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DESIGNING AGRICULTURAL MARKETING SYSTEMS
IN DEVELOPING COUNTRIES

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16. Abstracts <p>The purpose of this paper is to discuss the design of improved agricultural marketing systems as a means of stimulating economic development. This implies two propositions: (1) that the marketing system can be an active element in the development process and (2) that high performance marketing systems do not develop automatically in response to the needs of a particular situation. Marketing is often neglected in development planning because one or the other or both of these propositions are implicitly rejected.</p> <p>The theme of this paper has been that improved organization and coordination of food production-distribution systems is critical in the effective transformation from a traditional agricultural economy with low productivity to a scientific industrial one with high productivity. The transformation requires the adjustment of many parts of the interdependent system and can stagnate as a result of failure in adjusting or development at many different points in the system. The role of government cannot be</p> <p>passive. Facilitating the transformation requires a continuous, coordinated, positive approach to development.</p>			
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DESIGNING AGRICULTURAL MARKETING SYSTEMS IN DEVELOPING COUNTRIES*

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INTRODUCTION

The purpose of this paper is to discuss the design of improved agricultural marketing systems as a means of stimulating economic development. This implies two propositions: (1) that the marketing system can be an active element in the development process and (2) that high performance marketing systems do **not** develop automatically in response to the needs of a particular situation. Marketing is often neglected in development planning because one or the other or both of these propositions are implicitly rejected.

In this paper I will discuss an approach to, and some observations about, instituting changes in marketing systems, however, there will be no attempt to define a model or ideal marketing system. Such an attempt would be inconsistent with the reality that the system should meet the needs of the unique situation of each area and time. Thus marketing systems must be in the process of continuous change as the development process takes place. The job of

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designing the appropriate agricultural market system is one which is never finished.

THE TRANSITION FROM TRADITIONAL AGRICULTURE

In the broad sense the objective of this conference is to identify changes which can be instituted in the marketing systems which will accelerate the transition from a traditional agricultural economy which is not very productive to an economy which is much more productive.

In a very general way the transition from traditional agriculture involves the following elements. (1) The acquisition of the capacity to increase the supply of inputs which will increase agricultural productivity. This may be tools, power, water, technical knowledge, new seeds, fertilizer, etc. (2) The development of an efficient and reliable delivery system for the inputs. The total delivery system of inputs must include the delivery of technical knowledge concerning the use of the inputs. (3) The development of a more productive and reliable marketing system for agricultural products. (4) The development of a production-distribution system of consumer goods which will serve both urban and rural areas. (5) The development of a labor market and monetary-fiscal policies required for expanded employment.

The traditional agricultural economy is very unspecialized. Most of the population is engaged in production of food for its own consumption, producing only a small surplus which is traded for elementary needs and used to pay rents and taxes. Most of the population is caught in the vicious circle of poverty, never able to produce enough beyond the needs of immediate subsistence to invest in the means to increase their productivity. Each participant in the economy is doing about as well as he can given the constraints on the system and his perceptions. The challenge is to induce changes in the system leading to processes of reinforcing growth.

The most basic potential source of increased productivity is specialization in the production and distribution of consumer goods, capital goods and in scientific and technical knowledge. The production and distribution of capital goods and technical knowledge involve investment, or deferred consumption, as well as specialization. The investment in scientific-technical knowledge and the capital goods in which the knowledge is embedded produce new technologies and the potential for new and more productive production-distribution systems. The transition involves successively more specialized, more round-about and more complex production-distribution systems.

Historically the vicious circle of poverty of traditional agriculture has been broken through some induced change in the system. New lands have been opened. New technologies have become available. New profitable markets have been opened. A new political structure devises a means of converting underutilized labor to capital. In any case, by producing a surplus above subsistence, food is available to support a non-farm population. The beneficent spiral of development progresses as those released from the necessity of food production produce agricultural inputs and consumer goods, which allows the farm family to become more specialized and more productive in food production. Looked at as a production-distribution system, the system for a particular food becomes a longer and more complex sequence of steps, involving the coordinated effort of more and more specialists, the higher the level of development. And a larger and larger proportion of the activity required in the food production-distribution system takes place by specialists who are not farmers.¹

¹The scientific industrialization of food and agriculture in the U.S. has progressed to the point where those activities which take place on farms represent only a minor portion of the costs of the system. Of the total value of food as sold at retail stores the estimate of value added by farmers on farms is only 12%. A greater portion of the value added is contributed by purchased inputs and food retailing than by farming. Thus farming is simply an important set of activities in a complex sequence which collects the products

of many specialists and combines them to produce food delivered to the consumer. That this scientific industrialized food system is efficient is indicated by the fact that it produces an abundant food supply including many convenience services for about 15% of consumers' disposable income.

