REGIONAL MARKETS FOR AGRICULTURAL AND FOOD PRODUCTS: NEEDED RESEARCH

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Implicit in the subject of regional markets is the inference that they deserve more attention in research than they have been given in recent years. Based in large part on cheap energy for transportation and production, the economy has reflected increased regional specialization in production for a national (or international) market. Concurrently, there has been a disintermediation of many of the regional differences in consumer wants and preferences because of the increased mobility of the population and the exposure of all persons to the same mass communications material. These factors have contributed to an emphasis on the national market, in contrast to the regional market in both research and the popular press.

I argue that it is time to reassess the importance of the regional market for agricultural products. Several forces emerged in the 1970s that could cause a revitalization of the regional market concept for both production and marketing decisions. Many of these forces relate to the new economic environment encompassing increasing real prices of food and energy and increased price instability. Increasing real food and energy prices may have more regional implications for supply than for demand. Changes in real energy costs have differential impacts across regions on product prices, which affect the derived demand prices facing producers and the profitability of location of processing facilities.

The movement toward decontrol in the transportation industry will also affect regional markets. During decontrol, efficiencies obtained from better utilization of backhauls and marginal cost pricing for selected services will provide lower costs for some groups of consumers. At the same time, decontrol will result in higher costs—or even no services at all—for other groups of consumers. The effects on costs and availability of transportation services certainly will have ramifications for regional markets and may have long-run impacts related to structure, since fewer and larger firms would be expected to survive in the longer run. For markets on the periphery of the major supply routes, private services entailing higher net social costs may be encouraged: such a movement appears to be in progress as a result of deregulation in the airline industry.

Inflation and price instability are two other important forces that could affect regional markets. Adjusting relative prices through inflation usually is accompanied by very high interest rates. Adjustments to the high rates would appear to favor the large firms with access to capital markets and an ability to pass through the higher costs. Price instability coming primarily from the export sector would also represent large costs, which could be managed more successfully by the large firms with access to capital and futures markets. Concentration of production and marketing into fewer firms could affect regional prices and availability of services and products.

The first section of this paper deals with the concept of a regional market. The second section covers regional market demand and a discussion of recent changes in variables affecting regional demand for which research is indicated. The third section covers regional market supply, recent changes in variables, and needed research. This is followed by a brief statement concerning regional input markets. Finally, some suggestions are offered concerning the organization of research.

CONCEPT OF A REGIONAL MARKET

A regional market usually denotes a market in a given geographical area. A critical element in the delineation of a market is the need to encompass the sphere of influence for the interaction of firms and individuals involved in the determination of prices of the products or services associated with that market. Since the markets reflect changing demand, supply, and market structure relationships, they are dynamic rather than static, and potential as well as actual transaction prices and quantities could be important.

A regional market as used in this discussion is defined to include a geographical area within which (1) most of the competing firms would interact at the current or expected relative price structure, and (2) most of the product required in the area is exchanged. This definition of a market

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Professional Paper No. 974, Oklahoma Agricultural Experiment Station.

may not be satisfactory for everyone. It obviously would include a group of consumers in a metropolitan area served by producers in the surrounding area. But would a local market of consumers served by national firms operating from locations outside the area constitute a regional market? For some purposes, the answer would have to be yes because this group of consumers will interact (directly or indirectly) in establishing transaction quantities and prices that can be unique and different for that market as compared with another market. This concept of a regional market for demand may be equivalent to the concept of a market segment. It may have more relevance for the definitions of regional supply than for regional demand.

REGIONAL MARKET DEMAND

The theory of consumer demand involves choice among products based on prices and *ceteris paribus* conditions. The usual demand function in a given time period for product x may be expressed as follows:

$$Q_x = F(P_x, P_y, P_o, Y, N, W, T, Z)$$

where

Q_x = quantity of x consumed
P_x = price of x per unit
P_y = price of close substitutes, (or complements) for x
P_o = price of other commodities
Y = consumer income
N = population
W = wealth
T = tastes and preferences
Z = other factors

Many models of consumer demand estimated from time series data have only a few of those variables entering directly into the estimation process. Collapsing some of the variables is often required because of statistical problems. For example, prices may be deflated in order to eliminate multi-collinearity problems with P_o or the price level. Quantities may be changed to per capita for the same reason. Wealth or tastes and preferences may be swept away or assumed to be included under this general heading of a time trend.

