

TOWARD IMPROVEMENT OF RURAL FOOD DISTRIBUTION

by

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The effectiveness of services provided by rural food distribution systems can affect nutritional states and agricultural productivity potentials of the rural population. Hence, improving the distribution of food supplies in rural areas and lowering related marketing costs are potentially important, although relatively neglected, dimensions of agricultural and rural development agendas.

One of the purposes of this seminar is to provide an opportunity to exchange ideas and identify priority problem areas where IICA and other technicians can seek to apply marketing strategies for rural development. Given the existing gap in marketing work in the area of rural food consumption and distribution, objectives of my paper are to help contribute to seminar goals by first, suggesting a beginning conceptual framework and important component variables for studying rural food distribution processes. Next, I briefly review research results from an analysis of rural food distribution in Costa Rica. Finally, I propose recommendations and research questions for discussion by conference participants interested in better understanding the need for and ways to improve the distribution of the food supply of rural populations in Latin America.

CONCEPTUALIZING RURAL DISTRIBUTION PROCESSES

The purpose of this section is to conceptualize the potential importance of rural food distribution and suggest a set of component marketing participants and institutions to be included in studies of how to improve these distribution processes. First let us examine the potential importance of rural food marketing services:

Achieving abundant and nutritious food supplies for consumers of developing nations of the world involves much more than just expanding farm level production. Development research is beginning to recognize that food marketing and distribution processes providing these necessary services for large masses of urban consumers must be considered in conjunction with farm level production activities as an integral part of the world food problem.

Unfortunately, the importance of purchased food and other marketing services for rural consumers is still largely unrecognized. A serious myth that farmers do not purchase food and embodied marketing services generally has resulted from using traditional terminology of subsistence farming (and even commercial farming concepts) to describe agricultural production

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processes. Farmers throughout the world obviously do raise food crops for home consumption. But even low-income and commonly designated subsistence producers purchase in local markets and shops varying amounts of a number of food products. People with even the simplest tastes demand a certain variety and assortment of foods. Rarely are all of these home-produced or even produced within one given local region of a country.

There is a growing body of evidence to suggest that farmers in Latin America need to be examined as food purchasers as well as producers. A Purdue University study of low-income groups in Brazilian agriculture shows, as would be expected, that farm-produced food consumption is a greater percentage of family income for land owners and sharecroppers than for salaried rural workers.¹ Still for all groups of rural consumers studied, home-produced consumption represented less than one-third of total per-capita consumption. A case study of small farmers located on former haciendas (since the 1952 land reform program) in the Lower Cochabamba Valley, Bolivia, shows that in 1973, food purchases constituted 78 and 66% of food consumption for farmers in the two areas studied.² Larson found that farmers in various rural counties of bean-producing regions of Northeast Brazil, as a group average, spent 65% of discretionary farm family income on purchased food.³

A study in Colombia of consumption patterns on some 20 different INCOIRA projects involving over 2,800 small farmers found that as a national average, family food consumption represented over three-quarters of total family consumption and that two-thirds of total food consumption came from food purchased off the farm. There was significant variation in the dependence on purchased food according to region of the country. For example, in the Boyacá project, only 40% of food consumed was purchased, whereas in Tolima and Pereira over 80% was procured off the farm.⁴

Note also that not all people living in what are commonly called “rural” areas of Latin America are small and large farmers living in dispersed locations. There are also various-sized nucleations or communities in rural areas. The United Nations’ definition of “rural” is any village, town, or city with less than 20,000 population, plus the actual dispersed farm population. By this, in 1970 sixteen of the twenty countries of the region had more than 50% of their populations classified as “rural.” And in spite of migration and high urban growth rates, this population (due to its sizable

¹ In this study, total per-capita consumption is defined to include more than food, although it is clearly the most important component of consumption. See: George F. Patrick and José Juliano Carvalho, *Low Income Groups in Brazilian Agriculture: A Progress Report* (West Lafayette, Indiana: Station Bulletin No. 79, Purdue University, 1975), p. 26.

² Joseph F. Dorsey, *A Case Study of the Lower Cochabamba Valley: Ex-Haciendas Patrotani and Caramarca* (Madison: Land Tenure Center, University of Wisconsin, 1975), p. 74.

³ Donald W. Larson, "A Diagnosis of Product and Factor Market Coordination in the Bean Industry of Northeast Brazil," unpublished Ph.D. dissertation, Michigan State University, 1968, p. 95.

⁴ United States Agency for International Development General Working No. 7-0 – Small Farm Analysis - Consumption Pattern Documents, Bogotá Colombia, USAID, 1969).

rate of growth) is increasing in absolute numbers in almost all countries of the region.⁵ Many other country-level statistical officers, of course, define rural at a lower population threshold, say 5,000 or 2,500 or lower. Consider, for example, the case of Colombia. By the U.N. definition (<20,000) the country was 54% rural. However, only 55% (6.1 million) of the 11.2 million rural inhabitants live on dispersed farms (see Table 1). In contrast, by the Colombian official division of 1,500 population between urban and rural, the country was only an estimated 37% rural, with about 80% of this population living on dispersed farms.

This case points out the vagueness of the term “rural,” but the main point it illustrates is that there are many village, small town, and small city populations which are also rural. Due to their locations a majority of their economically active population derives income from agriculture-related activities.⁶ And inhabitants of these communities, like those in large urban areas, purchase much, if not all of their food supply. Yet very few studies of food distribution are made outside of large urban areas.

Assuming for the moment that a majority of the rural food supply is purchased, what are the possible important implications for small farmers and other rural residents?

Table 1. Population by City Size and Dispersed Farm Locations in Colombia - 1976

City Size	Number of Cities or Rural Communities	Percentage of Total	Total Population (in millions)	Rural, by U.N. definition (in millions)	Rural, by Colombia's definition (in millions)
<500,000	4	27.5	5.8		
50,000-499,999	23	14.7	3.1		
20,000-49,999	31	4.4	.9		
10,000-19,999	62	4.4	.9	.9	
1,500-9,999	754	11.9	2.5	2.5	
50-1,499	4541	7.8	1.7	1.7	1.7
Dispersed Farms		29.3	6.1	6.1	6.1
	5415	100%	21.2	11.2 (53%)	7.8 (37%)

Source: Unpublished calculations by the Marketing Group of the Ministry of Agriculture, based on a study of health conditions in rural communities by the Ministry of Health, 1974.

