AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY
Batch 37

1. SUBJECT CLASSIFICATION

A. PRIMARY
Agriculture — AE70-0000-0000

B. SECONDARY
Distribution and marketing

2. TITLE AND SUBTITLE
The character of agricultural markets as they relate to the development of cooperatives

3. AUTHOR(S)
Mellor,J.W.

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1967	13p.	ARC 380.141.M527a

7. REFERENCE ORGANIZATION NAME AND ADDRESS
Cornell

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*
(In Cornell int.agr.development mimeograph,21)

9. ABSTRACT

10. CONTROL NUMBER	11. PRICE OF DOCUMENT
PN-AAC-329	
12. DESCRIPTORS	**13. PROJECT NUMBER**
Cooperatives	
	14. CONTRACT NUMBER CSD-1438 Reg.
	15. TYPE OF DOCUMENT

AID 590-1 (4-74)

THE CHARACTER OF AGRICULTURAL MARKETS AS THEY RELATE TO THE DEVELOPMENT OF COOPERATIVES

By

John W. Mellor

Professor, Department of Agricultural Economics

Cornell University, Ithaca, New York.

April 1967

WITH modern methods of travel and communication shrinking the world almost day by day, a progressive university must extend its campus to the four corners of the world. The New York State College of Agriculture at Cornell University welcomes the privilege of participating in international development — an important role for modern agriculture. Much attention is being given to efforts that will help establish effective agricultural teaching, research, and extension programs in other parts of the world. Scientific agricultural knowledge is exportable.

A strong agriculture will not only provide more food for rapidly growing populations in less-developed countries, but also a firmer base upon which an industrial economy can be built. Such progress is of increasing importance to the goal of world peace.

This is one in a series of publications designed to disseminate information concerned with international agricultural development.

Single Copy Free
Additional Copies 25¢ each

THE CHARACTER OF AGRICULTURAL MARKETS AS THEY RELATE TO THE DEVELOPMENT OF COOPERATIVES[1]

By
John W. Mellor [2]

Introduction

The questions of economics concerning the working of markets are (1) to what extent do they inhibit production by raising marginal costs and depressing marginal revenues of producers and (2) to what extent do they weaken the signals of changing supply and demand and thereby inhibit adjustment. The greater the marketing margin the greater will be the inhibition to production and the greater the potential for a weaker signal for supply and demand changes. High marketing margins may arise from (a) collusion, (b) inefficiency or (c) large input requirements attendant on major services. Inefficiency may in turn arise from inefficient allocation of resources at either the firm or the national level. Marketing services of course affect the level of demand, hence reducing marketing margins by eliminating efficiently provided services may cause a more than compensating loss of demand, decline in price and reduction in production. Marketing services also provide direct utility. It is important in determination of national development policy to correctly determine whether or not marketing margins represent a significant factor in consumer and producer prices, and if so, to determine the cause of those margins and diagnose the desirability and means of influencing them.

National policy fostering cooperatives and quasi-cooperatives may derive primarily from a concern for increasing political integration, developing new alliances and groupings of rural people which contribute to economic growth, and other objectives which are not defined in the narrowly economic terms of business efficiency and competition. However, experience suggests that these broad objectives cannot be met unless cooperatives also provide direct benefits to farmers through lower marketing margins and consequently higher prices or larger markets or both.

Farmers cooperatives in low-income countries have commonly been unsuccessful. The few, strikingly successful cooperatives have

---

1/ Paper presented at Agricultural Development Council seminar on "Adapting Cooperatives and Quasi-Cooperatives to the Market Structures and Conditions of Underdeveloped Areas", University of Kentucky, Lexington, Kentucky, April 1967.