The transition from a traditional agriculture to a scientific industrial economy may stagnate at any level. Typically in the modern world, agriculture of the underdeveloped economies manages some surplus for export in several specialized commodities. Urban populations develop and produce some elementary consumer goods, especially textiles and utensils, and some agricultural inputs. However, a large part of the population remains both unemployed (and underemployed) and poorly fed. And stagnation occurs while a very large proportion of the population remains in traditional agriculture at very low levels of productivity.

Sustained growth requires a continuous search for methods of increasing performance of the various elements of the economic system. It is essentially a search for unexploited economic opportunities. The problem is that barriers to improved performance develop within the system. The individual, given his perceptions and position in the system, cannot by himself alter the system to achieve improved performance. Achieving the productivity gains potentially available from a specialized--or industrialized system--requires that effective coordination of the specialized activities take place. Failures in coordination often become effective barriers to progress.

Coordination takes place through two classes of activities. One is through market exchange and the price system. Individuals and firms direct their activities in search of profits, and prices of inputs and products affect profits, stimulating particular economic activities. The second is administrative coordination. Coordination within the firm is administrative.

And activities of government are administrative. System coordination usually includes a combination of administrative and market-price activities. A problem with market-price coordination is that there are significant external effects and public goods involved in the economic system. An external cost exists when the behavior of one firm or individual imposes a cost upon another firm or individual. Public goods exist when desirable goods and services are not produced privately because the individual firm cannot capture the benefits of producing them.¹ A variation exists where collective action would produce an economic benefit to the system, but no individual acting alone can either produce or capture the benefit by himself. It may also be true that resources are distributed in such a way that the individual or firms best able to make economic use of the resources cannot gain control of them. The market-price system has other problems as a coordinating mechanism, transmitting inaccurate and biased information and creating distortions associated with monopolistic practices. Coordination may, therefore, be improved by market rules and definitions of property rights, influencing what individuals take into account and facilitating appropriate collective action. A set of complementary and/or critical services may be needed which can be effectively provided administratively through government agencies. These will be services which will return to the system more than their opportunity cost, but are such that they cannot be profitably provided by an individual firm. At the same time inappropriate rules, regulations and government participation may be serious barriers to effective coordination.

¹I am using the term public good in its technical meaning. A public good is a good or service where (1) use by one person does not usually diminish its usefulness by another and/or (2) exclusion of potential users or benefactors is not feasible. I am not using the term to mean publicly provided goods and services.

While coordination through market-price mechanisms involves many problems, the alternative of purely administrative coordination is even less satisfactory. It is very difficult to build incentive structures into bureaucratic organizations to produce high levels of individual performance in complex activities involving large numbers of decisions. The market provides a discipline to stimulate performance. Also purely administrative systems are difficult to structure to assure that the decision-makers are informed in a system involving many unique situations. The market-price system is an efficient means of registering consumer preferences at retail and the price system has great utility in coordinating resource allocation involving the literally millions of decisions involved in agricultural production and distribution. The relevant question is not between purely market-price coordination and administrative coordination but rather is the question of determining the appropriate mix in order to achieve effective coordination and economic performance given the conditions and social objectives which exist at any particular time.

A SYSTEMS APPROACH

A system is simply a set of interrelated and interdependent activities. The economy as a whole can be usefully viewed as a system of coordinated sequences of physical transformations. Viewed as a system of physical transformations, the usual distinctions between production, marketing and consumption lose their meaning. Each of these classes of activity involve physical transformation in attempting to create utility. For example, note the following system. There is a process for transforming natural gas into nitrogen requiring the coordination of a great number of activities. Similarly, a large number of activities are required to transform nitrogen at the plant to nitrogen fertilizer on the farm. The transformation of seed, fertilizer, labor, etc.

on the farm produces rice. Assembly, milling, transporting, storing, grading, wholesaling, retailing, etc. transform rice at the farm to rice in the kitchen, adding value to it in the process. The cook transforms rice and other inputs into a meal. When eaten the rice is transformed to energy and human sustenance. The human energy is transformed in the production of inputs into the system.

The systems approach is an orientation which emphasizes the system or the interdependence or related activities. It is concerned with the coordination of economic activity as a system. Thus the production and distribution of farm inputs, farm production, the distribution of food and the production and distribution of consumer goods are viewed as a system because they are interdependent. Increasing the productivity in one part of the system improves the potential for the whole system. Similarly failure in any of the functions in the system may cause stagnation in the system. Any particular functions or activities in the system may be perceived as unprofitable for an individual or firm to undertake given the constraints of the system, yet the function or activity may contribute significantly to the development and productivity of the system. That is, there may be very significant external benefits in terms of development to particular activities. Analysis and planning should be designed particularly to identify and respond to these situations.

I do not believe it is useful to worry about what is production or what is marketing. Farm production and product distribution are interdependent in a commercial economy. Both involve production. Both involve problems of coordination. I prefer to discuss production-distribution systems and the effective organization and coordination of such systems.