Models of consumer demand estimated from cross-section data have some of these variables subdivided to reflect race or ethnic backgrounds, regional tastes and preferences, and urban or rural backgrounds. However, estimation of the impacts of price changes on these categories is fraught with difficulty and perhaps requires an appeal to "heroic" assumptions as a last resort.

Income

Regional demands for goods have varied in the past because of differences in levels of income. Yet, recent data suggest that regional income differences may become less important in determining regional demands for food used in the home. Increasing incomes over a considerable income range did not result in the consumption of a larger quantity of food used at home at the national level in 1977. For example, Hama reports that the money value of the food used per person per week at home in 1977 averaged $14.99 for household incomes of $15,000 to $19,999 and was exactly the same amount for households of the lowest income group of $0 up to $5,000 (Table 1). The values were similar, but slightly smaller for the intermediate income levels. Even the composition was similar, based on the money values per person in the standardized households. The food stamp program undoubtedly had a great leveling effect on the relationships on income to consumption.

Cronin reports the quantities of food used by U.S. households by income group in 1965 and 1977. Quantities for the lowest and next-to-highest groups are shown in Table 2. In 1965, increasing incomes resulted in increasing quantities consumed for the following food groups: dairy products, meats, vegetables, fruits, soft drinks and prepared desserts, and alcoholic beverages. In 1977, the positive relationships did not hold for meats and vegetables. In fact, the implicit income elasticities would range from negative to a small positive value of .10 or less for all food groups except beverages and prepared desserts. It is possible, of course, for the income effect to be positive and much larger for a specific commodity within a group or for a selected region within the U.S. aggregate.

A positive effect of income on food consumption was evident for household income levels above $20,000 in 1977 (not shown). For the higher incomes, consumption in most of the food groups increased with income, with the largest increases reported for meat, dairy, and alcoholic beverage groups. Also, a positive effect of income on the consumption of *services* attached to food was reported for all income levels. The per person value of food consumed away from home increased as income increased and was almost twice as high in Group IV as in Group I.

One implication from this food consumption survey is that only a few income groupings may be important in regional analysis, even though the value of the food consumed at home represents a declining share of income as income increases. Regression coefficients relating income to consumption in a linear manner become highly suspect either for analysis or prediction. Obviously, much additional research is needed to substantiate this conclusion.

TABLE 1. Money Value of Food Used at Home Per Person Per Week, United States, Spring 1977

Household Size and Food Group	Household Income I Under $5,000	II $5,000-9,999	III $10,000-14,999	IV $15,000-19,000
Reporting Households[a]				
Persons per Household	2.02	2.72	3.21	3.53
Food Value/Member				
Away from Home	$ 2.52	$ 3.06	$ 4.35	$ 4.99
At Home	14.99	14.20	14.15	14.99
Total	$17.51	$17.26	$18.50	$19.90
Standardized Households[b]				
Persons per Household	1.96	2.55	2.95	3.30
Food Group Values/Member				
Milk, Cream, Cheese	$ 1.77	$ 1.81	$ 1.96	$ 1.93
Meat, Poultry, Fish	5.50	5.11	5.22	5.82
Eggs, Dry Legumes, Nuts	.75	.72	.77	.64
Vegetables	1.93	1.98	1.78	1.83
Fruit	1.16	1.18	1.15	1.15
Grain Products	1.85	1.82	1.89	1.86
Fats, Oils	.46	.48	.44	.46
Sugar, Syrup, Jelly Candy	.38	.39	.44	.40
Soft Drinks, Punches, Prepared Desserts	.59	.63	.63	.67
Alcoholic Beverages	.39	.35	.47	.82
Other Foods	.64	.70	.64	.48
Total Used at Home	$15.42	$15.17	$15.39	$16.04 [c]

[a] Household with at least 1 person having 10 or more meals from household food supply—7 days
[b] One person considered to eat 21 meals from home supplies during 7 days
[c] The reported total does equal the sum of the group values because of rounding.
Source: Hama, pp. 5–6.