2/ Professor, Department of Agricultural Economics, Cornell University, Ithaca, New York.

offered farmers major economic advantages over private alternatives. The environment for formation of cooperatives is favorable if marketing margins are high due to collusive behavior within private trade or if there is marked inefficiency in the private trade tracing from other than collusive patterns. If marketing margins are low or if the services demanded by consumers require a large resource input with commensurate high costs and the private trade is handling them efficiently, then the environment for formation of cooperatives is relatively unfavorable. In the former case there is an umbrella of profit and inefficiency, providing scope to cover managerial errors in the cooperatives and to provide savings for the farmer. In the latter case, cooperatives can only survive unsubsidized if they are highly efficient and even then the direct economic benefits to the farmers will be slight. If cooperatives are subsidized by government there will be a drain on the limited, high opportunity cost resources of the government. If they are subsidized by farmers by granting cooperatives monopoly powers and consequently higher margins, farm production will be inhibited and the market will work less effectively.

Relatively little analysis has been conducted of market institutions and sturcture in low-income nations. Three revealing studies of India are those by Lele, Hirsch and Cummings. The Lele and Cummings studies deal with foodgrains, sorghum and wheat, respectively, while the Hirsch study deals with sugar cane. There has been practically no work on the high income elasticity of demand, highly perishable commodities such as milk, eggs, vegetables and fruits. This is doubly unfortunate since such commodities often have special marketing problems because of their bulky or perishable nature and the rapid growth in urban demand from low bases of initial use. The following discussion will reflect the available literature and emphasize foodgrains, viewing first problems of collusion and then problems of market efficiency in resource use. Brief comment will then be made concerning other agricultural commodities and production inputs.

Collusion

The potential for collusion in marketing is a function of (a) the definition of the market and (b) ease of entry into markets. From scattered evidence, it appears that in the case of foodgrain marketing in South Asia, the markets are broadly defined, and highly integrated and entry into markets is relatively unrestricted. Thus it is likely that the trade is competitive, that returns to factors of production are commensurate with those in other uses and it is

unlikely that high profits of the private trade provide unusual scope for fostering cooperatives as alternatives to the private trade. It is not argued that merchants do not wish to engage in collusion, but only that they normally cannot succeed due to the number of participants in the market and the ease of entry.

Market Definition

Individual markets in India appear to be closely integrated. Lele demonstrates this through regressions of prices in each of several markets on each other. Cummings data corroborate this. This suggests that arbitrage among markets is generally successful in keeping prices in line. Lele indicates that arbitrage breaks down when shortages of transport appear, a problem to be discussed in the next section. In practice the system presumably works primarily through merchants in small producer centered markets keeping well informed concerning prices in larger markets, particularly those in consumer centers and shipping commodities when prices exceed shipping costs, or reflecting price changes in consumer markets to farmers and to sellers from lower level markets. For such a system to work requires an intricate system of market information. Evidence from the above studies corroborates that such an information system exists. Traders seem to receive a constant flow of information concerning prices, not only by mail but by telephone and telegraph as well. Cummings remarks on the postal system, used in Punjab markets, of sending massive numbers of postal cards, to various traders, with price information. Lele remarks on the disinterest of traders in radio broadcasts of market prices because they have already received more detailed information through direct contacts.

With integration of markets through good information and transport, the total number of traders comprising a market increases from the several of a small village market to the thousands of a national system. Collusive behavior on a national scale is not beyond the fertile imagination but it is beyond normal experience.

A further factor increasing market integration is the accessibility of markets at different levels directly to farmers. Farmers may sell to traders at his farm, or in a small village market or in the market of a large wholesaling center. Thus the farmer may in effect help to equilibrate prices in these various markets by swinging his trade from one to another. It is of course unlikely that the farmer with only a few acres of land would change his marketing pattern from week to week, if for no other reason than because of the overhead involved in arranging transport to more distant and centralized markets. However such changing of market is

not out of the question for the larger farmer. It appears that such changing of markets is sufficient to help keep markets integrated one with another and hence to remove incentive for the small farmer to even question to what market he sends his produce.

