crops than the food crops and pulses. Among the food crops and pulses, it has been observed that the pulses tended to show larger marketable surplus than the food crops.

## FACTORS DETERMINING THE EXTENT OF MARKETABLE SURPLUS

It has been observed that the amount of marketable surplus differs from region to region and in the same region from crop to crop. It also differs from holding to holding possessing identical conditions for raising crops. The following may be the main factors playing an important role in determining the extent of marketable surplus in agriculture.

### *Size of Farm*

The incidence of agricultural population per acre of net area sown is 1.6 for Bihar ; but it varies from less than one (0.9) per acre in the Ranchi district to more than two per acre in Muzaffarpur and Saran districts, with a peak of 2.3 persons per acre in Saran. The extent of land available per head of agricultural population was only 1.3 acres, out of which only 50 per cent consists of the actually sown area ; assuming that there are 5.5 persons per family, the quantum of cultivated land available per family of the agricultural population is only 3.6 acres. It has been estimated that provided land is cultivated with reasonable labour and capital intensity, one acre of land is required per head of the population for a reasonable level of sustenance in the tropical and sub-tropical regions with favourable climatic conditions and capable of multiple cropping (as against 1.5 acres in the colder regions generally yielding only one harvest in the year). We find, however, that the average of the cultivated land per head of the population of Bihar comes to only 0.46 acres, while it is as low as 0.25 acres for the densely settled alluvial districts of Saran, Patna, Muzaffarpur and Darbhanga. Apart from smaller size of farms in Bihar the methods of agriculture are far from intensive. Consequently all these factors contribute considerably in lowering down the extent of marketable surplus in the State.

### *Intensity of Cropping*

The intensity of cropping also determines the extent of marketable surplus to a considerable extent. Lower the intensity of cropping lesser the area sown more than once. On the other hand higher the intensity of cropping more the area sown more than once. Thus the higher intensity of cropping leads to more production from the same area. The higher production naturally accounts for a larger margin of marketable surplus. In Bihar the double cropped area is only 31 per cent of the net area sown. It, therefore, contributes to a greater extent in reducing the margin of marketable surplus with the farmers who already cultivate small holdings hardly capable of affording any appreciable amount of marketable surplus.

*Nature of Crops Grown*

The nature of crops grown also contributes in determining the extent of marketable surplus. In case of food crops the margin of marketable surplus may be very narrow as they are required by cultivators for their own consumption. While in case of cash crops such as jute, sugarcane, oilseeds, tobacco and chillies, etc., more production may be available as marketable surplus. But due to extreme pressure of population on scarce land resources about 70 per cent of the total sown area is under food crops. The cultivated area per capita in Bihar has declined from 0.73 acre in 1921 to 0.46 acre in 1951, *i.e.*, by nearly 25 per cent, and is much below the all-India average of 0.77 acre. This reduction is noticed in all the three regions and in every district. Between 1921 and 1951, cultivated area per capita has declined in North Bihar from 0.65 to 0.43 acre ; in South Bihar from 0.77 to 0.52 acre ; and in Chotanagpur from 0.84 to 0.52. Thus pressure of population has contributed to an increase in the demand for foodgrains, thereby bringing more land under food crops than under cash crops which accounted for only 8 per cent of the total cultivated area.

*Level of Production*

The level of production is also responsible to a considerable extent in determining the margin of marketable surplus. The per acre yields of crops are very poor The average yield for the six years, *i.e.*, from 1950-51 to 1955-56 was (in lbs. per acre) 602 for winter rice, 431 for autumn rice, 505 for wheat, 399 for gram, 425 for barley, 490 for maize, 450 for *arhar* and 365 for bajra. Thus the low yields of crops contribute to a considerable extent in reducing the marketable surplus of various commodities. One of the major determining factors of yield capacity in agricultural land is the provision of irrigation facilities. In Bihar irrigation is available for about 24 per cent of the net sown area. Government canals and State tubewells which are the only sources providing regulated and assured water supply for irrigation are relatively unimportant and serve but 24 per cent of the total irrigated area. Private irrigation systems such as tanks, wells *pynes*, *ahars* and other simple but ingenious devices for storing water are more important. The efficiency of these is largely determined by the adequacy of rainfall, and hence they are apt to prove useless in times when irrigation is most needed. In years of scanty rainfall only 25 per cent of the area under irrigation could be sufficiently covered from the available sources.

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# A STUDY OF THE MARKETED SURPLUS OF FOODGRAINS WITH SPECIAL REFERENCE TO SELECTED VILLAGES IN SOUTH INDIA

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*Introduction*

In a fast developing economy the problem of feeding the non-farm population becomes very acute. It is in this context that both marketable and marketed sur-

plus gain significance. This paper is concerned with the following issues : (*a*) Definition and estimation of marketable surplus, (*b*) Marketed surplus with reference to the cultivator and the relevance of the backward sloping supply curve in the light of current facts. The pace of arrivals, monetary and other regulatory measures, though relevant, are not within the scope of this paper.

*Definition of Marketed and Marketable Surplus*

In a given period, marketed surplus refers to what is. At the producers' end, it refers to the actual quantum of sales.

Marketable surplus pertains to what ought to be after considering the consumption requirements and other disposals of the cultivators and their normal inventories. The cultivators' marketable surplus is computed as follows: A — B, where A represents the production plus stocks at the beginning of the year ; and B represents kind disposals during the crop year plus consumption requirements during the year plus normal requirements of stocks until the next crop.

In the case of the small cultivator, marketed surplus may be more than the marketable surplus because he may repurchase, in the lean season, the quantity sold after the harvest. The big farmer would normally equate the marketed with the marketable surplus, but if he chooses to keep larger inventories than normally necessary because of his expectation of high prices and/or poor crops then his marketable surplus will be more than the actual sales.