Tastes and Preferences

Regional differences in tastes and preferences in the U.S. must be decreasing for at least three reasons. First, the population has become quite mobile since the 1930s. Considering the out-migration from the South and Plains areas in the 1930s and the in-migration into these same areas in the 1970s, the impact has had to moderate the regional differences in consumption patterns that existed in earlier years.

Second, consumption responds to additional information, including advertising: national television and magazines appeal to consumers in all areas. Subjected to the same commercials for products produced by national or multinational firms, consumer wants and perceptions of wants would now appear to be more alike than different from one region to another.

Third, differences in income levels among regions have become smaller, and the absolute levels of income have increased. As a result, purchases of food in the summer by consumers living in air-conditioned homes, autos, and offices in the South should differ little from purchases by consumers living in air-conditioned homes, autos, and offices in the Northeast, Midwest, or West.

Regional differences in markets due to tastes and preferences need to be analyzed more in

TABLE 2. Quantities of Food Used at Home Per Person Per Week, Selected Income Groups, U.S., 1965 and 1977

Food Group	Year	Income Group[a]		Difference
		I	IV	(Gr. IV - Gr. I)
		lbs.	lbs.	lbs.
Milk, Cream, Cheese (milk equiv.)	1965	7.78	9.36	1.58
	1977	7.18	8.73	1.55
Meat, Poultry, Fish & Other Protein Foods	1965	4.01	4.76	.75
	1977	4.85	4.68	-.17
Eggs, Dry Beans Legumes & Nuts	1965	1.24	1.02	-.22
	1977	1.01	.84	-.17
Vegetables	1965	4.83	5.58	.75
	1977	5.16	5.06	-.10
Fruit	1965	2.94	4.09	1.15
	1977	3.65	4.09	.44
Grain Products	1965	3.20	2.49	-.71
	1977	2.35	2.02	-.33
Fats and Oils	1965	.86	.82	-.04
	1977	.69	.67	-.02
Sugar, Syrup Jelly & Candy	1965	1.25	1.08	-.17
	1977	.82	.80	-.02
Soft Drinks, Punches & Prepared Desserts	1965	.17	.29	.12
	1977	.26	.39	.13
Alcoholic Beverages	1965	.22	.94	.72
	1977	.62	1.16	.54

[a] Group I income ranges are < $3,000 in 1965 and < $6,000 in 1977 and Group IV incomes ranges are $7,000–$9,999 in 1965 and $17,001–$26,000 in 1977.

terms of market segments than in terms of geographic areas. The areas will be different primarily because of differences in the composition of market segments. It is the identification of socioeconomic variables and their effects on consumption that requires much additional research. From this research, marketing strategies can be devised for the mix of consumers in any geographical population concentration commonly defined as a market.

Prices of Alternatives

There are regional differences in the prices of many alternative food and fiber products and in alternatives to food and fiber consumption. Many of the regional differences in quantities consumed reflect an adjustment to the relative prices that have existed over an extended period of time. Differences in relative prices among regions have their basis more in production than in consumption, and have tended to narrow during recent years as interregional transfer costs became a decreasing share of the marketing bill. As will be discussed later, this trend may be reversed.

A major factor affecting regional allocation of consumer expenditures may come from actions in the financial community that relate to lending and savings. The dismantling of state usury laws

now under way, or at least threatened, will tend to equalize rates paid to savers and charged to borrowers. Such equalization should have a major impact on decreasing regional differences in expenditures for housing, furnishings, and automobiles in the states with artificially low interest rates.

Research Needs

The concurrent developments of (1) a leveling of regional differences both in relative prices and in tastes and preferences and (2) institutional arrangements that significantly alter the effect of income on food consumption for large segments of the population suggest that demand analysis emphasizing geographical differences should have a low priority. The need is greatest for information on the impacts of specific variables, such as life cycle, family size, ethnic background, rural-urban environment, and alternative price relationships, including own and cross-price elasticities.