⁵ With “urban” defined as localities of 20,000 or more inhabitants, in 1950, 1960, and 1970, the 20 countries of Latin America were 26, 33, and 41% respectively, urban. These are average figures, however, and do not reflect a good deal of heterogeneity in the urbanization process of the nations making up the region. (See United Nations, “Population Trends in the 1960's in Latin America: Some Implications for Development,” *Bulletin for Latin America*, Vo. XIX, Nos. 1 and 2 [1974], pp 75-125.)

⁶ For a discussion of how these rural towns are overlooked in rural development work, see: Chapter 6, “The Critical Role of Market Towns in Modernizing the Landscapes of Underdeveloped Countries,” in E.A.J. Johnson, *The Organization of Space in Developing Countries* (Cambridge, Mass.: Harvard University Press, 1970), pp. 178-207.

First, nutrition studies are increasingly being redefined to include an interrelated set of variables instead of the isolated factors of health or macro food supply. The president of the Brazilian National Institute of Nutrition has suggested that solution to problems of malnutrition depend on action in at least four major areas:⁷

- 1) That there be sufficient supplies of food by quantity, quality, and composition to meet nutritional needs;
- 2) That the foods be available to and in consumable form for purchasing by all given segments of a population;
- 3) That the population have sufficient purchasing power to procure foods, along with the educational and cultural conditions to effectively choose those foods most nutritional; and
- 4) That the population be in adequate medical-sanitary conditions to biologically utilize foods consumed.

The extent to which rural food distribution services are ineffective and high cost will influence both the quantity and quality of products available locally, as well as reduce the real purchasing power of rural consumers. Over the long-run, natural resource distribution and economies of location and aggregation generally lead to regional crop specialization and hence, a lack of local self-sufficiency in all foods necessary for a nutritious diet. This may provide the lowest cost food supply for large urban-area consumers, but it may also make it more difficult and costly for each local rural area to acquire an adequate variety of products.

Equally important, the convenient and economical availability of a partially or completely purchased food supply may be a strategic factor influencing farmers' willingness to adopt new yield-increasing and enterprise specializing technologies. It is a generally accepted technical relationship that some degree of specialization is necessary to increase productivity. This in turn implies, for a farm unit, dependence on an outside source of supply for some or all of its food supply. Thus, food ought to be considered similar to fertilizer, improved seeds, and other necessary inputs into a more productive farm-level transformation process. In fact, the availability of a nutritious food supply for farmers could carry a higher priority than other inputs, because it helps produce the physical and mental condition in farmers both to work and to learn new work methods.

And small farmers may be most affected. While their on-and-off farm income may barely permit more than a subsistence level of living, relatively few of these farmers follow complete crop diversification patterns, producing just for home consumption. What small amount of research there has been on production-consumption patterns tends to show that even relatively small farmers strive to produce one or a few cash crops from which to derive income to purchase consumption goods (mostly food) and basic agricultural inputs. Furthermore, it is plausible, given economies of size to production and marketing activities, that small farmers can only survive as small farmers with a relatively high degree of enterprise (and region) specialization.

⁷ Speech on the situation and perspective of world nutrition given by Dr. Bertoldo Kruese Grande de Arruda to the Primeira Jornada Afro-Brasileira de Medicina Tropical e Nutricao - Universidade Federal de Pernambuco, Recife - Reported in the Newspaper "O Povo," Fortaleza, Ceará, Brazil, February 12, 1977, page 5.

Yet product markets are generally more risky under these conditions. Marketing research is beginning to show that there is no automatic “free hand” process working to assure the evolution of a system of marketing agents willing and able to reduce risk and uncertain market conditions for small farmers. And I hypothesize that there is no similar reason to expect an automatic evolution towards an innovative and cost-reducing group of sellers of food to small farmers and other rural residents. Small farmers may therefore receive from their food marketing systems a double disincentive to adopt new agricultural technologies.

Defining Rural Food Distribution Subsystems

For analytical purposes, food production-distribution systems (or simply, food systems) have been defined and subdivided into three levels of focus: farm or firm level, channel level, and general system level.⁸ The channel level of analysis identifies a set of farms and marketing firms which perform value-adding processes through a closely linked sequence. The channel level of analysis may be carried out at a specific commodity or more general food distribution subsystem level. In these cases, subsystem studies are undertaken which shift the focal point of analysis from farm and marketing firms acting as individuals, to one of them acting as a relatively close group, exchanging information, products, and services in order to satisfy final channel demand. Marion has defined two important variables of interest in subsystem studies.⁹

Vertical Organization refers to the structural anatomy of a subsystem. It includes studying the functions that are performed, the number of stages, the proprietary and authority structure, and the institutions and arrangements that are an integral part.

Vertical Coordination, on the other hand, is a process. It refers to those activities that integrate and synchronize the functional inputs of subsystems in total response to market demand.

Principal goals of subsystem research are to identify and understand vertical organization and to discover existing barriers to more effective vertical coordination.

Knowledge of overall food systems in many Latin American countries is growing rapidly. The MSU-LAMP approach to food system reform developed through a primary spatial focus on metropolitan or large urban centers and their food supply areas.¹⁰ Rural-urban relationships are examined in the context of the agricultural commodity subsystems serving these large

⁸ Kelly M. Harrison, et. al., “Improving Food Marketing Systems in Developing Countries: Experiences from Latin America,” (East Lansing, Michigan), Michigan State University, 1975, p. 94.

⁹ B. W. Marion, “Vertical Coordination and Exchange Arrangements: Concepts and Hypotheses,” paper presented at Seminar on Coordination and Exchange in Agricultural Subsectors, North Central Regional Research Project 117(Chicago, Illinois, November 14-15, 1974), p. 3.