It is obvious that everything cannot be taken into consideration in analysis and planning, that an analysis and planning group has to have some bounds and neither this conference nor this paper can usefully consider

every aspect of the total economy as a system. Nonetheless I believe the systems orientation is useful. By this I mean attempting to view analysis and planning of the coordinated sets of activities and functions which make up production-distribution systems of manageable proportions and to consider the consequences of changes in these systems within the context of a broader system.

Those who developed this conference obviously had a comprehensive view of the coordination problem. I was especially pleased to see consideration of agricultural inputs, credit, price policy and laws and regulations. These are all extremely important aspects of the agricultural production-distribution system and are often neglected in discussions of agricultural marketing.

What follows are some comments and observations about some of the typical problems and critical areas in the development of improved coordination of food and agricultural systems in the process of transforming from traditional agriculture to a more productive economy.

THE TYPICAL SITUATION

The problem of risk and uncertainty and its relationship to the agricultural production-distribution system is critical. Traditional farmers seldom have large reserves which would allow them to accept short-run losses. They must follow practices which they perceive to be low risk. The margin for error is reduced as the ratio of purchased inputs to output increases. Thus the existence of reliable markets and prices greatly affect the farmers' willingness to adopt new practices, especially when purchased inputs are required. The traditional farmer typically attempts to reduce risks by both minimizing debt commitments for purchased inputs and either diversifying production or concentrating on a traditional crop with a more reliable market. In either case the potential increased production from specialization is reduced.

Typically markets for many specific products are very narrow. The effective demand is very limited. Small variations in supplies have a large effect on prices. The problem is especially critical for perishables where irregularities in daily supplies result in large daily price variations. Because retailers are small it is not profitable for them to provide information about the price bargains associated with larger supplies, contributing to the narrow market. The narrow market results in price uncertainty for all participants in the system.

The result of the combination of small size, low productivity and diversification is the production of commodities in very small lots. This fact makes assembly expensive and reduces the flow of coordinating information in the system. Either the farmer himself spends considerable time in transporting his commodities to an assembly point or a local buyer goes through the countryside collecting a few bags of product at a time. In either case the local buyer is usually a passive participant in the system. He takes what happens to be produced without attempting to stimulate production of those commodities which are most likely to be demanded in the future. The assembly system may involve several stages, removing the farmer substantially from the information of the consumer market.

Because of the small quantities of commodities marketed in many local areas there may not be sufficient buyers to create a competitive local market. The local buyer may himself be poorly informed about wholesale and retail market conditions. However, the assembly buyer will usually be much better informed than the farmer (for one thing he can afford to invest more in acquiring market information). The result is a combination of some monopolistic elements, an incentive to distort information and a general lack of information about market conditions and market potentials among producers.

Those performing the wholesale functions tend to be both small scale and highly specialized by commodity. They also tend to be passive agents in the system accepting what happens to be available to them and doing little to develop the market. The wholesaler usually provides very little service to the retailer, acting more as a broker. This requires the retailer to spend much of his time simply collecting the commodities he will sell and engaging in transactions with numerous wholesalers. This makes it difficult to develop larger scale efficient retail stores which would offer consumers convenient and efficient retail services.

Typically grades and standards are poorly developed. While some trading grades do develop through tradition in a few commodities, they are seldom codified in such a way that all participants in the channel understand and use them. The lack of accepted grades and standards increase transaction costs by requiring visual inspection at each transaction. Since small lots are typically traded and relationships among traders are often transitory, a good deal of poor quality, spoiled products and foreign matter are traded and shipped adding to the system costs.

Two related attitudes frequently prevail in developing societies. One is that intermediaries have a parasitic relationship to the economy. This results in regulations and programs which tend to discriminate against those performing some of the important marketing functions. The related attitude is that marketing will take care of itself. That the problem is to increase production, not to develop a market for the products. There must be literally hundreds of case studies of specific situations of programs which have developed increased production only to find that the market has not developed automatically, rendering the increased production of little value.

MARQUETING AGRICULTURAL INPUTS

The development of an effective delivery system for agricultural inputs is clearly critical in the transition to a scientific industrial agriculture. Since technical inputs are highly complementary it is important to develop a means of delivering the appropriate package of inputs to farmers. Technical knowledge concerning the use of the new inputs is part of the package. The distribution of knowledge and the distribution of products has usually been separated. Unfortunately extension services have often not been very efficient in delivering timely and relevant information of the specific type required by most farmers in making many of their production and marketing decisions. While some large farmers may be well served, very few small farmers are. Consideration should be given to the delivery of technical information along with the technical inputs by utilizing the input delivery system.¹ The extension education would then more efficiently be concentrated on the training of the input retailers rather than the more numerous farmers. Perhaps a system of franchising dealers could be developed, with the requirement to provide technical assistance being made part of the franchise agreement. The dealer franchise may provide an institution to combine the discipline of the market with some of the advantages of administrative coordination.