Consumer panels and consumer household surveys provide much of the data needed to analyze the behavior of consumers with different backgrounds and economic circumstances (Branson). Notable among the results from consumer panels are the publications from the Georgia Experiment Station, such as those by Rauniker, Purcell, and Elrod. The studies are comprehensive in coverage of commodities and consumer characteristics, but are restricted in geographic coverage. The hypothesis needs to be tested that the results for a market segment with particular consumer characteristics in Atlanta or Griffin can be applied directly to similarly described market segments over a wide geographical area.

Consumer panels operated by private agencies provide regional data on purchases, prices, and family characteristics, but only for selected items. Some of the private consumer panel data are quite sophisticated. Recently the American Institute of Food Distribution reported that Selling Areas-Marketing, Inc. (SAMI) announced the availability of two new market research services involving segmentation of the current SAMI markets. One is geographic (increased to 35 segments), and the other is ethnic (Black vs. non-black and Hispanic vs. non-Hispanic). With sufficient lead time and finances, information on any commodity or group of commodities could be obtained to supplement the Georgia data and validate whether or not many of the household characteristics as related to consumption can be generalized for all sections of the country. Perhaps the purchase of selected data from private panels to supplement the public panel data would merit consideration by market researchers. This could be accomplished through arrangements similar to those used by the Florida Citrus Commission and the Department of Food and Resource Economics at the University of Florida, or to those used in financing regional research under North Central project N.C. 117.

The household consumption surveys of the U.S. Departments of Agriculture and Commerce provide much information on consumption as related to specific household and consumer characteristics. However, the surveys have been periodic rather than continuing, and it has been difficult to relate price to the other variables. The initiation of a continuing BLS quarterly consumer expenditure survey will now permit tracking of consumption of specific market segments under varying prices.

With the new and improved information on consumers' characteristics and consumption patterns, more attention can be given to complete demand system analysis on a national as well as regional basis, similar to the work of Capps and Havlicek. Havlicek argues that complete demand system analyses have the capability of generating the basis for evaluating consumer response to a large number of economic variables, and that some progress has been made in incorporation of non-economic variables, which would improve the estimates. Problems with research efforts along this line include the vast amount of data required and the restrictions imposed by choice of functional form, choice criteria of consumers, number of commodities and alternatives in consumption, and statistical problems, such as multi-collinearity or serial correlation.

Finally, time series analysis should not be overlooked. Market reports on prices, production, marketing, and consumption provide most of the data used in time series analysis. Prices are obtained monthly or quarterly in many geographic regions of the U.S. in efforts to measure changes in consumer and producer prices levels over time. They are also used to establish differentials in the values of a bundle of goods that would reflect such concepts as "cost of food" or "cost of living" by city or region. However, there are no parallel data on the quantities consumed, which would be needed to measure quantity response to price changes. The quantity data must be formulated from other sources. The continuing series of estimated quantities consumed in arbitrarily delineated areas, such as states, counties, or regions, are "soft." Often they are national estimates adjusted by some known regional differences from coefficients estimated from other data. At other times, they are estimated directly from marketing firm data that may be influenced by interregional trade data that have not been estimated. Quantities are monitored by the Nielson store audit data by selected city and geographic region classifications, but the data are not public. Considerable initiative and expense would be involved in obtaining the relevant market data necessary to combine with the

public price and quantity data to estimate some of the parameters on a regional basis. Such efforts are urgently needed.

REGIONAL MARKET SUPPLIES

The theory of the firm involves the process of combining resources in the production of goods and services for markets. The firms may be at the farm-firm-level, producing commodities such as wheat, feed grains, or cattle; at the retail level, selling steaks, bread, or corn flakes; or at some intermediate level in the marketing process. The products of one level become inputs at the next level of production; hence, the demand for a product at the farm level is a derived demand.

If resources for the production of agricultural food and fiber products were uniformly distributed geographically, but retail markets were not so distributed, the derived demand relationships would dictate that production be regional in nature. Transfer costs would be one of the major factors in deriving the demand for raw products at producing locations. At a minimum, specialization of production in zones comparable with von Thunen's concentric circles could result. With the endowment of resources unequal in production areas plus the unequal distribution of final markets, regional specialization in production would be the outcome.