¹⁰ Harrison, op. cit., p. 8.

metropolitan demand centers. Needs of farm-level production and related product assembly operations are generally studied in order to discover ways to more efficiently and effectively (particularly with less risk) connect them to major urban demand centers.

I submit that it is also necessary to examine rural distribution processes and to better understand how these relate to large urban distribution and commodity subsystems making up regional and national economies. A chart showing rural distribution participants, as well as urban and commodity subsystem ones, is shown in Figure 1. This abstracts from specific market geography dimensions and multiple-commodity and distribution processes potentially existing in similar regions of a given country. The figure is intended to show a more complete set of potential food system participants grouped into useful and manageable research units. And it forms a beginning estimate of feasible economic coordination and product/service flows within and among subsystems (shown by the lines connecting participants).

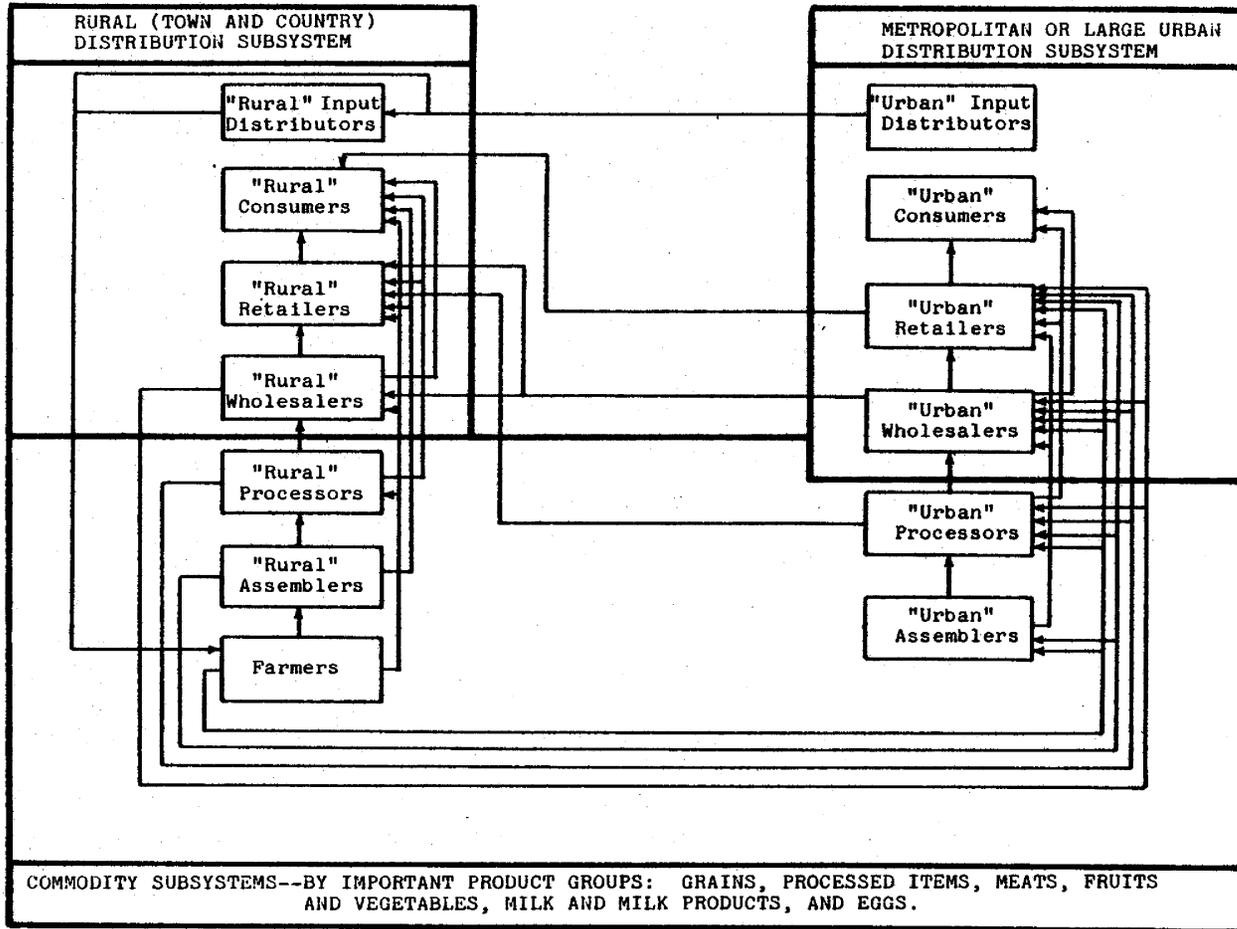
The figure can likewise be used to illustrate graphically how much analysis has concentrated geographically upon relationships within rural food production and assembly areas (shown in the bottom half of the figure) and their major metropolitan demand center (shown in the upper right-hand side of the figure). It also delineates where rural food distribution participants fit into the system and allows for the possible supply of rural areas directly by local farmers or indirectly via large urban marketing agents who are, in turn, linked into other production regions of a country.

A suggested set of core retail marketing agents necessary for a subsystem analysis of rural food distribution processes would include traditional merchants located in various types of periodic and permanent market places. Many economic anthropology, geography, and marketing researchers have described and, to a certain extent, analyzed these marketing agents.¹¹ Generally, other rural retailers located in independent shops in dispersed rural areas, in rural villages, and rural towns have sometimes been recognized but not included, so as to study the entire universe of merchants as an interrelated set. Nor have the wholesale and direct farm supply processes of these rural retailers been studied. For this reason, it is suggested that rural food distribution subsystems incorporate all local retailers and wholesalers and the primary procurement arrangements among rural and large urban merchants.

Focusing on actions of all of these participants as a highly interrelated set of activities helps to discover how limitations or improvement in one component influences others. It, likewise, helps to identify needed managerial/technological and institutional innovations that may be unprofitable or unavailable to individuals, but if somehow adopted simultaneously by all participants, would yield substantial subsystem-wide improvements. Overall subsystem results thus flow from the completion of many different but closely related functions by all participants.

¹¹ For an excellent topical review, see R. J. Bromley and R. Symanski, "Marketplace Trade in Latin America," *Latin American Research Review*, Vol. IX, No. 3 (1974), pp. 3-38.

