Agribusiness Firms: Location Determinants and Economic Contribution

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Many rural areas are seeking economic growth and diversification, and the agribusiness sectors are among those most frequently identified to play important roles in economic development. Food processing and other value-added agribusinesses have frequently been identified as promising sources of economic growth (Barkema et al. 1990), while businesses that supply agricultural inputs and services can be important to an area's import substitution strategy. Unfortunately, development officials and policymakers have little information about the determinants of location choices for agribusinesses or the direct and secondary economic contributions of these firms, compared to other basic sector enterprises.

The purposes of this study are to (1) assess the factors that influence the location of agribusiness firms and compare the relative importance of various location factors for agribusinesses and other firms, and (2) evaluate the economic contribution of agribusinesses compared to other firms through analyzing the number of jobs created and expenditures made within the regional economy.

METHODS

The focus of the study is nonmetropolitan and small metropolitan areas (with populations less than 250,000) in Nebraska, North Dakota and South Dakota. Both manufacturing and export-oriented service firms were included in the study. All firms included (1) sold more than 10 percent of their product or service to out-of-state markets and (2) had begun operations or expanded their work force by 10 percent or more since 1977. Data were collected from a mailed survey conducted during 1989. A total of 297 firms provided information for the study, of which 70 were agribusiness firms. The agribusiness firms were divided almost equally among nondurable manufacturers (primarily food processors), durable manufacturers (primarily producers of farm equipment and parts), and other (primarily service) firms.

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RESULTS

Key findings from the survey are presented in the sections that follow. Results are presented for agribusiness firms compared to all other firms, and where appropriate, comparisons are made among firms from similar industry groups (e.g., durable manufacturers) or similar location status (e.g., relocated firms).

General Characteristics

The respondent firms were relatively evenly distributed among the three states (Table 1), and the distribution of agribusiness firms was similar to that of other establishments. The annual sales of agribusiness firms averaged somewhat higher than those for other firms, but the difference was not statistically significant. The distribution of total sales was similar for both groups of firms.

The destinations of sales also were similar for agribusiness and other firms. On average, agribusiness firms sold 33 percent of their product or service within the state, compared to 36 percent for other firms (Table 1). The agribusiness firms made more than twice as high a percentage of their sales internationally as the other firms.

The agribusiness firms made a somewhat smaller percentage of their total expenditures to labor, but the percentage of their remaining expenditures that was made within the state was much greater (Table 1). If the firms' expenditures to labor are added to their other in-state expenditures, it can be inferred that the average agribusiness firm has total in-state expenditures of almost $6.9 million, compared to a $3.6 million average for other firms. This, in turn, implies that agribusiness firms would have a greater multiplier effect on state and local economies than their counterparts.

When sales and expenditure patterns of agribusiness and other firms are compared within the broad industry groups of durable manufacturing, nondurable manufacturing, and service, additional contrasts can be noted (Table 2). Average sales of agribusiness firms in the nondurable manufacturing group are much greater than those of their counterparts, while the average sales of agriculturally linked durable manufacturers are less than those of other durable manufacturers. Within the durable manufacturing group, agribusiness firms made a higher percentage of their sales locally, elsewhere in the state, or in adjacent states, suggesting that many of these firms have been established to

serve the region's agricultural sector. However, these firms also market a substantial portion of their products to the rest of the nation (32.1 percent) and internationally (5.9 percent).

The percentage of total expenditures that was made to labor was significantly lower for agribusiness firms in the nondurable manufacturing group, and also somewhat lower for agribusinesses in the service sector. The percentage of the other (nonlabor) expenditures made within the state was higher for agribusiness firms in each of the three categories, and the differences were statistically significant for the nondurable manufacturers and for the service firms (Table 2).

Table 1. Selected characteristics of agribusiness firms and other firms.

Characteristics	Agri-business	Other	Total
State Where Facility Is Located			
Nebraska	30.0	31.7	30.9
North Dakota	44.3	37.9	39.8
South Dakota	25.7	30.4	29.3
Total Annual Sales			
Mean ($000)	10,523	6,727	7,644
Median ($000)	2,000	1,500	1,700
Distribution:			
Less than $500,000	28.1	25.9	26.4
$500,000 to $l,000,000	7.8	15.4	13.6
$l,000,000 to $5,000,000	32.8	30.9	31.3
$5,000,000 to $10,000,000	14.1	10.9	11.7
$10,000,000 or More	17.2	16.9	17.0
Destination of Sales			
Local	21.1	24.6	24.0
Elsewhere in state	12.1	11.6	11.7
Adjacent States	24.0	17.9	19.3
Rest of Nation	34.9	42.3	40.4
International	7.9	3.6	4.6
Percentage of Total Expenditure to Labor			
Mean	24.0*	29.7*	28.3
Median	23.5	27.0	25.0
Distribution (% of Firms):			
20% or less	48.4	35.5	38.6
21 to 30%	25.8	27.0	26.7
31 to 40%	12.9	20.5	18.7
41 to 50%	11.3	8.0	8.8
More than 50%	1.6	9.0	7.3
Percentage of Remaining (Nonlabor) Expenditures Made in State			
Mean	54.6*	33.4*	38.5
Median	50.0	25.0	30.0
Distribution (% of Firms)			
10% or less	6.6	28.3	23.2
11 to 25%	11.5	24.2	21.2
26 to 50%	36.1	23.7	26.6
51 to 75%	21.3	11.6	13.9
More than 75%	24.6	12.1	15.1

*Significant difference at $\alpha = .05$ using Tukey Test.

Employment

The average firm reported about 54 full-time and five part-time employees (Table 3). A few firms with large work forces substantially affected the average, however, as the median values were 17 full-time and one part-time worker. Agribusiness firms reported average work forces that were substantially smaller than those of other firms, averaging 25 full-time workers compared to 63 for other firms.