Given the prices from the derived demands for farm food and fiber products at specified locations, producers may combine resources to maximize some level of returns consistent with other personal goals. The resources of land, labor, and capital used in the production process may be relatively fixed except in a longer-run setting. As a result, shifts in regional supplies of products tend to change slowly. For example, the movement of cotton production from the Southeast to the western areas of the U.S. occurred gradually, in part because of the institutional restraints, but in part because of the fixity of the resources. Movement of cattle feeding into the High Plains was somewhat more rapid, though still gradual.

Transfer Costs

Escalating energy (oil) prices have caused some analysts to conclude that increasing energy prices will move agriculture back from regional specialization in production for a national market to a situation in which each regional market will have its own nearby production. The chances for a substantial move in this direction appear slim.

It is true that energy prices have increased substantially during the past decade. The index of crude petroleum prices included in the Producer Price Index stood at 570.8 in September, 1980, as compared with 113.2 in December, 1970. This represents a change of more than 400 percent in about 10 years. However, in relative terms, the change has been less drastic (Table 3). Until the OPEC embargo near the end of 1973, "real" energy prices had been declining. After the embargo, deflated crude petroleum prices (using the GNP Deflator) rose about 50 percent, then remained at this level through 1978. Recent events appear to be pushing real prices toward triple the level prevailing in 1970.

The impact of changing energy prices on marketing costs for farm food should be reflected in the rail and truck (intercity) transportation cost component of the marketing bill. The intercity transportation share was 9.2 percent in 1960 and gradually decreased to 7.1 percent in the late 1960s. Declining energy costs were associated with the decreasing share. The downward trend was reversed in 1970. It reached 8.0 percent in 1971, dropped in 1972, then returned to the 8-percent level by 1976 where it remained through 1978. The impact on derived demand prices at the farm level has been minimal to date because technology in transportation has been a moderating influence on the effect of higher fuel costs. Apparently, additional large changes in real energy prices will be required to provide the much lower derived demand prices for longer distances, which would be required as economic incentives to diversify agricultural production across geographic regions.

Such large price changes are possible, but not certain because of the potential development of alternative fuel sources. A more probable cause of increasing differences in transportation rates among regions will be deregulation of the transportation industry. As the industry uses marginal cost pricing for movements among major supply areas, movements to and from minor supply areas will face escalating costs.

Production Costs

The impact of changing energy prices on farm production costs could have significant effects on regional specialization of production for energy-intensive industries. For example, irrigated corn production in the High Plains may require twice as much energy as corn production in Iowa or Georgia when consideration is given to all energy used in producing fertilizer, pumping water, and planting and harvesting the crop. This situation should not lead one to conclude that increasing energy costs will create a regional disadvantage for corn production in the High Plains. Preliminary studies in Oklahoma indicate that no significant changes in agricultural production (including irrigated corn) would occur with very large changes in energy prices, provided that modest increases in relative agricultural prices accompanied the higher energy costs.

Adjustments in production to the higher energy prices will occur, but they cannot be

TABLE 3. Index of Crude Petroleum Prices in the Producer Price Index Deflated by the GNP Implicit Price Deflator, Selected Months 1970–1980

Year	February	May	August	November
		(1967=100)		
1970	91.9	90.8	89.0	87.8
1971	94.7	93.4	92.7	91.8
1972	90.5	90.0	90.3	89.4
1973	88.1	92.1	93.2	101.0
1974	143.2	139.4	151.4	150.7
1975	145.4	146.8	157.8	158.5
1976	145.8	146.3	149.5	153.2
1977	156.6	154.4	150.5	152.2
1978	154.3	154.8	155.9	156.5
1979	158.9	161.9	182.2	208.6
1980	233.2	238.4	244.2	244.1

Source: Computed from data in U.S. Department of Commerce and U.S. Department of Labor.

evaluated by measures such as energy costs per dollar value of output. The evaluation must be in terms of changes in comparative advantage, or net returns, among enterprises within the regional market and among regions in the national market. Both the derived demand prices of outputs and the supply prices of inputs are crucial factors in measuring net returns, and the implicit costs of higher energy prices translated through the supply of transfer services for inputs as well as outputs may be more important in regional market supply analysis than the direct costs of energy in production.