*Difficulties in the Estimation of Marketable Surplus*

The problem of estimating the marketable surplus assumed importance in almost all the countries during World War II. Surplus food had to be withdrawn from the rural areas to feed the army as well as the growing civilian population. Under such conditions, marketable surplus had to be defined and determined. Both in India and the Danubian countries of Hungary, Rumania, Yugoslavia and Bulgaria marketable surplus was determined after allowing for seed, consumption requirements for the year and disposals in kind. But in Yugoslavia allowance was also made for loss of weight.[1]

In India, marketable surplus was calculated either on a per capita or per acre basis.[2] In the case of the latter, the size of the holding was considered. But all these were rough and ready measures and had no scientific basis. The Foodgrains Policy Committee of 1943 had pointed out, while defending the Basic Plan, the defects of Indian agricultural statistics and urged the necessity for assuming a factual or statistical basis in planning India's food needs.[3] The same situation may be said to continue today though improvements have been made in certain directions.

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1. S. D. Zagaroff, Jeno Vegh Alexander D. Bilimovich: The Agricultural Economy of the Danubian Countries, 1935—1945, Stanford University Press, Stanford, California, pp. 203, 269, 331, 335, 340, 354, 355, 431.

2. Sir Henry Knight: Food Administration in India, Stanford University Press, Stanford, California, pp. 163, 165, 171.

3. *Ibid*, p. 179.

The statistics of cultivated acreages are not uniform for the whole of India owing to the differences in land revenue administration in various parts of the country. In the ryotwari and the erstwhile temporarily settled areas, cultivation statistics have a high degree of accuracy because they are cadastrally surveyed and possess a primary reporting agency. The erstwhile zamindari or permanently settled areas like West Bengal were cadastrally surveyed but did not possess a primary reporting agency, and as such the cultivation statistics in these parts are not accurate.[4] As the Asoka Mehta Committee pointed out, sound and reliable data are available for only 69 per cent of the total area of the country. Under the First Five-Year Plan, the Government of India has extended financial assistance to the States of U. P., Rajasthan, Andhra Pradesh, Saurashtra, Mysore and Madras for expediting cadastral surveys.[5]

Regarding yield rates, crop cutting experiments which have been adopted in all the major States have proved that the "annwari" method of estimation by the village official or patwari are fairly accurate.[6]

Regarding consumption, the 1951 Census Report has stated that no one can be sure of any estimates of consumption within a margin of error of, say, 10 to 15 per cent. This is because of the lack of a systematic time series data, apart from fragmentary results of special enquiries conducted at different times.[7]

On the other hand, an unpublished paper of the Gokhale Institute points out, on the basis of an unpublished thesis, that production figures based on the standard yield and the anna-valuation are almost worthless for determining trends in production.[8] But this is an extreme view.

*Study of Marketed Surplus Based on Agro-economic Data*

Thus marketable surplus does not lend itself to precise estimation. Our only alternative is to confine our attention to marketed surplus which is not only measurable but useful in analysing market behaviour and prices.[9]

For studying marketed surplus at the producers' end, the data available are rather meagre. We have to confine ourselves to data thrown up by the continuous village surveys conducted by the Agricultural Economics Research Centre in various parts of the country. For the purpose of this paper, attention is directed to data as revealed by the continuous village surveys conducted by the Madras Centre. Ten villages have been taken up for discussion and these are Madigai, Sengipatti and Rajagambiram in Madras State ; Pathikonda, Chembedu, Kumudavalli and Jalipudi in Andhra Pradesh; Aradeshahalli and Deshwara in Mysore State, and Pallipuram in Kerala State.[10] A study of marketed surplus by size

4. India, Census Report of 1951, Vol. I, Part I-B—Appendix I, p. 3.
5. Report of the Foodgrains Enquiry Committee, Government of India, 1957, pp. 143-4.
6. India, Census of 1951, Vol. I, Part I-B—Appendix V, pp. 297-308.
7. *Ibid.*
8. Notes on the Estimation of Marketed Surplus in Agricultural Commodities from the Available Data (unpublished), Gokhale Institute of Politics and Economics, Poona, p. 5.
9. T. P. Bhattacharjee, "Changing Characteristics of the Flow of Foodgrains Supplies from the Farmers," *Agricultural Situation in India*, January, 1960, p. 1080.
10. The Village Reports have not yet been published by the Centre.

groups gives meaningful results, but it has been possible to do so only in the case of seven villages : Aradeshahalli, Deshwara, Chembedu, Sengipatti, Rajagambiram, Kumudavalli and Jalipudi. In the case of Madigai, Pathikonda and Pallipuram such data are not readily available.

Before continuing our study, a brief description of the major characteristics of the selected villages that influence the quantum marketed is relevant. These are (*a*) type of irrigation and productivity per acre, (*b*) pattern of distribution of land holdings, (*c*) crop pattern for the village as a whole and between different classes of cultivators, (*d*) average size of the family among cultivating classes, and (*e*) extent of kind payments in production costs.

The ten villages under study have been classified by source of irrigation. Such a classification is found to be useful in explaining the pattern of land distribution in the different groups as revealed by the data. These ten villages can be grouped into (*i*) canal irrigated, (*ii*) tank irrigated and (*iii*) rainfed. Madigai in the Cauvery Delta and Kumudavalli and Jalipudi in the Godavari Delta belong to category (*i*). Chembedu in Chittoor District and Rajagambiram in Ramanathapuram District come under category (*ii*). The rest are mostly or wholly rainfed. The three canal irrigated villages are marked by inequality of land holdings. This inequality is sought to be measured by relating the percentage of area held by small cultivators with the proportion of small cultivators to total number of cultivators. The criterion used for identifying the small cultivator is the area cultivated. Those cultivating below 5 acres in irrigated tracts, and those cultivating below 10 acres in rainfed or tank irrigated areas, have been taken as small cultivators. On the basis of this, it is found that the percentage of small cultivators in canal irrigated villages is roughly of the same order and the percentage of area under them is much less. Broadly speaking, in these areas, the yields per acre are double those in dry areas though exceptions may be found as in the case of Deshwara where high yields are the results of high use of fertilizers. The low percentage of area under small cultivators, coupled with high yields per acre in irrigated tracts, should profoundly influence the marketed surplus in these villages.