In any case a considerable investment in technical training of personnel engaged in the distribution of technical inputs is required. Knowledge of the characteristics and uses of the products they handle will add greatly to the value of the products they sell. Since timing of the inputs is often critical, some training in inventory management and the logistics of supply is essential.

¹In the industrialized agriculture of the U.S. firms supplying inputs often provide a considerable technical information and associated services along with their products. A fertilizer firm, for example, may provide a soil testing service and prescribe appropriate fertilizer formulas and rates. A feed company may provide a dairyman with computerized feed formulas.

Since the farmer is usually unable to determine quality of inputs by looking at them, provision must be made to insure quality control and reliable identification. This is especially important in achieving acceptance of new technologies by traditional farmers. Failure to achieve responses to new seeds may be due to the fact that they are in fact not the new varieties, for example. And the fertilizer formulation may include a high percentage of sand.

Most developing countries must import farm machinery. Because of the extremely high costs of maintenance associated with having many different makes and models, import policy should be designed to limit their number.

Policies and programs setting or effecting price relationships for inputs are, of course, important to their economical use. Subsidized prices and credit for the purchase of technical inputs may result in an uneconomic substitution for labor in an economy of high unemployment. However, simply because a purchased input increases productivity and thus has the potential to displace labor does not mean it should not be used. Such reasoning would result in no development at all as long as unemployment existed. The issue must be analyzed to determine the effects on the system. Similarly, attempts to hold down prices of technical inputs through price controls may make it unprofitable to supply the input.

Since the package of complementary inputs is important in increasing productivity, it may be desirable to price the inputs in such a way as to encourage the use of the total package. For example, farmers might not purchase a critical input of the package because they perceived it to be overpriced relative to a traditional alternative. In this case a policy resulting in a higher margin on some inputs and lower on others would be economically sound. The popular inputs might be taxed and the less popular complements subsidized.

Credit is a critical problem for traditional farmers as they attempt to acquire purchased inputs and to modernize their operations. Government attempts to provide special credit to stimulate agricultural production are often relatively unsuccessful in reaching the small traditional farmers. Credit must also be marketed. Credit available in banks and special offices some distance from a farmer are often perceived as unattainable. Subsidized special credit may be obtained by larger farmers who in turn lend to small farmers at a substantially higher interest. Credit may also be granted only on condition that the farmer sells a certain part of his crop to the lender. This tie-in arrangement may not only be to the disadvantage of the small farmer, but may make it less profitable to acquire inputs which would increase his productivity. Providing very small production loans through a specialized lending agency is also an expensive delivery system. Tying credit and technical assistance together in supervised credit programs has had some success, but the cost for small production loans is very high.

As part of a coordinated system consideration should be given to delivering a substantial portion of agricultural production credit through the same system which delivers the agricultural inputs. The switch from traditional money lenders to a commercial credit system may require some additional institutional adjustments. A viable credit system must have an equitable means of enforcing the credit contract. However, if the farmer perceives the market for his products as uncertain he may perceive the use of credit to buy inputs as being too risky. It may be desirable, therefore, to pool some of the risk with the lending institution making it possible to repay loans with a specified quantity of commodities as well as in cash. Some other types of insurance might also be built into the credit arrangement.

MARKETING FARM PRODUCTS

In order to purchase the production inputs and consumer goods produced by non-farm specialists the farmer must obviously sell his products. Low and uncertain prices, and unknown potential markets limit the farmers actual and perceived opportunities for profitable use of purchased inputs. Thus unnecessary costs in product marketing, failure of the system to provide information about potential profitable markets and characteristics of the coordination system which result in price uncertainty are barriers to increased farm productivity.

Agricultural product marketing systems can be developed which will play a dynamic role in accelerating the transition from a traditional agricultural economy to a scientific industrial one.¹ Without attempting to be complete let me mention a number of institutional modifications or possible inputs which may contribute to improved performance of the product marketing systems. By improved performance I mean improving the coordination between production and consumption, stimulating greater productivity or progressiveness in the production-distribution system, improved quality of products and reduced costs to the total system for performing necessary functions. While the various modifications and functions are discussed more or less independently, the importance of the complementarity among them should be stressed. For example, many of the potential improvements in the system may depend upon a critical input of trained manpower, credit or supporting rules and

¹Note that scientific-industrialization does not mean concentrated production in capital intensive factories. It means a system of production involving the coordinated effort of specialists including specialists in the production and distribution of knowledge. Agricultural production, in these terms, becomes industrialized as it shifts to the use of technical inputs and specialization of activities.

regulations. Thus these functions should be viewed as part of a coordinated program. Given limited resources, part of the problem will be to identify the more critical requirements, the priorities and trade-offs.

ORGANIZED MARKETS

A variety of activities may be required to develop effective organized markets. Public investment may be required to build both local market facilities, assembly centers, or urban wholesale centers. More important than the physical facilities are the institutional arrangements of the markets. They require management, information and regulation. Their location is, of course, critical to their effectiveness. At some stage in development, commodity exchanges may be desirable and again the way they are instituted influences their performance.