Labor

Labor is a large input both in marketing and production of agricultural products. Just under one-half of the marketing bill is composed of labor costs, and this is probably an understatement because of incomplete data on labor costs in industries such as advertising. The same problem of underestimation exists for the price spread data. For example, the price of choice beef at retail in 1974 was 138.8 cents per pound, and the price spread was 52.7 cents. The labor component of the price spread was reported at 20.9 cents, or about 40 percent. In contrast, Anderson estimated that the actual labor component was 29.24 cents, or about 55 percent of the price spread.

In an historical setting, the amount of labor used in agricultural production decreased modestly from just under one-half (46 percent) of the inputs in the 1910–14 period to 42.6 percent in the 1945–48 period (Schultz, p. 137). Since 1948, the input of farm labor decreased more than 70 percent (Durost and Black, p. 32). The decrease resulted from the exit of many small farms, a relative decrease in labor intensive enterprises (e.g., cotton and dairy), the general substitution of capital for labor, the introduction of new technology, and the relative increase in the price of labor.

In spite of the large decrease in the quantity of labor, much of the labor used in agricultural production remains unpriced. Hired and contract labor generally represents less than 10 percent of farm production expenditures. In the parity index, the weight of wage rates was 5.2 percent in September, 1980, equivalent to 7.5 percent of the index, excluding the consumer price index portion representing living items.

Many of the commercial farms have increased to such sizes that additional expansion will require additional hired labor. With the index of wage rates at three times the index of prices of production items (1910–14=100), labor costs are high and will be increasing. Moreover, the labor may not be available in all areas. Therefore, labor use and costs may become one of the more important variables in regional supply analysis—particularly for labor-intensive enterprises.

Research Needs

Regional supply schedules are urgently needed for use in interregional competition models to ascertain how resource use might be improved. Current parameter estimates are just too old to apply in the 1980s in fine-tuning agricultural production. Producer response to relative product prices will be different in the 1980s because of (1) highly unstable prices, (2) changing relative prices of major inputs, and (3) a growing number of small and part-time farmers with goals and operational techniques that are quite different from those of the larger commercial farmers.

One major need is to update the estimates of parameters associated with producer response at the farm level. Many of the traditional research techniques can be employed, such as LP analyses of representative farms, time series analysis, and systems analysis as emphasized by recent agricultural economics graduates of Michigan State University, of the type reported by Hayenga et al. Concepts incorporated into supply analysis should continue to include simultaneous equations pioneered by the Cowles Commission, fixed asset theory stressed by Glenn Johnson, and distributed lags emphasized by Nerlove (1956, 1979). The reestimation of parameters in time periods that have more variation in relative prices is the first step.

Studies are also needed to solve the problems faced by researchers using the different techniques. Estimates are required for a system of price elasticities for supply at the farm, comparable with the type estimated for demand by Brandow and George and King. A systems analysis for each major product could be the beginning that would permit estimation of the interrelationships of product prices, production and input prices.

Research is also needed on marketing firm response in pricing the services necessary to translate consumer demand prices into derived demand prices facing producers. Highly unstable product prices present problems to firms. For example, the price spread for beef widened late in 1980 by the equivalent of $5.00 per cwt. for live animals, primarily because the marketing firms were reluctant to lower margins temporarily with decreasing live animal prices, when the price trend for live animals was expected to turn upward in a few months. In another situation, a firm purchasing corn for processing into industrial goods cannot ignore a price increase of $1.00 per bushel (or more) either in pricing the goods or in carrying inventory. A whole new layer of marketing firms and institutions associated with assuming and shifting price risk has arisen. The ability of marketing firms to establish current and forward buying and selling prices will affect the regional prices, and the effects will be different for the various products, if not for the region served. The coordination process itself will be more complicated and costly. Research is needed on both the marketing firm response and the effectiveness of the new institutions that firms are using to transfer risk.

REGIONAL INPUT DEMANDS

If the supply of products is regional in nature, the demands for inputs will be regional in nature. Therefore, one by-product of research on regional supply will be estimates of regional demands for inputs.