FIGURE 1 RELATIONSHIPS AMONG COMMODITY AND DISTRIBUTION SUBSYSTEMS IN A FOOD SYSTEM



Marketing Geography Concept

Another necessary qualifying dimension concerns the geography of rural marketing processes. To clearly focus on interregional as well as local exchange, I further suggest defining separate rural distribution subsystems by the geographical boundaries of local regions within a country. This is done because farmers and other rural residents in developing countries, as a rule, do not interact socially, politically, or economically, over the entire space of their particular national boundaries. Nor, are they confined only to interest with their closest farm or local village neighbors. Instead, most of their personal exchanges take place within a local region that includes the immediate country side, a number of smaller villages or towns, and one or two larger towns which function as local centers for public and private services. Higher levels of exchange, then, are carried on among regions.

A group of economic anthropologists has stressed the importance of studying rural markets as components of local socio-economic systems. They denote such regions as horizontal or sectional markets, as contrasted to vertical or national network markets.

. . . there (within local regions or horizontal markets) the “problem” is seen not at the level of the enterprise or the village, but at the regional level. For, in order to have the marketplace successfully serve as the source of goods missing from the inventory of any individual peasant, the regional production (and exchange) system must be working well.¹²

In many countries of Latin America, local regions are the territory enclosed within the country (municipio) government administrative unit. Although in the case of very small counties with few towns, the local region may include a group of counties. Whatever the boundary, the concept is that an identifiable local region constitutes the primary rural habitat in which residents define and carry out a majority of the social and economic events in their daily lives, including the production and/or purchase of their food supply and other consumer goods.

These local regions would thus constitute separate food distribution subsystems made up of all rural and urban consumers, retailers, and wholesalers within the identified geographical boundaries. Hence, many rural distribution subsystems exist in each county. Aggregating across all subsystems will give a national macro perspective of rural distribution processes. Studying the detail of participants and processes within separate subsystems, and how various subsystems relate to each other, will give micro detail necessary to design realistic and workable national, as well as local, reforms.

¹² Martin Diskin, “Marketing Problems of Small Farmers,” paper presented at the Agricultural Development Council, Inc./RTN Workshop on Small Farmer Marketing, East Lansing, Michigan. June 6-7, 1974; p. 2.

See also, Carol A. Smith, “Economics of Marketing Systems: Modeled from Economic Geography,” Annual Review of Anthropology, Vol. 3 (1974), pp. 167-201. In this excellent review article, Smith concludes: “...without the regional system context that Geographical models can provide, anthropological marketing studies will not tell us a great deal more than we already know about the economic determinants of peasant behavior.”

Figure 2. Alternative Linkages Among Rural Distribution Subsystems

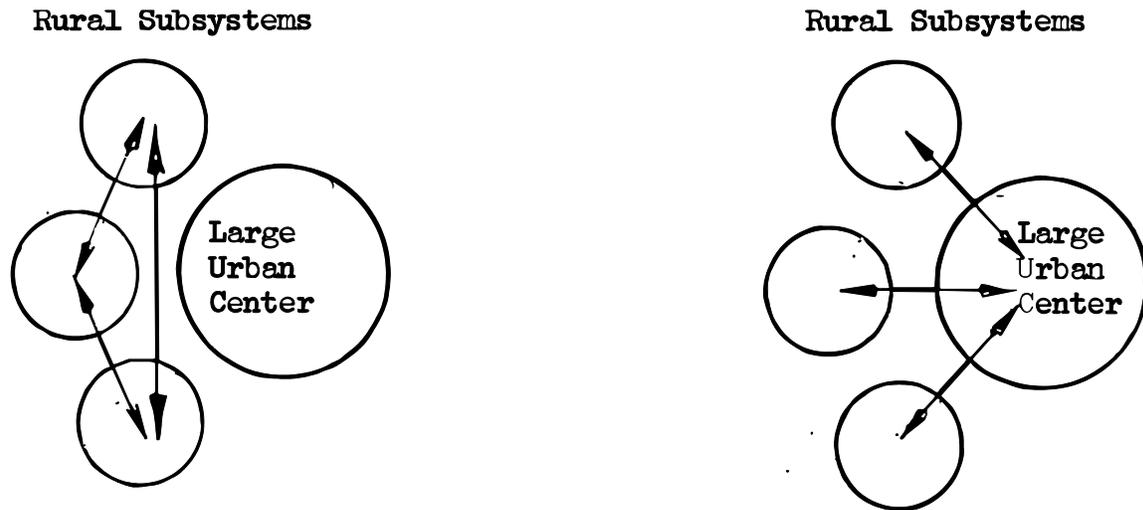


Figure 2. shows two alternative ways rural distribution subsystems might relate to one major metropolitan center. If each of the rural county or multi-county subsystems was not internally self-sufficient in food, an important question is how to most effectively promote exchange among them. Regional wholesale services of concentration and redistribution could become important as levels of specialization increase. And it might become important to design transportation infrastructure to not only move surplus products out to major demand centers, but also to facilitate inter- and intra-regional exchange.

RESULTS FROM AN ANALYSIS OF RURAL FOOD DISTRIBUTION IN COSTA RICA

The author participated for two years in a problem solving effort undertaken by a task force of Costa Rican technicians from various public sector agencies. One of the jobs of this group was to conduct feasibility studies of various public food market loan requests submitted by Costa Rican county government units and to undertake related extension work with national and county policy makers.¹³ These loan requests had been submitted to the Instituto de Fomento y Asesoría Municipal – IFAM – which was established in Costa Rica in 1970 to provide long-term credit and technical assistance to county government units.

The creation of IFAM was an important part of a county government reform program aimed at strengthening local participation in decisions determining the pace and quality of rural development. As part of the 1971-74 agricultural sector program, a series of studies were carried out on local government and community development in rural areas of the country.¹⁴ Investment

¹³ The term “county” used throughout this paper refers to the Spanish term canton or municipalidad. County seat refers to the cabecera de canton.