Public investment may be necessary because the benefits of an organized market may be difficult to capture by a private firm. For example, the organized market generates market information (or prices) and this information is generally available to those who operate outside of the market and contribute generally to the coordination of supply and demand, benefitting those who do not pay for use of the market as well as those who do.

ORGANIZING ASSEMBLY

Policies and practices reducing price uncertainty promote specialization and increased productivity on the farm and reduce the assembly costs by encouraging production in larger lots. Assembly costs for particular speciality crops may also be reduced by policies which allocate credit, technical assistance and other public services in such a way as to encourage geographic concentration in production. A more effective assembly function may also be achieved through the creation of new organizations designed to

rationalize assembly. Farmer cooperatives may be appropriate. Perhaps marketing boards, operating as essentially compulsory farmer cooperatives or some type of autonomous government corporation could effectively perform the function. The important thing is to design an institution which has incentives to perform. The organizational structure and rules governing operations are absolutely critical. Incentives should exist to operate at low cost, to be progressive and to be responsive to the needs of the system participants. Also if it does not perform it should fail and cease to exist. Government provided technical assistance and adequate credit are among the conditions which stimulate successful organization of this type.

DEVELOPING CHANNEL COORDINATORS

Policies and practices can be initiated to stimulate the development of firms or organizations in the marketing channel which are not passive, but have both the capacity and incentive to coordinate activities in the system. At a stage in the transition when significant concentrations of urban populations exist, large scale multi-line food wholesalers may serve the function of "channel captain." These wholesalers may be private firms or associations of retailers or cooperatives or some other institutional form. The important thing is that they should be large enough and aggressive enough to be an effective link between suppliers and retailers. They seek to develop regular supplies, informing producers of market potentials and develop the consumer market through technical assistance to retailers, stimulating low cost convenient retailing. They should be large enough to rationalize distribution to retailers, reducing their procurement costs.¹ Such wholesalers may be

¹This does not mean they have to be of great size or that they would necessarily be capital intensive.

encouraged through training, credit and the elimination of governmental practices which restrict their development. In planning for development it is important to seek leverage points where large returns can be obtained from small investments. Training effective wholesalers who in turn have an incentive to pass technical information forward to retailer and back to supplier may be such a leverage point.

COORDINATION BY CONTRACT

Contracts offer a considerable potential for improving coordination in the food sector. Contracts can be used to offer producers assured markets at prices known before planting and they can provide more reliable supplies of products with desired (specified) characteristics and delivery schedules. A contract system can also be used to stimulate more effective production practices.

Many different types of contracts are possible involving different allocations of risk and management responsibility. The contract may be simply a guarantee to accept specified quantities of products meeting agreed upon characteristics with price to be determined by the market at the time of sale. Or the contract may specify that the integrator will supply specific inputs, including management, and assume some of the risk. Or the contract can provide for shifting most of the management decisions and risks to the integrator providing the farmer with a guaranteed income for performing specified tasks. Contracting takes on special significance as a potential means of utilizing a very limited technical and managerial talent.

Contracting may be especially useful in food processing and in developing export markets. Food processing requires reliable supplies and significant economies can be achieved through scheduling deliveries of specified products.

Similarly exports markets may require minimum quantities of products meeting the unique specifications of particular markets. Also foreign importers seek reliable supplies. Exporting of agricultural products will, of course, be critical for a small less developed country since it will be necessary as a means of obtaining foreign exchange required to acquire the needed technical inputs.

Successful contracting may require a number of coordinated developments. Contracts must be enforceable. It may be necessary to develop producer associations to interpret contracts and otherwise act in the interest of farmers. Technical training and credit may be required. It may be necessary to develop larger scale organizations to make contracting practical. Other types of control and regulation may be required. While contracting is often considered a characteristic of very advanced industrialized food systems, I believe the idea should be considered as part of a coordinated program to stimulate development.¹

DEVELOPING INTEGRATED SYSTEMS

There may also be a role for some highly integrated organizations for some special commodities. For example, an authority might be established to develop a dairy production-distribution system where the economic conditions for dairy existed, but the system had not developed. A combination

¹Specification contracting played an important role in the development of the extremely efficient low cost production-distribution system for poultry meat in the U.S. Also a large part of fruits and vegetables in the U.S. are produced under contract. Contracts have been used with only modest success in Colombia, a number of the supporting conditions being absent and no government programs were concerned with developing the conditions facilitating successful contracting. Contracting by processors have met with some success in other Latin countries.

of technical assistance, credit, assured prices, sanitary controls and highly rationalized assembly, distribution and input supply delivery may produce an economically viable dairy industry in situations where the industry could not develop without the integrated system. It is not necessarily true that dairy is an uneconomical source of nutrients. Dairy utilizing improved fertilized pastures on land poorly suited to other crops may provide an economical source of nutrients. However concentration of production and otherwise rationalizing assembly and distribution may be critical in making the system viable.