The argument that markets are competitive due to integration of a widespread network of markets does assume ready communication among markets both for information transmission and physical movement of commodities. If either information channels such as radio, telephone and telegraph, or road or railroad transport are deficient, then markets are likely to be only imperfectly attached and opportunity for collusion amongst a small number of local traders becomes possible. Both the Lele and the Cummings studies were conducted in areas of India with unusually good transport and information systems. Lele is currently expanding her study to include areas in West Bengal with much less well developed communication and transportation facilities. It will be interesting to see if the results differ significantly from the earlier studies and whether or not the differences within the new study region appear to be related to transportation and communication deficiencies.

In appraising the impact of poor transportation it should be remembered that if the area is completely isolated then the market is purely local and collusion may be encouraged if entry is not easy. If there is easy entry then collusive practices can be broken. If the market is closely circumscribed, the scale of the market and hence the size of business and capital requirements for entry will be low. If the market is closed only periodically, then it is likely that the local collusion will cause price spreads which in turn cause the local traders to lose outside markets. They can only profit by buying at distress sales and storing until the time when transport becomes available. The question then arises concerning ease of entry into such storage operations. Nevertheless even with theoretically easy entry into such operations, the imperfections introduced by expensive and intermittent communications and transportation lines offer opportunity for a small group to gain special knowledge which may provide special profits and weaken operation of the market system. Perhaps even more important, the resultant fluctuations in prices add an uncertainty to farmers expectations which are bound to reduce farmer expenditure on purchased production inputs and hence be particularly deleterious to introduction of purchased input oriented technological change. Thus the penalty of imperfectly working markets may arise not so much from the opportunity for collusion among traders as simply from sharply shifting market prices attendant on the uncertainty which is consequent to poor information and transportation.

Ease of Entry

Ease of entry into marketing depends on both economic and social factors. Studies by Lele, Cummings, Hirsch and others suggest a fluidity in the composition of markets consistent with easy entry. At the lower levels of marketing the capital requirements are slight. Relatively prosperous farmers may buy from other farmers and pool sufficient grain to justify trips to more distant market centers, keeping the pressure of competition on village level traders. Alice Dewey's description of marketing in Indonesia, although concentrating on the lowest capital requiring smallest scale segment of marketing confirms this judgment for that level of marketing.

In India regulation of markets and licensing of traders might appear to restrict entry to trading. Lele's evidence suggests that licenses are relatively easy to obtain and do not significantly reduce competition. At the upper levels of marketing, requirements of expert knowledge and capital may restrict entry. However at that level the evidence on integration of markets is particularly clear, suggesting that although economies of scale may restrict entry somewhat that the integration of markets is sufficiently great as to still introduce a large number of participants to the market process.

It is argued that in some countries particular cultural groups dominate the trade and that cultural affinity increases the opportunity for collusive behavior. In the case of much of southeast Asia the Chinese are said to represent such a group. In the case of India, particular castes are said to dominate the trade. Two bodies of evidence argue against this. First with highly integrated markets, the numbers of participants in collusive behavior must be large, and hence the problems of coordination are awkward. Secondly there is some doubt as to whether these cultural groups are as cohesive as such action requires. However, little attention has been given this question and it would warrant intensive enquiry.

It might be argued that capital requirements make entry into the storage of agricultural commodities more difficult than entry into movement among markets. However the storage function is presumably highly divisible, and in any case most farmers do engage in storage for their family use. Storage on speculation only requires an addition to such stocks. Indeed, since farmers in low income countries sell, on the average, substantially less than half of what they produce, a given percentage increase in storage will result in a more than proportionate withdrawal from the market. In general, storage facilities used by traders are not of high capital

cost and although there is some evidence that they provide somewhat greater protection against losses than typical farm storage this is by no means certain and it is doubtful if the advantage is large. It is interesting that traders apparently do not carry stocks over from one year to another while various evidence in studies by Dar and by Simon suggests that farmers do carry stocks over from one year to another.