The distribution of area between different crops, say, foodgrains and the rest, given the size of holding per family, has a bearing on marketed surplus of foodgrains. A larger percentage of cash crops should result in a lesser percentage of marketed surplus of foodgrains. The percentage of marketed surplus is likely to be still lower if the proportion of cash crops to the total cropped area varies directly with the size of the holding. The three irrigated villages are single crop areas growing mostly paddy. Therefore, there are no variations in the crop pattern between various size groups. Diversity of crops is seen only in the dry village. The percentage of area under foodgrains (cereals only) varies from 53 per cent in Pallipuram to 69 per cent in Sengipatti for the whole village. Variations in the crop pattern are also noticed in the different size groups and generally it is found that the area under cash crop appears to vary directly with the size of holdings. This has a significant influence on the percentage of produce of foodgrains marketed.

Where an increase in the size of holding beyond a particular level ordinarily results in increased percentage of the produce marketed, the relationship gets

changed depending upon the extent of kind transactions in the production costs of the farmer. In villages marked by higher kind transactions the percentage of marketed surplus is likely to be less than what it would be under conditions of a higher degree of monetization.

Apart from the factors mentioned above, marketed surplus is also influenced by the number of consumption units within the family. It is here that the average size of the family is relevant. The average size of the family in the villages under study range between 4 and 6.1. But more significant to our study is the average size of the family of cultivating families. The average size varies between 4.28 in Jalipudi and 7.1 in Aradeshahalli. There does not appear to be a consistent pattern between the characteristics of the area and the average size of the cultivating family in the village. The average size is influenced by other factors, but, between holdings, there appears to be a relationship between the size of holdings and the average size of the family. The bigger holdings in general tend to have bigger families. This tends to reduce the marketed surplus on big farms more than what it would otherwise be if these farms have the same number of people per family as in small farms.

*Marketed Surplus of Villages*

The proportion of quantity marketed to the total quantity harvested of all cereals is given in Table I for the 10 villages. Other kind receipts were not taken into consideration since such data were not uniformly available for the villages. This has been done only in the case of Sengipatti.

TABLE I—PROPORTION OF FOODGRAINS MARKETED IN EACH VILLAGE

| Name of Village | Proportion marketed | Name of Village | Proportion marketed |
|---|---|---|---|
| | Per cent | | Per cent |
| Madigai .. .. .. .. | 53.6 | Chembedu .. .. .. | 19.5 |
| Pallipuram .. .. .. | 24.0 | Sengipatti .. .. .. | 36.2 |
| Pathikonda .. .. .. | 12.1 | Rajagambiram .. .. .. | 34.6 |
| Aradeshahalli .. .. .. | 29.5 | Kumudavalli .. .. .. | 54.1 |
| Deshwara .. .. .. | 38.5 | Jalipudi .. .. .. | 43.1 |

Madigai, Kumudavalli and Jalipudi sell more than 40 per cent of their produce because they are situated in rich tracts and have high yields. The meagre percentages sold in both Pathikonda and Chembedu are explained by low yields, higher percentage of kind transactions in Chembedu, and their location in the famine-ridden district of Chittoor and far away from urban centres. Comparatively, Chembedu makes a better showing because it is wholly tank irrigated. The low percentage of sales in Pallipuram is explained by low yields and consumption of rice. Aradeshahalli, Deshwara, Sengipatti and Rajagambiram are millet consuming areas. Moreover the last two are drought affected areas.

*Proportion of Output Sold in Each Size Group*

Appendix I gives the proportion of cereals sold to total quantity harvested in each size group. Both Kumudavalli and Jalipudi show a positive relationship between the size of holdings and the proportion of produce marketed. While the small cultivator of less than 5 acres sells 20 per cent of his produce, his confrere the big farmer sells 3½ times that quantity. In the middle groups, also, we find a perceptible increase in the produce marketed as the size of the holding increases. It may be recalled that both the villages are canal irrigated. In Chembedu also we notice such a positive relationship. The small cultivators having less than 5 acres sell 16 per cent of their produce. The submarginal cultivators of less than 1 acre are found to have marketed 34.7 per cent of their produce. This is because their kind earnings from labour have not been considered.

In the remaining five villages, *i.e.*, Aradeshahalli, Deshwara, Chembedu, Sengipatti and Rajagambiram, such a definite positive relationship is not established. In all these villages the small farmers market a higher proportion of their produce than the big farmers. The small farmers of less than 10 acres have sold 34.5 per cent and 34.8 per cent respectively in Aradeshahalli and Deshwara. In Sengipatti and Rajagambiram those with less than 2.50 acres have sold 47.5 per cent and 37.4 per cent respectively. The big farmers of Sengipatti have sold a higher percentage (53.5) than their counterparts of the other two villages because the proportion of area under millets to total area is higher for these farmers than in other villages and also they consume rice more than millets. The highest group in Aradeshahalli markets only 9 per cent of the cereals harvested. On a further scrutiny, it is found that there are only two cultivators in this size group and the size of their families is 32 and 38 respectively. Moreover, the proportion of cropped area under sugarcane is the highest as compared to the other size groups in the village and they have also the greatest number of permanent farm servants. Thus their kind transactions are very large and restrict the quantity they are able to put on the market. The only big farmer of Deshwara (above 25 acres) sells only 16.7 per cent of his produce. This is due to the fact that coconut and mulberry occupy 83.3 per cent and 1.6 per cent respectively of the cropped area of his holding, whereas cereals occupy only 15 per cent. Comparatively speaking, the medium and small farmers of Deshwara have more than 60 per cent of their holding under food crops. Therefore, as in Aradeshahalli, the biggest farmer in Deshwara has large commitments in kind and the scope for selling cereals is restricted.