¹⁴ Agencia Para el Desarrollo Internacional (USAID), Programa de Desarrollo Agropecuario 1971-74 (San José: USAID), 1970, Chapter VII.

in rural infrastructure was judged inadequate, as was local organization, initiative and problem solving capacity. Improving these was seen as a strategic component of a more general effort to slow off-farm and rural county out-migration to the San José metropolitan region of the country.

Upon beginning operations, IFAM received requests from some ten rural county governments to assist in financing the remodeling and/or construction of traditional public food markets.¹⁵ These were to be located in county seats; at that time 25 of Costa Rica's 50 rural county seat towns had some kind of municipally-owned food market where space is rented to merchants and farmers (primarily to merchants) to buy and sell food and agricultural products. And in Costa Rica, as is the case in many rural areas of other Latin American countries, these markets are often antiquated facilities. Physical congestion within and around them, and in the surrounding central business districts is generally growing rapidly. Costa Rican local policy makers generally assumed that new and/or improved markets would meet present and future needs by, first, alleviating congestion and developing county seat central business districts and, second, by serving as market outlets for farmers, distribution nodes for wholesalers and retailers, and supply points for on-farm, village and county seat-located consumers.

Research results reported here concerning these projects are from two detailed case studies: Naranjo and Puriscal counties. Each of these is referred to as a rural distribution subsystem. Naranjo county has a total population of approximately 20,000 with 30% living in the county seat, an estimated 30% in small and large rural villages and the remainder on dispersed farms. Puriscal has 25,000 inhabitants with only about 10% living in the county seat, another 20% in villages and the remaining 70% on dispersed farms. Primary data were collected among core subsystem participants: approximately 5% of urban and rural consumers were surveyed concerning food consumption habits according to major food groups, and some 50% of the retailers and wholesalers in each county were sampled concerning business operation and product procurement patterns. A retail food price survey was also completed in 13 stores in each county. These data were first analyzed in Costa Rica and results reported in a number of IFAM publications.¹⁶ Later, additional analysis was completed on campus at Michigan State University.¹⁷ All results reported here are from analysis in the later study, although many of the same findings are shown in the PIMA publications.

¹⁵ Defining a "rural" county as one having more than 50% of its total labor force employed directly in agriculture, in 1973 Costa Rica had 80 total counties, 50 of which could be defined as rural. Approximately 60% of the country's population lives in these rural areas, including on-the-farm, village, and county seat town inhabitants.

¹⁶ PIMA (Programs Integral de Mercadeo Agropecuario), Estudio Sobre el Mercadeo de Alimentos, la Remodelación del Mercado Municipal y la Terminal de Autobuses en el Canton de Naranjo (San José, Costa Rica: IFAM, 1974).

PIMA, Estudio Sobre el Mercadeo de Alimentos y la Remodelación del Mercado Municipal en el Canton de Puriscal (San José, Costa Rica: IFAM, 1974).

PIMA, Proyectos de Mercadeo a Nivel Cantonal: Política y Metodología de Evaluación para el IFAM, Informe Preliminar (San José, Costa Rica: IFAM, 1974).

¹⁷ Michael T. Weber, "An Analysis of Rural Food Distribution in Costa Rica," unpublished Ph.D. dissertation, Michigan State University, 1976, pp. 23-27.

Naranjo and Puriscal counties have 58% and 71% respectively of their economically active population employed in agriculture. Coffee, sugar cane, corn, beans, tobacco, and rice (for Puriscal) are the major crops in both counties, with Naranjo depending very heavily on coffee and Puriscal more on a balance among these crops. Puriscal is also an important beef producer. Still, in these counties (and most other areas of Costa Rica) agricultural specialization has progressed to the point where farmers and town-located consumers are primarily dependent on purchased food supplies rather than farm perquisites. Data in Table 2. show the consumption practices of families in Puriscal county. As would be expected, milk, eggs, and vegetables and fruits were the foods most commonly produced for home consumption. Still, aggregate colon value estimates of farm perquisites represented only 24% of the value of total food consumed. (It was only 8% in Naranjo county.) And for both counties, family expenditures on purchased food represented from 45 to 50% of total cash income.

Table 2. Puriscal County Family Consumption Habits for Selected Food Groups

Area of County and Food Group	Percentage of Families Purchasing for Consumption	Percentage of Families Producing for Consumption	Percentage of Families Not Consuming
County Seat			
Bread	86	—	14
Milk	58	19	23
Eggs	65	28	7
Fruit & Vegetables	81	9	10
Meat	79	—	21
Grains	95	2	3
Processed Foods	100	—	—
Rural Areas*			
Bread	80	1	19
Milk	22	44	36
Eggs	10	83	7
Fruit & Vegetables	33	55	12
Meat	66	6	28
Grains	74	54	2
Processed Foods	98	—	2

* Rural areas include nucleated and dispersed population.

Source: Michael T. Weber, *op. cit.*, p. 124.

In studying where these rural county consumers procure their food supplies, problems were found with the physical state of repair, general operation, and traffic congestion surrounding county seat public food markets. A greater need for planned and organized development of central business districts and related commercial activity was also identified. Yet food merchants operating in public markets represent only one portion of a more complex and interrelated (although largely unrecognized by local policy makers) food distribution system serving county residents. Efforts to improve the performance of these marketing processes must consider a broad set of participants and not just those who have traditionally marketed food from stalls in the public market.

Table 3. shows the large number of food merchants in each county and Map 1. summarizes supply channels for Naranjo county, giving an indication of the relative volume of sales moving through alternative outlets. Distribution processes within these subsystems are both complex and usually unrecognized by casual observation, since a relatively large number of small-scale grocery stores located in rural areas (and neighborhoods of the county seats) supply as much as half of the food purchased by county residents. Across urban and rural areas of both counties (and most others in the country) there is an average of one food store for every 25 families. Located in rural areas (villages and dispersed farms) there is an average of one store for every 30 to 35 families.