STORAGE

Storage, of course, is an important function to both provide price stability and allocate resources through time. Economically sound storage may be promoted by investments in adequate facilities, development of public warehouse institutions including warehouse receipts and acceptance of such receipts as collateral, and an adequate system of product standardization to allow the pooling of products in storage, which greatly reduces handling costs. Insurance, contract enforcement, management training and seasonal price analysis may also be important inputs. Storage, by its nature involves risks and thus profits and losses from speculation. Laws which make gains from storage illegal, or suspect, obviously discourage private participation. Government storage programs also involve risks and may not provide the necessary discipline for high performance in the storage function.

¹For example, we found in Puerto Rico that a milk authority was able to convert a traditional high cost, low quality dairy industry into a high quality, low cost system in a very few years, greatly expanding production and consumption of milk in an economy that had previously consumed little milk. At the same time no similar programs existed in fruits and vegetables which remain systems of high uncertainty, low quality, low productivity, etc. Similarly analysis indicated that rationalization of assembly in a Colombian milk shed would more than pay for the costs of pasteurizing and otherwise improving the quality of milk in a traditional dairy system.

GUARANTEED MINIMUM PRICES

There may be a role for a government program of guaranteed minimum prices for selected commodities. Properly managed such programs have been successful in encouraging agricultural production at low costs. However only a few commodities have the characteristics necessary for a successful minimum price program. Success depends upon having competent management (including economic analysts), storage facilities, accepted product standards, and a means of communicating the terms of the program to small farmers. Attempts to implement minimum price programs for commodities without the requisite conditions can result in serious problems and very uneconomic use of resources. It is very unlikely that a developing country could afford to support prices as a means of transferring income from consumers to farmers. The potential for mismanagement of minimum price programs is high.

TRANSPORTATION

Transportation is clearly an important factor in the transition. Reducing the cost of transportation increases the potential for profitable farm specialization. Transportation must also be viewed as a system. This includes such things as equipment and maintenance, legal procedures to acquire right of ways, bonding for people engaged in public transport, a market information system to facilitate organizing full loads and minimizing empty back hauls and standardization in packing and shipping containers.

Developing adequate farm to market roads represents a major investment. Utilizing unemployed resources within traditional agriculture to build the roads is a challenging problem in economic coordination.

TRAINING

Trained manpower is a critical input in many aspects of the system. The need includes both technical training and training in management.

New entrepreneurial skills may be especially critical. With very limited resources, careful planning in designing training programs to provide skills needed in a future scientific industrial agriculture is needed.

MARKET INFORMATION

Market information has been mentioned a number of times in the previous discussion. Simple market news may reduce price variations and improve resource price variations and improve resource allocation by directing products to the best market. Significant differences in prices often exist among different locations in a traditional system. Grades and standards are needed for effective market information and they also facilitate communication in the vertical coordination of a system. Intentions to plant and other information concerning anticipated production are an input which may reduce price instability. Certain types of information has the characteristics of public goods and will not be produced privately. At the same time the need for investment in production and distribution of public market information may be reduced by the development of relationships which produce the information internally, such as in the case of contracts.

CREDIT

As already indicated, credit is an important instrument in the development of the food system. Credit policies and practices can be used in many ways to shape the system. Such policies determine to a large extent who gets control of the dynamic increment of resources and the uses to which the resources can be put. Credit can be used strategically to facilitate an activity which will bring significant improvement to the system. There are significant external economies involved in the system and credit can be used to achieve some of these external economies. The example of using credit to encourage concentration of production in order to achieve economies in assembly was cited. In many societies some of the marketing functions

are considered unnecessary and as a result intermediaries are discriminated against in the allocation of credit. Adequate and strategic financing of marketing functions, however, can be a means of stimulating the development process. And participants in strategic positions in the marketing system may be in a position to act as efficient marketers of credit to producers and retailers. Problems in the distribution include discrimination in its use, and the use of credit to achieve political and personal goals unrelated to economic performance. In some economies differential access to credit may have as much influence on income distribution as concentrations in land holdings. In the aggregate the credit system is a critical factor in achieving increased employment.

RULES AND REGULATION

The legal and regulatory system is also an important input. A number of aspects have already been mentioned. Security of commodities in transit and storage is a classic requirement of a commercial system. Compulsory quality standards to protect consumers against contamination and fraud becomes more important as the transition advances. Rules relating to monopoly and exclusion of entry to markets may be needed. Licenses may facilitate development or become a barrier to it depending upon how they are used. While regulation is essential the tendency to overregulate, building bureaucracies, and stifling incentives seems to be universal. An important function in marketing analysis is to search for regulations and practices which are barriers to development.