A comprehensive report on research concerning inputs into agricultural production was published in the early 1970s through a North Central Regional Committee (Dahl and Anderson). Work reported included studies of the demand for inputs such as feed, fertilizer, and farm machinery and the market structure for the same inputs. More recent efforts have included attempts to estimate the demand for energy.

One important question concerns the market structure and its efficiency in making inputs available in the quantities and at the time needed. Another important question in regional input-demand analysis concerns whether or not the input demands are related to demographic, social, and cultural characteristics of farmers and ranchers. Daniel and Havlicek found that the purchases of fertilizer inputs were not related to demographic characteristics of farmers in Illinois. Research is needed to determine if this conclusion can be extended to other inputs and to other regions.

ORGANIZATION OF RESEARCH

Much has been written concerning the organization of research. Historical evidence suggests that some mix of centralized and decentralized research effort may result in the best match with society's needs and preferences. Within this context, four suggestions are offered:

1. Regional research committees of the conventional type with the objective of estimating demand in separate small geographic regions are not needed.

2. Individual and work group research at the institutional level should be encouraged to update supply parameters for separate commodities and production areas and demand parameters for commodities.

3. A regional institute approach offers a possible new direction for the organization of research on demand. The need is for specialization of research efforts to estimate

the impacts of specific socio-ethnic-cultural characteristics and to determine if regional differences in demand exist. The assembly of such talent on a project life of 3 to 5 years, with temporary transfer of professional researchers to one location might be feasible.

4. Task forces could be formed to develop systems analyses of alternative transportation configurations for both output and inputs.

SUMMARY AND CONCLUSIONS

Regional markets are important in the marketing of agricultural products and inputs. Spatial separation of consumers and producers provides the most common basis for the definition of a regional market. The definition must be flexible enough to include the activities of the major participants involved in establishing transaction prices and quantities of products and services.

Demand in a regional market context involves groups of consumers living in separate geographic locations, but possessing varying family characteristics, income levels, and cultural backgrounds, and facing different sets of commodity prices. Differences in regional market demand on a per capita basis have been decreasing because of increased mobility, national advertising and communications, and institutions that have moderated the influences of income on food consumption. Nevertheless, research is needed to update the elasticities we tend to quote, such as those by Brandow and George and King. Tapping the commercial consumer panel and retail store audit data would appear to be of high priority for researchers in order to supplement the experiment station consumer panel data and the BLS consumer expenditure data.

Supply in a regional market context involves a group of producers in different locations that use resources which are not uniformly distributed. Because the demand for the output is a derived demand that depends upon the supply of retail and wholesale services including transfer costs, the prices of agriculture commodites will vary across regions. The regional price differences have led to specialization in regional production for national markets for many commodities.

Changes in input prices have had significant impacts on regional supply. Labor prices have been important in changing regional supplies such as cotton. Energy prices have the potential to change regional supplies, but some current evaluations seem to overstate the effect. The long-term decline in real energy costs has been reversed and costs may now have increased to triple the level of a decade earlier. However, a much more rapid escalation of real energy prices would be necessary before regional specialization for a national market would be discouraged. Extremely large changes in real energy prices would be required to cause large decreases in the derived demand price from the demand side, or in the relative use of energy-intensive capital for labor on the production side. Nevertheless, there will be impacts, some of which may be large for specific commodities. The deregulation of the transportation industry will contribute to larger regional differences in the derived demand prices facing producers.

A very important impact on supply is the price instability faced by producers and marketing firms. This instability will have different effects for large farms than for small or part-time farms. Marketing firms will be affected differently, and a whole new layer of marketing firms, whose primary function is handling price risk, may develop. New institutions and greater use of institutions such as future markets will evolve.

It seems that most analysts gave up on supply analysis, particularly of the LP type, at precisely the time when it was needed most. Time series analysis covering a period of relative price stability did not determine enough variability in some variables to generate appropriate parameters. Inclusion of the data for the 1970s could remedy this deficiency for both the time series and the linear programming types of analysis. The need is clear, and it is hoped that the research will be initiated. Finally, much of the research can be conducted by individuals at the current institutional level. Task forces operating with much closer contact and regional institutes involving faculty on 3-to-5-year leaves to a central location offer possible new directions for the organization of research.

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