Prices for basic food items were found to be generally higher in these rural outlets. The State owned and operated retail stores in each county seat had the lowest prices on all items studied, while the larger volume retail/wholesale outlets were the next lowest price sellers on most products. Compared to the State stores, rural outlets' prices were from 5 to 40% higher. Notwithstanding these higher prices, consumers' patronage in rural outlets is explained by the locational convenience and, when needed, the availability of sales on credit. And contrary to conventional wisdom, locational convenience was found to be twice as important as credit availability. Moreover, the importance of local, convenient sales of many basic food items for the village and dispersed farm populations cannot be explained by a lack of alternative retail outlets. A majority of consumers have access to daily bus transportation between outlying areas of townships and county seats. In fact, they generally go to county seats via these modes to shop for perishables, non-food consumer goods, and agricultural inputs.

Public market retailers form a part of local food distribution subsystems, but their estimated share of total monthly sales ranged from 25% in Naranjo to 15% in Puriscal. Sales here are relatively specialized in perishable items: consumers from both county seat and rural areas patronize them because they usually tend to be the only place where such products are sold. Larger scale retailer-wholesalers in each county seat command the largest single market share (and are growing), competing favorably with State CNP outlets for lowest prices and in providing a broad line of grain and processed food items. These merchants clearly are the most dynamic elements in the local systems and have a potential to begin to improve vertical coordination and thus to lower costs and improve the quality of wholesale services available to a majority of the small local retailers. Yet little has been done to promote such changes and, due to their volume of operation and strategic position as both the largest retailers and only wholesalers, they also represent potentially strong geographic monopolies in the local system.

Table 3. Number of Food Merchants by Type and Location in Counties

Type of Merchant and Location in Counties	Total Number of Food Merchants	
	Naranjo	Puriscal
Inside Public Market in County Seat Town		
Grain and Processed Item Stalls	4	8
Fruit and Vegetable Stalls	12	14
Meat and Fish Stalls	5	0
Inside Commercial Business District of County Seat Town		
Small Grocery Stores*	8	7
Retail/Wholesale Grocery Stores	4	2
Wholesale Grocery Stores	1	0
CNP (State) Retail Store	1	1
Meat Stores	0	4
Remaining Area of County Seat Town		
Small Grocery Stores*	19	13
Rural Areas of County (Nucleated plus Dispersed Population)		
Small Grocery Stores*	80	104
Meat Stores	0	2
Total for Each County	133	159

* About 50% of these stores also sell liquor.

Source: Michael T. Weber, *op. cit.*, p. 106.

The food distribution subsystems identified in each county are not independent but are closely integrated into national markets and the San José metropolitan distribution subsystem. Larger and more mobile outlets from each rural county procure supplies directly from San José area suppliers, while smaller rural and neighborhood outlets depend for a majority of their provisions upon local retailer-wholesalers who purchase from these national sources.

Finally, the smaller retailers in both counties face a number of important store operation and procurement problems which must be considered in order to begin to improve performance. Managing credit sales to consumers, overcoming the lack of operating funds, obtaining access to credit to purchase refrigeration and other equipment, and dealing with transportation, procurement and product quality problems are all important concerns. The use of public resources to design strategies and specific projects to meet these needs is an important, albeit still generally unrecognized, competitor with the demand for resources to improve public markets.

A Benefit/Cost Analysis of Proposed Market Projects

A financial analysis was also performed on the Naranjo (and Grecia) projects, utilizing private consulting firm estimates of building and other costs, and potential rents.¹⁸ Base calculations of internal rates of return (IRR) found projects to be poor potential investments compared to the cost of borrowed funds necessary to implement them. For example, the Naranjo county project was projected to earn a 0.4% IRR on investments having out-of-pocket interest rate costs for the county government of 8%. And a sensitivity analysis examining simple and complex cases of alternative rental rates and operating costs showed tenuous financial returns and substantial risk could be realistically expected. Present market shares and growth trends of the various retailing groups in the county suggest that demand will decline for market stall space and will increasingly come from small merchants who will pressure county officials to keep rental fees low. In all probability, it was estimated that implementing the market project as proposed by the local consulting firm would result in retailers receiving substantial subsidies from county resources. (e.g. The Naranjo county government, in discounted terms, could easily provide each market retailer free yearly rent at 1.5 times the rate actually paid.)

Of course, the financial review is not sufficient to accept or reject the Naranjo and other projects. County governments may not expect to recover financial costs involved in building and operating the markets, yet projects may still be necessary because they produce direct and indirect social benefits available for local consumers and other food system participants, but which are not directly recoverable by local government. Unfortunately, the economic benefit/cost analysis also indicated that the Naranjo, Puriscal and other projects could not be recommended for their social or dynamic impact. A general conclusion was that projects would likely neither achieve narrow goals of improved performance from public market retailers, nor achieve broader goals of improved performance from overall county food distribution processes.

¹⁸ No financial analysis was done on the Puriscal project due to a lack of adequate data. Another county, Grecia, had already built a new market and good cost and expected rental data were available, so it was included in the financial analysis.

Not unlike many marketing infrastructure projects, the public market feasibility studies did not define business problems or expected linkages between new physical facilities and changes in behavior. Nor did projects designed call for anything more than expanded and remodeled buildings. It is likely that Naranjo and Puriscal proposed facilities would have helped reduce project deterioration due to poor ventilation and inadequate protection from rain. But they would have done nothing to reduce retailer-identified procurement problems affecting both product quality and cost, or to provide access to operating and investment credit needed to improve business operations. Nor did they consider improved internal market management and product exhibition technologies to deal with underlying traditional retailer operation techniques.

And general conclusions from the study of public market problems in Costa Rica are that these latter management practices, instead of poor physical facilities, are more likely to cause shopper congestion and relatively inefficient use of existing markets. By only providing new commercial space and ignoring these other behavioral factors, there was no reason to predict real productivity improvements.

Predictions about future market shares of county seat public market retailers were not encouraging. On the one hand, markets are becoming more specialized in meat and produce sales. If the larger retailer-wholesalers found in most county seats of the country adopt broad staple and perishable product lines, public market retailers could find it difficult to compete. Consumers in Naranjo and Puriscal were found to already show strong patronage preferences for the improved services and lower prices available from retailer-wholesalers. And given the rapid movement towards broad-line supermarkets in the large urban areas of Costa Rica, such changes in rural county seats seem imminent.