MARKETING CONSUMERS' GOODS

Perhaps the most neglected link in the total transition process is the marketing of consumer goods to rural people. If consumer goods are unavailable or expensive, the traditional farm family will continue their unspecialized

activities and produce their own consumer goods. Also a wide variety of inexpensive and available consumer goods create an incentive for production of marketable products. Many of the problems in food marketing have parallels in consumer goods distribution. Because of the absence of aggressive multi-line wholesalers, manufacturers of consumer goods often act as their own wholesalers.

Because of the low volume of purchases of any one item in the small shopping centers of rural areas it is very expensive to serve them and many goods are therefore unavailable and are unnecessarily expensive. Policies and practices encouraging efficient full-line wholesaling are important inputs. The potential savings in marketing consumer goods through the same channels used to distribute agricultural inputs should also be considered.

POPULATION, NUTRITION AND MARKETING

Analysis and planning within a systems context requires consideration of population growth. The development of effective food production-distribution systems is very much related to nutrition and population growth. Population growth can consume the essential surplus required for investment and economic growth. While a scientific industrial agriculture can be very productive, unrestricted population growth will make it very difficult to achieve, and even a highly productive agriculture will eventually be inadequate to the task of providing high quality diets to all members of the society. At least two economic factors are involved in fertility rates:

(1) A child may be perceived as an economic asset to a traditional farmer as a worker on the farm and as security in old age or sickness. An effective supply of agricultural inputs should reduce the economic advantage of large numbers of sons; reliable markets for products should add security

and the availability of attractive consumer goods may increase the opportunity cost of young children. Economic policies providing some type of old age security related to the number of children might also be effective.

(2) Unwanted children may be born due to a lack of birth control supplies and technical knowledge. Thus the marketing of birth control supplies should be high on the priority list of marketing problems requiring attention.

Another potential result of an advanced scientific industrial agriculture is the possibility of not only a greater food supply, but also a more diversified one providing the requirements for more balanced and nutritious diets. Individual farms would be more specialized to achieve economies in production, but the system could produce and distribute a much greater variety of products.

Recent work in plant breeding indicates that crops can be developed with improved nutrient content. A noticeable example is the development of high lysine (protein) maize. This maize alone can make a very significant improvement in a low cost diet and has been developed into a relatively inexpensive baby food. The marketing of these new seeds and the development of the product markets represent a high potential payoff. Improved nutrition may make a significant contribution to productivity. And while improved nutrition is often seen as a contributor to population growth, if combined with effectively marketed birth control supplies it may reduce the fertility rate by reducing the risk of the early loss of children.

Good marketing is also of great importance to farmers as consumers. While traditional farms tend to be diversified, they seldom produce the requirements of a balanced diet, especially on a year-round basis. Food distribution to farmers is more difficult to organize than for concentrated populations. Policies and practices shaping the development of food marketing should be reviewed to assure that they encourage effective food distribution to rural as well as urban people.

THE LABOR MARKET AND EMPLOYMENT POLICIES

At the core of the transition from traditional agriculture to a scientific industrial economy is the continuous process of changing work roles. Work roles become more specialized. Newly created capital goods and techniques are substituted for existing skills, labor and equipment rendering existing ones obsolete or of reduced value in their current employment. The pattern of income distribution, wages and prices is altered creating the need and incentive for new patterns of economic organization. Most importantly, labor must shift from traditional farming to employment in production of capital and consumer goods and to distribution and services, especially education.

In the absence of programs and policies to facilitate labor mobility, expand effective demand and otherwise create employment opportunities, unemployment and underemployment result. The labor market is characterized by a number of barriers to mobility. A change in employment often requires a change in location, the acquisition of new skills, uncertainty, etc. The labor market is also encumbered with protective institutions restricting entry to employment in many activities and raising costs which in turn restricts the market for products. Failure to develop effective coordination in the labor market and to create effective aggregate demand through appropriate monetary and fiscal policies may severely limit the potential gains from the scientific industrial economy. The lost product from underemployment in many developing economies appears to greatly exceed the level of current investment, indicating the importance of the problem in development. Again the economy must be viewed as a system—increasing productivity in one activity must be coordinated with an expansion in employment in another.

The market is not only a mechanism of coordination but is also an instrument for distributing the fruits of the economy. Thus policies and programs which shape the market also affect the distribution of income. At the same time income distribution determines whose preferences count in directing the economy through the market demands. Since low income people spend a very large part of their income for food, and have a high propensity to spend on food, increasing incomes of the lower income groups will increase the effective demand for food, stimulating employment in the food system. At the same time reductions in food prices result in significant improvements in real incomes.

Experience indicates that the distribution of the increased productivity associated with the transition from traditional agriculture are usually shared very unequally. Large numbers of rural people are left behind in the transition. The potential exists for land and other resources to become even more concentrated as those with an initial advantage increase their ability to bid for land and other inputs. The results can be increased numbers of landless unemployed people in both the city and rural areas. The social and political costs of this result can be very high. Positive policies in the design of food production-distribution systems, policies designed to increase labor mobility and monetary-fiscal policies designed to expand employment opportunities are an essential input to the development process.