The reasons for the greater percentage of sales by small farmers in the five villages mentioned above are due to (*a*) greater percentage of cultivated area under small farmers, (*b*) relatively more kind transactions on the part of big farmers.

Appendix II gives the percentage marketed in each size group to the total of the village. The main findings of the data are as follows. In the rich canal irrigated tracts of Kumudavalli and Jalipudi, the small farmers with less than 5 acres contribute less than 10 per cent. In the millet consuming areas of Aradeshahalli, Deshwara, Sengipatti and Rajagambiram, it is only the small farmers who contribute to the bulk of the total marketed quantity. Even in Chembedu, the contribution by small farmers is as much as 40 per cent. In all these villages, including

Chembedu, it is found that the total quantity of cereals consumed outruns the quantity produced in the case of the small farmers even though marketing is evident. From this we may infer that 'distress' or 'forced' sales play an important part in the life of these villages. The Delhi surveys have also noticed such 'distress' sales among small farmers in backward villages.[11]

It is also found that it is the rich tracts which market a greater percentage of the produce (Table I) and in these tracts it is the big farmers who make the major contribution (Appendix II). This has also been revealed in the West Bengal surveys.[12] If this is so then variations in the supplies made by the big farmers to the market profoundly influence price.

*Backward Sloping Supply Curve*

In the light of the facts noted above, we have to test the assumptions of the theory of the backward sloping curve. This theory rests on the following assumptions : (*a*) that a major part of the marketed quantity comes from the small producers, (*b*) that these producers are more often below subsistence level and as such their income elasticity of demand for home produce is quite high, (*c*) that they have fixed cash needs. But the data analysed give an impression that the bulk of the marketed quantity comes from the rich irrigated tracts and in these big cultivators command the major portion of the area and the marketed quantity. Further, the impact of the two Five-Year Plans should have increased the wants of the peasants in general, and small peasants in particular, in the way of better education, recreation, clothing, etc. Therefore the assumptions of the backward sloping supply curve are not only not tenable but should make one suspect the validity of the theory in the light of present facts. Moreover, the point of view that high prices help the small man in the biggest industry, *i.e.*, agriculture, needs also to be critically examined.

11. Abdul Majid, "Marketed Surplus of Agricultural Produce in relation to Size of Cultivated Holdings," *Agricultural Situation in India*, January, 1960, p. 265.
12. J. P. Bhattacharjee, *Op. cit.*, p. 1085.

## APPENDIX I

PROPORTION OF FOODGRAINS MARKETED TO TOTAL OUTPUT IN THE GROUP (PADDY AND MILLETS)

| Size Group (in acres) | Aradeshahalli | Deshwara | Chembedu | Sengipatti* | Rajagambiram | Kumudavalli | Jalipudi |
|---|---|---|---|---|---|---|---|
| | Per cent marketed in each size | Per cent marketed in each size | Per cent marketed in each size | Per cent marketed in each size | Per cent marketed in each size | Per cent marketed in each size | Per cent marketed in each size |
| Less than 1.00 acre | | | 34.7 | | | | 3.9 |
| 1.00 — 2.50 acres | | | 17.4 | 47.4 | 37.4 | 20.0 | 20.1 |
| 2.50 — 5.00 ,, | | | 13.2 | 29.9 | 34.4 | 17.8 | 17.8 |
| 5.00 — 7.50 ,, | | | 10.0 | 25.7 | 28.0 | 45.4 | 23.7 |
| 7.50 — 10.00 ,, | 34.5 | 34.8 | 12.0 | 26.2 | 36.6 | 36.2 | 38.3 |
| 10.00 — 15.00 ,, | 29.2 | 36.2 | 23.0 | 28.9 | 43.3 | 44.8 | 49.1 |
| 15.00 — 20.00 ,, | | | 30.5 | 28.9 | 28.9 | 56.7 | 85.8 |
| 20.00 — 25.00 ,, | 33.2 | 73.3 | 24.6 | 53.6 | | 65.0 | 55.4 |
| 25.00 — 35.00 ,, | 32.1 | | 28.6 | | | 64.7 | 60.8 |
| Above 35 acres | 9.1 | 16.7 | | | | 74.0 | 67.9 |

* Includes other receipts also.

## APPENDIX II

QUANTITY MARKETED IN EACH SIZE GROUP AS A PROPORTION TO TOTAL QUANTITY MARKETED IN EACH VILLAGE

| Size Group (in acres) | Aradeshahalli | Deshwara | Chembedu | Sengipatti | Rajagambiram | Kumudavalli | Jalipudi |
|---|---|---|---|---|---|---|---|
| | Per cent to Total quantity marketed | Per cent to Total quantity marketed | Per cent to Total quantity marketed | Per cent to Total quantity marketed | Per cent to Total quantity marketed | Per cent to Total quantity marketed | Per cent to Total quantity marketed |
| Less than 1.00 acre | | | 5.6 | | | | |
| 1.00— 2.50 acres | | | 16.4 | 36.2 | 45.8 | 1.0 | 2.6 |
| 2.50— 5.00 ,, | | | 18.1 | 11.8 | 31.1 | 2.2 | 5.3 |
| 5.00— 7.50 ,, | | | 4.5 | 8.1 | 13.4 | 3.4 | 9.8 |
| 7.50—10.00 ,, | 60.2 | 66.1 | 2.7 | 7.1 | 3.8 | 4.2 | 9.2 |
| 10.00—15.00 ,, | 6.7 | 14.1 | 19.8 | 13.7 | 1.8 | 16.2 | 19.6 |
| 15.00—20.00 ,, | | | 14.5 | 7.4 | 4.1 | 17.8 | 11.5 |
| 20.00—25.00 ,, | 22.2 | 19.3 | 9.5 | 15.7 | | 7.5 | 10.5 |
| 25.00—35.00 ,, | | | | | | 17.3 | 24.3 |
| Above 35 acres | 10.9 | 0.5 | 8.9 | | | 30.4 | 7.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