On the other hand, rural (village and dispersed rural) consumers showed a preference for the convenience and credit available from the small grocery stores located relatively close by. Cross section income and food expenditure analysis performed did show that lower income consumers tend to be the heaviest users of rural stores, shifting some purchases to county seat outlets as incomes increase. Yet it is still not likely that future increases in family income will improve the market shares of public market outlets. Given the preference identified for local shopping convenience, if selected rural stores could offer a better selection of staple and perishable items at more economical prices, an important question is whether a majority of rural consumers would shop in them.

In summary, then, given the consumption habits, patronage patterns, and price levels identified in the analysis of Naranjo and Puriscal county food distribution subsystems, it is clear that projects to help improve the distribution of the rural food supply must do more than just focus on local public food markets. Research is necessary to design specific projects to reach product procurement and in-store management procedures of the small rural and neighborhood, as well as the public market retailer.

Another comment is important concerning the potential role of county seat public markets in improving farmers' product markets. This is an area where analysis show the proposed Naranjo, Puriscal and other projects in Costa Rica to be most inappropriate. Consider, first of all, that agricultural production and assembly in each county is relatively specialized and that public

markets usually play no function in these product marketing processes. In Naranjo county, even the relatively small commercial fruit and vegetable producers preferred to bypass the local public market and be linked as directly as possible into the national wholesale market operating in San José. In Puriscal there were circumstances where the streets and some warehouses around county seat public markets serve as convenient transaction points for local farmers and trucker-buyers. There may be a need for specific infrastructure and facilitating regulations to serve these. But it is generally dysfunctional and uneconomic to consider such processes similar to those normally carried out in public retail markets. Assembly buyers and sellers deal in larger volumes, requiring temporary warehouse and ample parking and vehicle maneuvering space. Locating there inside or adjacent to retail markets only adds to congestion. It, likewise, is not an economical use of relatively expensive central business district land area because it is only occasionally used.

RECOMMENDATIONS AND RESEARCH QUESTIONS

The general purpose of my paper has been to provide an opportunity to present ideas and identify possible priority problems in the area of rural food distribution. In the first section I sought to conceptualize the potential importance of rural food distribution processes and to suggest some important dimensions to be included in studies of how to better understand and improve these marketing processes. The second section reviewed research findings from studies of rural food markets and other rural distribution variables in Costa Rica. Given the gap in knowledge about these rural components of food systems in Latin American countries, I would like to conclude my paper by attempting to generalize from the Costa Rica experience and other observations I have made in Colombia and Brazil.¹⁹

On the one hand, I recognize the riskiness of such action, since so little is really known about rural food distribution and the Costa Rican study may, in part, be atypical due to the size of the country and its relative level of development. But on the other hand, Costa Rica may be a bellweather for problems which other countries of the hemisphere might encounter as rural development progresses. And I also think there is sufficient evidence to support a conclusion that rural food distribution processes are important variables to be included in rural development programs throughout Latin America. Hence, I hope that my paper and resulting discussions in this seminar will help to identify strategies for moving forward with this task.

My comments will be organized around two general topic areas which flow from the work in Costa Rica: 1) narrower but important issues of how to improve public market projects, and 2) broader issues of how to better understand and develop additional projects to more realistically

¹⁹ The need for improved knowledge of rural distribution processes does not appear to be limited to Latin American and other developing countries. In his review of over 700 research efforts dealing with efficiency in various parts of the United States' marketing system for agricultural products, Ben French concluded that this is a neglected area in the U.S., since there have been so few studies of rural retail service operations, such as farm machinery dealers, farm supply operations, and grocery stores. (See Ben C. French, *The Analysis of Productive Efficiency in Agricultural Marketing – Models' Methods, and Progress* (Davis, California: University of California, Department of Agricultural Economics, 1973), pp. 104-105.

and effectively improve performance from the entire set of participants in rural food distribution subsystems.

Let me begin with public or municipal markets. At first this may appear as a relatively unimportant issue, but the tradition in Latin American countries of local governments investing resources to improve public markets is strong. It is true that in large urban areas of the continent, the role of public retail markets is declining in importance, and there has been substantial research directed towards understanding these changes.²⁰ In my experience, however, public market infrastructure projects still represent the aspiration of many smaller city and town mayors and other rural county policy makers. In the aggregate, likely investments are quite large. However, resources invested in these projects usually come from national (as versus international) funding agencies and therefore less emphasis is placed on detailed feasibility studies. City engineers and local architectural/engineering consulting firms with little experience in marketing are drawn upon to design projects. And, due to the traditional political rewards of inaugurating attractive new markets, these planners are often implicitly encouraged to design fairly high-cost facilities.

The analysis from Costa Rica shows clearly that selected new or remodeled facilities may sometimes be warranted, but that traditional types of markets are very poor financial investments for local governments. And they do not generally solve underlying retail management and market organizational problems. Therefore I would recommend that the IICA Hemispheric Marketing Program undertake the role of coordinator of a special project to develop and widely distribute educational materials on designing low-cost and more effective improvements of retail markets in small cities, towns and other communities in rural areas. The primary uses of these materials would be national level public marketing agencies, municipal or county government credit and technical assistance agencies, and private consulting firms who often prepare projects for local government units.

A certain amount of research would likely be required as part of developing the educational materials. Results from specific case studies like the one in Costa Rica could be drawn upon to design other more detailed evaluations. Perhaps certain BID-financed retail markets could also be evaluated. And perhaps FAO could organize a regional conference on rural markets and food distribution systems. Results for each of these activities could be drawn together to identify marketing engineering/architectural problems, and alternative solutions. The following guidelines from Costa Rica are examples of items which, among others, could be explained in detail.

Suggested General Market Design Guidelines

1. Public market-type new or remodeled constructions must be flexible and potentially multi-use facilities since market shares and product sales technologies of these retailers are in a process of rapid change.

²⁰ See: FAO - Development of Food Marketing Systems for Large Urban Areas: Latin America. (Rome: Food and Agricultural Organization of the United Nations, 1973) pp. 16-21.