Because of the critical problem of unemployment, it is sometimes argued that new techniques and organizational changes resulting in increases in productivity, and thus potential increases in unemployment, should be restricted. The argument is made especially in respect to increasing efficiency and productivity in food marketing, which is often an employment of last

resort. It may be that trade-offs should be made between increased productivity and employment. However, the nature of the trade-offs should be understood. A high cost, passive marketing system which fails to provide effective coordination for the food system affects the production of the whole economy, perhaps creating an effective barrier to the transition from traditional agriculture or contributing to stagnation at an early stage of development. The appropriate trade-off does not appear to be between improved performance in food marketing and unemployment but rather between unemployment and investments in programs and policies expanding productive employment opportunities.

ORGANIZING TO DESIGN IMPROVED AGRICULTURAL PRODUCTION-DISTRIBUTION SYSTEMS

Designing production-distribution systems should be viewed as an evolutionary process. The appropriate system depends upon the economic reality of a particular time and place and is related to the stage in the transition process. The needs and potentials vary from commodity to commodity and region to region. The broad concept of the model of intervention to induce development is illustrated schematically by Figure 1.

As an instrument of development I would recommend the establishment of an analysis and planning group with responsibility for analyzing the various subsectors of the economy and to make recommendations to the relevant public agencies and private participants in the system. Most of the previous discussion was intended to indicate an approach or orientation to the tasks of this group as I perceive its functions.

This group would describe the existing production-distribution systems, as total systems, identifying the vertical linkages and sequences from the agricultural input to the final consumer. They would diagnose the barriers

to improved performance of the system. They would attempt, through analysis, to project or predict the flow of consequences from strategic changes in the system. They would attempt to clarify the trade-offs involved among the alternatives in terms of the broad development goals of the society. They would prescribe or recommend coordinated programs of activities to improve performance of the system. And they would monitor the consequences of the programs and policies providing feedback for refinement, modification or elimination of programs and policies. The dynamics of the development transition are such that a program or policy which acts as a stimulus to development at one time may become a barrier to performance in the future. In general, the group would seek to identify the major unexploited economic opportunities in the system and recommend strategic interventions to shape the coordination system to gain the full potential of the economy.

The concept of designing production-distribution systems does not imply that the systems should be prescribed by government or that the systems should be highly centralized or authoritarian. Determining the appropriate participation of government in the shaping and operation of the marketing system constitutes an important function in the analysis and planning group. In general, the position is taken that the government has an active role to play in the process of developing a productive economy, but that full advantage should be taken of individual initiative. Thus the system which will evolve is the product of the combination of individual entrepreneurs adjusting their activities to changing economic situations and participation by various government agencies.

A coordinated set of programs and policies designed to shape the agricultural production-distribution system should be guided by a set of goals or objectives. The goals and objectives will, of course, have to be established politically in each country. Nonetheless, it may be useful to

articulate a set of general goals which would be appropriate for those participating in the planning of a coordinated program to keep in mind. Such a set of goals might be stated as follows:

1. To assure an abundant and reliable supply of food at economical prices. To stimulate the production and distribution of food which will result in nutritionally adequate diets for all.
2. To facilitate and promote the production and distribution of that combination of foods and related services which best reflect the preferences and needs of consumers and the real relative costs of production.
3. To create incentives for increased productivity in each activity of the total system of food production and distribution. (Especially to provide farmers with reliable markets, reducing uncertainty, thus stimulating production and creating incentives to produce those commodities demanded by consumers.)
4. To stimulate the development of opportunities for productive and rewarding employment and promote the development of a productive labor force.
5. To stimulate the development of a fair and equitable exchange system. To especially assure that the consequences of government policies and programs are fair and equitable.
6. To discourage uneconomic uses and spoilation of natural resources and the environment.¹
7. To encourage socially desirable population settlement patterns.²

¹The way the market is instituted in determining what has to be taken into account is a critical factor.

²A number of programs and policies related to agricultural marketing affect settlement patterns. For example, agricultural price and income programs, the location of marketing and processing facilities and transportation all influence the location of population settlement.

8. To encourage a sense of belonging and effectiveness among participants in the system.³

The theme of this paper has been that improved organization and coordination of food production-distribution systems is critical in the effective transformation from a traditional agricultural economy with low productivity to a scientific industrial one with high productivity. The transformation requires the adjustment of many parts of the interdependent system and can stagnate as a result of failure in adjusting or development at many different points in the system. The role of government cannot be passive. Facilitating the transformation requires a continuous, coordinated, positive approach to development.

³Sociologists and political scientists have indicated that fatalistic attitudes and alienation are serious problems. Programs involving cooperatives and other types of participation in the system can affect these attitudes.