# PROBLEMS OF MARKETABLE SURPLUS IN INDIAN AGRICULTURE*

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Attempts have been persistently and successfully made to increase the production of foodgrain and commercial crops in the country in order to reduce the dependence on imports and conserve foreign exchange. It is generally assumed as axiomatic that increased food production will result in an increased market flow into the pipe lines feeding the urban centres and industrial conurbations. With the accelerated switch over from a self-sufficient to a commercialised economy with its concomitant of transformation from a barter to a money economy, it is natural that the problem of feeding the urban population in India has acquired greater significance. With this transition it is not so much the quantum of food produced in the country but the quantum of this which is brought to the market by the producer which assumes importance.

A distinction has to be drawn between the quantity retained by the producers and the quantity retained in the village, though, as far as marketed surplus is concerned, both do not enter the picture. Thus in the case of rape seed and mustard, besides the portion retained by producers, considerable quantities are also retained in the villages by the village *telies* and merchants who obtain their supplies either by barter or by buying from producers in the villages or at the hats. A considerable portion of the rape and mustard seeds given to labourers as harvesting wages also finds its way to the village *telies* and merchants. These supplies of rape seed and mustard are eventually crushed by the village *kolhus* which are estimated to annually handle 4,00,000 tons of rape seed and mustard. More than three-fourth of the total number of *kolhus* in India are located in villages. Similarly, the entire marketable surplus of sesamum and niger seed does not reach the market. The local merchants and village *telies* purchase the seeds for edible purposes and oil extraction. Hence, great caution is required in considering the marketable surplus of a commodity.

The surplus also depends on whether the crops in question are food crops or industrial crops. Thus 27.5 per cent is the marketed surplus of paddy and 37.7 per cent of wheat, whereas 97.64 per cent jute and 80 per cent of sann hemp constitute the marketed surplus. Similarly, in India the importance of barley from the commercial point of view is much less than that of other food crops, such as wheat, rice and gram. The Indian cultivator grows barley primarily for domestic consumption and for payment of wages to labourers. The proportion of the produce utilised on the holding for various purposes such as seed requirement, etc., is therefore, relatively large and the balance, representing the marketable surplus low, *viz.*, 22 per cent.

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* The views expressed in the paper are the author's own and do not reflect those of the Directorate of Marketing and Inspection.

The greatest single factor in the determination of marketed surplus is the retention for personal and family consumption. Thus, in the case of paddy, the retention for home consumption is 44.4 per cent, wheat 43.3 per cent , jowar 53 per cent, bajra 50.6 per cent, maize 59.3 per cent, ragi 61 per cent and small millets 62.1 per cent. In the case of mango, it is the only fruit which is enjoyed by all in the rural area, and cases are not uncommon where mango forms the staple food of the poor during the mango season, especially so, in areas which are situated far in the interior where marketing facilities generally do not exist. In such areas the larger proportion of the produce is consumed locally.

It is the prevalent habit in Indian villages that a portion of the produce is retained for the feeding of permanent and casual labour. This is a varying proportion depending on the prices of foodgrains and the relative values of different foodgrains. In this category the wages paid in kind for certain operations as for harvesting are particularly noteworthy. Thus in the case of rice, the proportion retained for payment of wages in kind is said to have increased from 9.8 per cent to 20.0 per cent of production. This is natural in view of the premium on foodgrains consequent on food shortage and difficulties of obtaining foodgrains. In some places harvesting is paid for in cash also as in the Ferozepore District of Punjab where harvesting of wheat is paid for partly in cash. In Bombay harvest labour is paid for wheat in terms of clean grains weighing 42 to 50 lbs. per acre. Permanent labour is paid 25 mds. per annum of wheat in U. P. and grains worth Rs. 359 to Rs. 538 per annum in the Punjab. In this category, the payment made to artisans for services rendered in the villages should also be included. Thus, in the U. P. and Punjab artisans are paid on an annual contract basis so many seers of wheat.

A considerable quantity used to be retained for feed of stock, but with the rising prices foodgrains are no longer fed to cattle. The comparatively high percentage of gram retained by the cultivator in the Uttar Pradesh, the Punjab and Bihar, *viz.*, 69.5, 53.2 and 80.0 per cent respectively, is primarily due to the fact that in these areas gram is a popular livestock feed on the cultivators' own holdings. It was observed that in the case of jowar 2.6 per cent, bajra 4.1 per cent, maize 1.0 per cent, ragi 1.2 per cent and small millets 2.1 per cent used to be retained for feed of livestock but with the rise in prices of the foodgrains this practice has become extinct.