2. Remodel whenever possible with low-cost alternatives to obtain better utilization of existing space before additional sales space is added. This has two purposes: a) to test the future market power of present retailers under more favorable conditions of improved facilities, and, b) to experiment with the potential future financial viability of public commercial rental properties before expensive and generally non-recoverable investments are made.
3. Study carefully the existing set of market occupants and rental rates, and compare these with similar charges in central business district, private locations. Consider special projects to obtain commercial bank credit for some public market users to construct their own commercial buildings.
4. Use low-cost and innovative construction techniques to improve physical attractiveness and commercial value of existing markets. Look for practical ways to improve natural ventilation and use artificial lighting as much as possible. In all cases, improve artificial lighting to give more attractive sales appeal to merchandise sold by market retailers. This includes giving practical training courses to stall operators on product exhibition techniques and the importance of good lighting. Also, look for and design remodeled stalls for easy floor cleaning (including washing).
5. Develop and experiment with techniques to revitalize unused or overly congested sales space at certain entrances and interior sections of markets. In general, carefully study the potential drawing power of retailers, and shoppers' behavior, in order to discover other ways to influence consumer traffic flows outside, into, and within markets.
6. Experiment with low-cost and relatively easily changeable designs for vegetable stall configurations and product display cases which give better vertical space utilization and storage space but still are adaptable to retailers' cultural traits for serving customers. This requires that a functionally-oriented engineer or architect observe and study existing practices, and be guided by low-cost and flexible design principles when experimenting with alternatives.
7. As a general rule, do not use interior sections of markets for agricultural product assembly processes. Look for ways to accommodate them in new decentralized locations, or in streets around or under overhangs of markets. Manage potential congestion by fixing different hours of operation for different processes, and by controlling vehicle traffic and parking flows around markets and generally within central business districts. Also consider moving certain product and vehicle traffic flow generators away from markets and central points of central business districts. In general, the results from applying and enforcing these simple rules of behavior are quite cost-effective compared to expensive building programs for public markets.

Research to Develop Alternative Reform Projects

I would now like to focus on other potential reforms to improve additional dimensions of rural food distribution. Simple exchange occurs even in subsistence economies, and as rural area growth and development accelerates, small and large agricultural producers are rapidly drawn

into more specialized exchange systems. Farmers not only sell, but also buy food, as well as other consumer goods and agricultural production inputs. I suggest that the convenient and economical availability of a partially or completely purchased food supply may be a strategic factor influencing farmers' willingness to adopt new yield-increasing, and enterprise specializing technologies. Many other researchers view the economic and timely availability of non-food consumer goods as incentives for farmers to expand commercial sales of agricultural commodities. Yet much more research is needed examining small and large farmers' production/consumption paths over time in order to effectively test these hypotheses. Likewise, more should be known about the potential need of farm production credit to finance consumption. For small farmers in many countries of Latin America, the ability to use production credit to purchase food and other basic consumption goods may be necessary to break tied selling agreements which farmers are sometimes forced to make to local merchants who supply food during crop planting and growing periods.

We also need to study the relationship between nutrition and marketing services. Low income consumers in both urban and rural areas of Costa Rica and other countries purchase a majority of their food supply from small-scale and relatively high-cost/high-price retailers located in immediate neighborhoods and rural locations. Thus, additional dimensions of country level nutrition program may require projects to 1) lower the costs of products and related marketing services provided by small-scale, local retailers, and 2) improve the quality and assortment of products sold. Research to accomplish these objectives should be aimed at marketing agents and processes in both large urban and rural areas, since many system-wide improvements will tend to serve both. A fair amount of urban distribution descriptive and problem identification research is available. New studies can now focus on specific problems, and on designing public strategies to promote management, product procurement, and other organization methods for lowering costs and better coordinating activities of retailers and wholesalers.

In rural areas, additional research is suggested to identify and better understand the economics of dispersed and village-located retailing. A series of case studies of outlets in different subsystem locations could identify specific costs of existing and new potential levels of service, given local demand. Another important research goal here is to derive a bench mark from which the cost of alternative product lines, scales of operation, and retailer-wholesaler supply arrangements can be compared. The case studies should also help to understand existing consumer patronage and product supply problems, and indicate priority areas where public sector action programs could help to improve services and lower operating costs of both retailers and wholesalers.

The most difficult part of this research is to identify alternative methods of operation of retailers and wholesalers which would, in fact, result in better services and lower final product prices. An advantage of doing a number of case studies of various retailers and wholesalers is that it often identifies different methods of operation (some more productive than others) and thereby indicates under what conditions realistic improvement might be forthcoming. In the Costa Rican case, it was suggested that three possible alternative retailer-wholesaler coordination and supply mechanisms be further analyzed:

1. Consider the economics and management needs of forming rural (dispersed and village) retailers into a cooperative-type, cash-and-carry chain like others in Costa Rica. A case study of the retail chain in Grecia county would be particularly useful in identifying cost-saving areas and management problems.
2. Consider the alternative of working with existing wholesalers and wholesaler-retailers in rural county seats to develop a retailer product supply and management assistance service.
3. Consider changing selected CNP (State) retail outlets in rural county seats into wholesale suppliers which would provide a broader line of items, delivery service, and supplier credit.

As these kinds of vertical coordination alternatives are examined in Costa Rica and other countries, it is important to look carefully at the supply arrangements available to the rural wholesalers. This is especially necessary in the context of the large urban area, wholesale market reforms being carried out in many Latin American countries. To date, most of the justification for undertaking these wholesale reform projects derives from problems identified within large urban areas themselves. Yet we need to better understand the role which improved wholesale services play in integrating national markets, and in facilitating exchange and specialization among areas of regional market hinterlands.

Finally, two additional related research areas, which have been largely excluded from my paper, warrant further analysis.

1. Rural public markets and other institutions for improving product assembly processes to move locally produced commodities to large urban demand centers, and to other rural consumption areas.
2. The economics of distributing agricultural inputs and non-food consumer goods through regional and local market channels, and the relationship between these channels and those of food distribution subsystems.