Efficiency in Resource Allocation

Macro Allocations

There is a good deal of evidence of periodic imperfections in markets due to lack of market infrastructure - perhaps most importantly due to poor roads, but also due to poor communications facilities and to lack of market reporting facilities.

Poor transportation facilities result in high market margins which reduce the total level of production and the response to demand and supply shifts. In addition, decrease in the ability to respond to market price differentials may well enlarge the opportunity for development of special knowledge and exploitation of that knowledge for the benefit of a few and at the expense of many.

Transportation deficiencies are of two general classes: (1) lack of trucks and railroad wagons on existing main transport lines and; (2) a deficiency in the extent of main line systems and of farm and village feeder roads to the main lines. That transport deficiencies provide substantial imperfections in market operation is clear. That this represents a misallocation of resources in an economy is of course not nearly as apparent. Major transport lines must compete with other high return uses for foreign exchange and industrial capital. Feeder lines use more abundant resources in large part, particularly including labor, but require a large input of organizational and administrative input which is one of the scarcest inputs of development. We are very short of studies of the economics of transport which would help in diagnosing needed allocational changes with respect to transport.

Inadequate market information provides another important source of market imperfection. In general, information concerning conditions in different markets at the same point in time appear to be generally good. This is evidenced by correlation among prices in different markets and trader statements concerning information sources.

Information concerning market situations at different points in

time - the basis for storage policy - appears to be poor. The evidence arises from observation of the erratic nature of seasonal price fluctuations as well as from trader statements. Although seasonal price fluctuations are on the average close to what one would expect from the inputs required for storage and the market prices of those inputs, the seasonal pattern in any one season may depart radically from that pattern. It is likely that some traders acquire great skill in predicting these movements and thereby profit. Presumably on the average, trader profits from such action are modest.

Erratic seasonal movement of prices presumably traces from lack of knowledge of current crop prospects, current storage stocks and future years' crop prospects. As in the case of transport deficiencies it is easy to demonstrate that lack of information causes major imperfections in the working of interseasonal markets. It is not easy to show a misallocation of resources to solution of these problems. Presumably the problem may be attacked either through enlarging the stock of knowledge or by buffer stocks. The stock of knowledge requirement can be met only by costly expansion of facilities for scientific determination and reporting of crop and storage prospects and status. Such a system is difficult and costly to develop, with both the costs and returns uncertain given the current state of knowledge. Meeting the problem through storage stocks is likely to require large stocks and therefore to also have high resource costs. Little is known of the relative costs and returns of such an operation. If aggregate supply and demand did not vary from one year to another, it would be relatively simple to set a pattern of seasonal price fluctuations with reasonable limits on either side and run a stabilization program with only modest stocks. However, given major changes in aggregate supply-demand balances from one year to another, the pattern of seasonal price fluctuations given perfect knowledge will vary considerably from year to year. For a buffer stock operation to work there cannot be full divorce of the problem of intraseasonal fluctuations from interseasonal fluctuations. Little is known about this matter.

Micro-allocations

Little study has been made of the efficiency of marketing firms in low-income countries. It is likely, on the same logic as the frequent assumption of farmer efficiency in allocations, that marketing firms allocate the resources at their disposal quite efficiently given the decision-making environment they face. The presumption is that given easy entry and free competition and a relatively static environment that traders gravitate towards efficient operation.

High Income Elasticity Commodities

The opportunity for effective use of resources in agriculture is expanded by the rapid growth in demand for high income elasticity of demand commodities such as livestock products, vegetables and fruits - which provide intensive use of scarce resources and opportunity for increased use of abundant resources. Many of these commodities are bulky perishables for which the technical problems of marketing are immense, margins are high, trading units are few and opportunities for collusion particularly great. Even less study has been made of these agencies than of the grain traders and yet their role in stifling a particularly desirable element of agriculture may be great. Market prices of these commodities appear to fluctuate particularly wildly providing major problems in directing production efficiently. The number of traders is often low and because of technical problems ease of entry may be restricted. Much of the problem undoubtedly arises from the small total market in a low income country. However the problems may persist even when rapid urbanization and per capita income growth greatly expand the total market and remove an underlying source of the problem.