An important purpose of retention in the villages by the cultivators is caused by seed requirements. It cannot be stated dogmatically what should be the seed rate per acre for any crop. This depends on many factors, *viz.*, the variety to be sown, the area to be sown under the particular crop, the method of sowing, *viz.*, drill or broadcast, local conditions and whether the crop is sown pure or mixed with other crops. Thus in the case of niger, extreme variations are shown in the proportions retained for seed purposes — as low as 2.3 per cent in Mysore and as high as 17.3 per cent in Orissa. Similarly, the percentage of the total production of *masoor* set apart on the holdings for seed purposes varied from 4.1 in Bhopal to 27.7 per cent in Bihar. In the case of mangoes, the quantity retained in the case of seedling mangoes is much higher than in the case of grafted varieties for the reason that the former are in more demand in the green stage for using "chutnies" and pickles and also because they fetch lower prices. The various

quantities of the total production of roughly 32 crops marketed are given in Appendix I.

In the case of foodgrains the standard of living plays a great part in the marketed surplus. Thus a switch-over from the consumption of coarse grains to finer grains with a rise in the standard of living may cause a decrease in the marketed surplus of the latter and an increase in that of the former. In this connection customs and habits also play a great role. In the case of wheat, all those areas where it is grown but has not formed the main constituent in the local dietary of the people, the percentage retention is less.

It is well-known that transport facilities play a great part in the marketing of a crop. It was observed in the case of mango that where means of communication are good and marketing facilities are available as in the case of Vijaywada-Banganapalle and Swarnalekha, Vellore and Salem for *rasams* and *malgoas* a greater proportion of the produce is sold in the market and where adequate marketing facilities do not exist, the produce is largely consumed in the villages.

Monetization plays a great part in the retention of the crop by the producer. Uneven progress has been registered in the use of money in the different regions of India and barter sales are frequent in some areas even at the present day. Thus, in the case of paddy, 1.7 per cent of the total crop is retained for barter transactions compared to 2 per cent in the pre-war days and 2 per cent in the case of wheat. It is obvious that as the country is increasingly monetized, the proportion retained for such barter sales will diminish progressively.

An important factor which determines the marketed surplus in any crop is the unit of operation or size of holding. Thus in the case of potatoes it is found that when the holding is small higher proportion is retained for domestic consumption than when it is large. Similarly, the small holder in the Kerala State retains a good percentage of the production of tapioca crop for domestic consumption. It is only the large growers who release substantial percentage of their produce for the market. Table I shows the retention of wheat by producers on the basis of holdings and it is found that 86.4 per cent of the crop was retained by persons having 1 to 5 acres in the Alipore block in Delhi, whereas only 54.5 per cent was thus retained by those having over 25 acres, thus releasing 45.5 per cent for the market.

TABLE I—RETENTION OF WHEAT BY PRODUCERS

| Range of holdings in acres | Retention as per cent of production | |
|---|---|---|
| | Alipore Block Delhi | Dabra Block Madhya Pradesh |
| 1—5 .. .. .. .. .. | 86.4 | 93.7 |
| 6—10 .. .. .. .. .. | 89.3 | 82.1 |
| 11—15 .. .. .. .. .. | 88.3 | 91.9 |
| 16—20 .. .. .. .. .. | 49.6 | 87.3 |
| 21—25 .. .. .. .. .. | 65.9 | 88.5 |
| Above 25 .. .. .. .. .. | 54.5 | 69.7 |

Enquiries made among 49 families in relation to holdings and retention of wheat in the Betul Community Development Block in Madhya Pradesh showed that the retention of wheat by small holding is as high as 70.53 per cent but the retention falls to 42.59 per cent for the middle-class ryots (Table II). In the case of holdings between 15 to 20 acres the percentage of retention was 30.46 per cent.

TABLE II

| Class of holding (Area in acres) | No. of holdings in the class | Total area of the holdings in the class in acres | Total production in maunds | Total retention in the class in maunds | Percentage of total retention to production |
|---|---|---|---|---|---|
| 0—5 .. .. | 8 | 23.92 | 71.10 | 50.15 | 70.53 |
| Over 5—10 .. | 10 | 77.13 | 190.78 | 81.26 | 42.59 |
| „ 10—15 .. | 6 | 75.60 | 90.95 | 32.10 | 35.29 |
| „ 15—20 .. | 7 | 119.92 | 170.27 | 51.87 | 30.46 |
| „ 20 and above | 18 | 859.36 | 1,141.71 | 365.50 | 32.01 |

The village surveys conducted by the Agro-Economic Research Centre at the Visva-Bharati University have also revealed that the small farmers contributed less than one-fourth to the total marketed surplus of paddy in the selected villages in Bihar, Orissa and West Bengal. It was noted that the size of the producer's holding and the size and status of his family have a powerful influence on the marketed surplus.[1]

The producer's changed market behaviour is also the result of increased price consciousness combined with his capacity to withhold his produce. Thus, high prices enable the producers in certain areas of Madhya Pradesh to realise enough cash income to meet their immediate needs and also cash needs for a number of months ahead.[2] Similarly, in the case of the mango crop there are instances when the produce was not even taken to the market for sale as it did not pay to market the crop owing to low prices.

Production of other crops including cereals affect the marketed surplus considerably. Thus, in the case of barley in the district of Sitapur where the acreage under other food crops such as wheat, rice, maize and gram is relatively high, the producers are in a position to feed their families with these better class foodgrains and dispose of a comparatively high proportion of their barley crop in the market estimated at 35 per cent of the local production retaining 65 per cent of the produce for their own use. This district exports large quantities of the cereal to other deficit areas of the U. P. and to Bihar. On the contrary, in some of the

1. See "Changing Characteristics of the Flow of Foodgrains Supplies from the Farmers," J.P. Bhattacharjee, *The Agricultural Situation in India*, January, 1960.