Input Suppliers

In a traditional agriculture there is practically no use of purchased inputs and hence one of the problems of development is to develop such input supplies. The basic problem for the private trade is that of access to supplies that are often government controlled and learning the special time, place and form utilities demanded by farmers. Where it is desired to speed the growth in use of new forms of purchased inputs it may be desirable to look for means of increasing the spread of knowledge within the private trade with educational programs for private traders or to introduce alternative distribution systems.

The preceding comment suggests that in viewing the opportunities for cooperatives and quasi-cooperatives excessive emphasis may have been placed on entry into those aspects of agricultural marketing which are traditional and most competitive, and insufficient effort has been placed on imaginative entry into newly developing areas. Conversely the major underlying problem of the vast marketing system for the basic grains may be lack of adequate infrastructure in regard to knowledge generation, communication and transportation.

I am inclined to attach considerable importance to the role of cooperatives and quasi-cooperatives in preparing to meet and in meeting a number of important organizational requirements of economic development and increased social welfare. I find, however, that the economic environment within which cooperatives are normally developed is normally not conducive to their economic success. Farmers are not enchanted by cooperatives which are not an economic success. Likewise I am unenchanted with fostering cooperatives through granting them monopoly power since I suspect the cost of such subsidy is not only unpredictable in the short run, but uncontainable in the long run. In contradiction however, the apparent success of the cooperative system in Taiwan apparently depends in significant part on monopoly purchase of rice.

Given the above reading of the market situation, the need is suggested for an imaginative search for (a) alternative means of reaching the non-economic objectives of cooperatives, (b) low cost means of subsidizing cooperatives (perhaps largely through education of managers), (c) areas of cooperative activity where they are most likely to succeed in economic achievement.

REFERENCES

Bauer, P. T., Economic Analysis and Policy in Underdeveloped Countries, Durham, North Carolina, Duke University Press, 1957.

Bauer, P. T., West African Trade, London, Routledge and Kegan Paul Lmd., 1963.

Cummings, Ralph W., Jr., Marketing of Wheat in Punjab, unpublished Ph.D, Thesis, University of Michigan, 1966.

Dar, Ashok K., Domestic Terms of Trade and Economic Development of India, unpublished Ph.D. Thesis, Ithaca, New York, Cornell University, 1967.

Dewey, Alice G., Peasant Marketing in Java, New York, Free Press of Glencoe, 1962.

Hirsh, Leon V., Marketing in an Underdeveloped Economy: The North Indian Sugar Industry, Fugelwood Cliffs, N. J., Prentice Hall Inc., 1961.

Kulkarni, A. P., The Behaviour of Prices of Groundnut Pods in Some Regulated Markets in Maharashtra, unpublished Ph.D. Dissertation, University of Poona, India, 1962.

Lele, Uma J., Efficiency of Jowar Marketing: A Study of Regulated Markets in Western India, unpublished Ph.D. Thesis, Cornell University, 1965.

Lele, Uma J., "Market Integration: A Study of Sorghum Prices in Western India," Journal of Farm Economics, Vol. 49, No. 1, Part I, February 1967.

Mathur, P. N., and Kulkarni, A. R., "Some Observations on the Working of a Regulated Market: A Preliminary Review," (Paper read before the Seminar on Agricultural Marketing held by the Indian Society of Agricultural Economics in November 1963 at Matheran, India.)

Purvis, Malcolm John, Marketing of Foodgrains in India: An Economic Appraisal of Governmental Intervention, unpublished Master's thesis, Cornell University, 1964.