2. Report on an Enquiry into the Pace and Pattern of Market Arrivals of Foodgrains—Season 1958-59, Directorate of Economics and Statistics, Ministry of Food and Agriculture, Government of India, Delhi, 1959, p. 4.

eastern districts of U. P. where the production of other food crops like wheat is comparatively low, the proportion of the barley crop retained by the cultivator is higher. Thus, in Varanasi and Pratapgarh districts the retention and marketed surplus of the barley crop are estimated at 85 per cent and 15 per cent respectively, while in Azamgarh the quantity sold by producers is estimated to be 12½ per cent of production. In Bihar, the retention is even higher than the U. P. amounting, on an average, to 89 per cent leaving 11 per cent as the marketed surplus. In this State, barley is the main subsistence crop in the producing areas of the north and the west and only a small portion of the crop is released for sale to urban centres which have to obtain a considerable part of their supplies of this foodgrain from outside the State, *viz.*, the U. P. The retention in the Punjab is placed at 41 per cent of the State production and the proportion marketed at 59 per cent, most of the market supplies being derived from the districts of Gurgaon, Hissar and Ferozepur. The reason for such a large marketed surplus is that the Punjab is a big wheat and gram producing area and the cultivator is in a position to consume these foodgrains rather than the coarse food, barley.

The need for cash by the producers also plays a major role in the marketed surplus of any commodity. Thus the Report on Market Arrivals of Foodgrains points out that in Madhya Pradesh the producers were under no compelling necessity to part with their wheat harvest immediately since they had enough cash income to meet their cash needs in the 1958-59 season.[3] The producers also have better access to cash resources including co-operative credit and Government loans and grants in recent years. The above Report states that the increase in the extent of credit supplied by the co-operatives in some villages near Chandausi and Hapur was as much as 60 per cent. This is also true of other States especially after the report of the Committee of Direction of the Reserve Bank of India. It will be worthwhile to find out how the availability of large credit from institutional sources has affected the flow of foodgrains and commercial crops to the markets.

The object of production of a particular commodity whether it is for domestic use or mainly for sale also determines the size of the marketed surplus. This is especially illustrated in the case of milk. It is observed that there is considerable difference between the urban and rural producers regarding retention of milk. Since there is a ready demand for milk in the urban areas the producers there retain very little for their own use. The rural producers' requirements of milk for domestic use may, in many cases, be the primary consideration for keeping milch cattle. But this is not so in the case of urban producers where the production of milk for sale is the main object.

The availability of marketing facilities plays a major role in the marketed surplus of industrial crops. This accounts for the variations shown in the figures of some crops. Thus, whereas 83.5 per cent of niger seeds is retained in the villages in Bombay State, the corresponding percentage is only 2.3 per cent in the case of Mysore. The same point has been stressed in the marketing of mangoes also.

The total quantity produced affects marketed surplus. Thus, a bumper crop yields a larger marketed surplus whereas failure of crops leads to a negli-

3. *Op. cit.*

gible proportion of marketed surplus. Similarly, the stage of development of the regions plays a part in the quantity marketed. This aspect known as market orientation is referred to by Dr. Bhattacharjee in his article quoted above.

The substitutional effect of one foodgrain for another with rise in incomes or rise in prices plays a determining role in the marketed surplus of the commodity. Thus rise in incomes may lead to displacement of jowar by wheat leading to more marketed surplus of jowar. This tendency has been noted in many parts of India especially during and after the World War with a tendency for coarse grains to be replaced by finer grains.

In the case of some commodities extraneous factors like impending festivals play a part in the surplus of the commodity released by the producers for sale. This is especially illustrated in the case of ghee where the marketed surplus increases in certain areas in the Puja and Diwali seasons, whereas in other areas it decreases during the same period. The market demand also plays a part in determining the marketed surplus of a commodity.

The role of Government policies also determine market arrivals. The Report on Market Arrivals of Foodgrains (page 3) points out that in U. P. the operation of price control and price levy led the producers to sell in small quantities directly to retailers or consumers who are willing to offer higher prices than those fixed for wholesale transactions. Dr. Bhattacharjee has suggested, as a result of his conclusions, that Government procurement of foodgrains from the market will have to be flexible and year-long programme, instead of being undertaken only in the post-harvest season which is likely to create an artificial condition of scarcity in the market. He has suggested extension of procurement operation over the whole year and then on business lines. Besides, price policies have to be announced sufficiently ahead of the harvest season and enforced very rigidly. This change in Governmental policy is bound to affect the marketed surplus of foodgrains in the country.

The practice of cultivators plays a major role in the determination of the marketed surplus. Thus, the proportion of the castor crop retained for various purposes varies widely in different tracts depending on the local conditions. It is comparatively high in areas where the practice of cultivators extracting oil—often by boiling the seeds in water — for their domestic requirements is common, for example, in certain parts of Madras and Mysore.

The financial position of the producers is a factor in influencing the marketed surplus which is a corollary of the size of holding and the social status of the producers. Thus the financial position of poultry raisers influences the number of birds retained by them.

The condition of storage hitherto prevented the producer from withholding his produce from the market consequently leading to sizable marketable surpluses. The pre-harvest scarcity and the post-harvest glut have been a peculiar feature of undeveloped regions. The present measures to increase the storage capacity of regulated markets, co-operative processing and marketing societies and the chain of warehouses opened throughout the country by the State Warehousing Corpora-

tions and the Central Warehousing Corporation will affect future market arrivals and marketed surpluses. The entire picture of marketing, as known hitherto is undergoing a transformation. It is too early to estimate the effect of these measures on the marketing scene but it is sure to be a profound one.

Thus it is seen that a multitude of factors act and inter-act on each other in the determination of the marketed surpluses of foodgrains and commercial crops throughout the country. The vagaries of weather and the usual uncertainties and hazards associated with agriculture are accentuated by man-made measures and psychological inhibitions, customs and usages and practices without even a rationale. These add to the difficulties confronting those who have to estimate the market arrivals of crops and the marketed surpluses of the same and the retention by the producers. It is extremely difficult in working out this equation to allow for the interference of so many factors. To these uncertainties have been recently added that of the transition from a *laissez faire* economy to a planned welfare State. The problems in the estimation of marketed surpluses are immense but these should not be allowed to deter policy-makers, administrators and those working in the field from setting about their task as expeditiously as possible and completing the same so that the country will have a clear picture of the market behaviour and pattern of different producers, in different markets, in different regions of the country, so that a co-ordinated and coherent policy can be evolved.

## APPENDIX—I

PERCENTAGE OF RETENTION BY PRODUCERS AND THE MARKETED SURPLUS OF VARIOUS CROPS

| S. No. | Name of the crop | Seed | Feed for livestock | Wages in kind | Barter transaction | Retention for home consumption | Total Retention | Marketed Surplus |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | | | A—*Food Crops* | | | | |
| 1. | Paddy .. | 6.4 pre-war 5.7 | — | 20.0 pre-war 9.8 | 1.7 pre-war 2.0 | 44.4 pre-war 42.0 | 72.5 pre-war 59.5 | 27.5 pre-war 40.5 |
| 2. | Wheat .. | 9.0 | 1.1 | 6.9 | 2.0 | 43.3 | — | 37.7 |
| 3. | Jowar .. | 3.0 | 2.6 (now extinct) | 20.2 | | 53.0 | 76.2 | 23.8 |
| 4. | Bajra .. | 2.7 | 4.1 (now extinct) | 20.2 | | 50.6 | 73.5 | 26.5 |
| 5. | Maize | 3.3 | 1.0 (now extinct) | 12.9 | | 59.3 | 75.5 | 24.5 |
| 6. | *Ragi* | 2.0 | 1.2 (now extinct) | 18.1 | | 61.0 | 81.1 | 18.9 |
| 7. | Small Millets | 2.3 | 2.1 (now extinct) | 19.2 | | 62.1 | 83.6 | 16.4 |
| 8. | Barley | 9.0 | 6.0 | 23.0 | | 36.0 | 74.0 | 26.0 |
| 9. | Gram .. | 9.2 | 11.6 | 8.9 | | 26.0 | 55.7 | 44.3 |

(*Contd.*)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| | | | B—*Pulse Crops* | | | | |
| 10. *Arhar* .. | 4.7 | 1.6 | 1.9 | | 29.4 | 37.6 | 62.4 |
| 11. *Urid* .. | 6.7 | 1.6 | 1.4 | | 26.8 | 36.5 | 63.5 |
| 12. *Mung* .. | 5.4 | 0.4 | 0.2 | | 33.3 | 39.3 | 60.7 |
| 13. *Masoor* .. | 15.2 | 0.3 | 1.8 | | 23.9 | 41.2 | 58.8 |
| 14. Linseed | 6.5 | 2.0 | — | — | 11.5 (extraction of oil in ghanies) | 20.0 | 80.0 |
| 15. Groundnuts | 12.0 | — | 1.0 | — | 1 & 2 | 16.0 | 84.0 |
| 16. Rape Seed and Mustard | 2.0 | 2.0 | — | — | 10.0 | 14.0 (village retention 33 per cent) | 86.0 |
| 17. Sesamum .. | 2.3 | | | | 9.3 (32.8 village retention) | 44.4 | 55.6 |
| 18. Niger .. | 6.2 | | | | 37.3 | 43.5 | 56.5 |
| 19. Castor Seed .. | 5.0 | | | | 6.0 | 11.0 | 89.0 |
| 20. Coconuts .. | | | | | | 10.0 | 90.0 |
| | | | C—*Fibre Crops* | | | | |
| 21. Jute .. | | | | | 2.36 | 2.36 | 97.64 |
| 22. Sann Hemp | | | | | | 20.0 | 80.0 |
| | | | D—*Fruit Crops* | | | | |
| 23. Mangoes .. | | | | | | 33.1 | 66.9 |
| 24. Bananas .. | | | | | | 20.0 | 80.0 |
| | | | E—*Miscellaneous Crops* | | | | |
| 25. Poultry : | | | | | | | |
| (*a*) Fowls : | | | | | 54.0 | 54.0 | 46.0 |
| (*b*) Ducks .. | | | | | 52.5 | 52.5 | 47.5 |
| (*c*) Geese .. | | | | | 60.0 | 60.0 | 40.0 |
| (*d*) Turkeys .. | | | | | 40.0 | 40.0 | 60.0 |
| (*e*) Guinea Fowls | | | | | 40.0 | 40.0 | 60.0 |
| 26. Tobacco .. | | | | | 2.9 | 2.9 | 97.1 |
| 27. Tapioca .. | | | | | 30.0 | 30.0 | 70.0 |
| 28. Potatoes .. | 16.6 | | | | 15.3 | 31.9 | 68.1 |
| 29. Milk—Cows : | | | | | | | |
| (*a*) Rural .. | | | | | 17.0 | 17.0* | 83.0 |
| (*b*) Urban .. | | | | | 2.0 | 2.0 | 98.0 |
| (*c*) Goat's Milk | | | | | 50.0 | 50.0 | 50.0 |
| 30. Ghee .. | | | | | 18.4 | 18.4 | 81.6 |
| 31. Chillies: .. | | | | | | | |
| (*a*) Green .. | | | | | 9.0 | 9.0 | 91.0 |
| (*b*) Dry .. | | | | | 11.9 | 11.9 | 88.1 |

* 9 per cent as fluid and 8 per cent as milk products (curd, country butter, ghee, *khoa* and butter milk).

The figures given above and quoted in the main body of the paper have been taken from the various Marketing Reports issued by the Directorate of Marketing and Inspection from time to time and hence, some of them are out of date. Other figures have been taken from various other sources.