The work forces of agribusiness firms in the durable manufacturing and service categories were substantially smaller than those of counterpart firms. On the other hand, agribusinesses engaged in nondurable manufacturing had full-time work forces that were very similar to those of other nondurable manufacturers, and on average they had more part-time workers.

The occupational composition of the work forces of the agribusiness firms is compared to that of all other firms in Table 4. The agribusiness firms had a much higher percentage of their work force in the executive, administrative, and managerial category and in the category of laborers. The other firms had higher percentages in the categories of operators and fabricators and precision production craft and repair.

The survey findings shed some light on a current issue in rural development policy--the role of different types of firms in creating new jobs. Of the survey firms, 70 had relocated or opened a new branch at their location, 94 were new firms that had begun operations since 1977, and 117 were firms that had been in operation at their present site prior to 1977 and had expanded their work force by 10 percent or more since that time. These firms had accounted for an employment growth total of 10,893 jobs during the previous 10 years, an average of 39.8 jobs per firm. Considering the jobs created over the 10-year period, existing firm expansions accounted for 46 percent, relocating firms for 32 percent, and new firms for 22 percent (Table 5).

The agribusiness firms accounted for 11 percent of the total jobs created. The average number of jobs created by these firms was 19.3--less than half the number created by the other firms in the study. Among the agribusiness firms, relocating firms were responsible for creating the smallest number of jobs per firm (15.0) while new firms generated the largest number (20.4 jobs per firm). These results were quite different than those for the other firms in the study; among this group, relocating firms created the largest number of new jobs per firm (55.6) while new firms generated the smallest number (28.4). Generally, the results indicate that agribusiness firms tend to be less labor-intensive (as indicated by higher sales per employee and a lower percentage of expenditures to labor) than their counterparts.

Factors Affecting Location Decisions

The respondents were asked to rate 60 specific factors, organized into nine categories, in terms of their influence on the firm's location or relocation decision. Among the **labor**-related factors, labor productivity and work attitudes were rated as more important than wage levels by all categories of firms. **Labor availability** factors were rated as only moderately important by

Table 2. Sales and expenditures of agribusiness and other firms by type.

Sales and Expenditures	Durable Manufacturers		Nondurable Manufacturers		Service Firms	
	Agribusiness	Other	Agribusiness	Other	Agribusiness	Other
Number of Firms	23	124	23	66	24	37
Total Annual Sales						
Mean ($000)	2,012	6,948	17,235*	3,537*	13,452	11,740
Median ($000)	650	2,175	2,550	1,150	3,000	2,050
Distribution of Sales						
Local	28.9%	18.5%	14.5%	35.6%	36.5%	25.9%
Elsewhere in State	11.4	10.6	12.2	13.2	14.5	12.6
Adjacent State	21.7	16.4	25.3	19.1	23.3	20.9
Rest of Nation	32.1	48.7	37.8	31.3	25.7	40.4
International	5.9	5.8	10.2	0.7	0.0	1.7
Percentage of Total Expenditures to Labor						
Mean	27.0%	28.0%	21.6%*	31.0%*	23.1%	32.5%
Median	25.0	25.0	18.5	30.0	20.0	27.0
Percentage of Remaining (Nonlabor) Expenditures Made in State						
Mean	37.2%	27.3%	61.8%*	43.1%*	68.9%*	36.6%*
Median	40.0	20.0	64.5	40.0	72.5	30.0

*Significant difference at $\alpha = .05$ using Tukey Test.

the respondents. The durable manufacturing group generally assigned a slightly higher importance to labor availability factors than other groups did, and they were most concerned about the availability of skilled industrial or technical workers. Differences between agribusiness and other firms were not significant for any of these factors.

Among the **transportation** factors, motor freight service was a major concern to durable manufacturers. Significant differences were found between agribusiness and other firms in the service group with regard to their rating of interstate highway access and rail service. The agribusiness firms rated both of these factors more highly than their counterparts.

Agribusiness firms tended to give significantly higher ratings to **market** factors than their counterparts. Within the durable manufacturing group, the agribusiness firms attached greater importance to proximity to customers, proximity to supplies/raw materials, and to proximity to others in the industry. Agribusiness firms in the other two groups also attached a significantly greater importance to proximity to supplies/raw materials.

Within the **utilities** category, agribusinesses engaged in nondurable manufacturing attached a significantly greater importance to water supply and to water treatment facilities than their counterparts. The only other category where the difference in the importance of utilities was significant was the cost of electricity as evaluated by firms engaged in service activities. The agribusiness firms in this group attached a greater importance to the cost of electricity.

The importance attached to water supply and water treatment by the agribusiness nondurable manufacturers is consistent with the observation by Lopez and Henderson (1989) that food processors in the Mid-Atlantic region rated those factors highly.

Quality of life factors are believed by some to have assumed a greater importance in location decisions in recent years (Pulver 1989). In this study, respondents were asked to rate nine quality of life factors. The factors that received the higher ratings within this category were personal tax burden (all taxes combined), quality of schools, and cost and quality of housing. There was generally little difference in the ratings given to these factors by agribusiness firms and their counterparts, except that agribusinesses engaged in durable manufacturing were less concerned about the diversity of local businesses than their counterparts.

Table 3. Current work force.

Work Force	Firms		Total
	Agribusiness	Other	
Number Currently Employed Full-time			
Mean	24.9*	62.5*	53.7
Median	11.0	20.0	17.0
Number Currently Employed Part-time			
Mean	4.7	5.3	5.2
Median	2.0	1.0	1.0

* Significant difference at $\alpha = .05$ using Tukey Test.

Table 4. Occupational composition of work forces — agribusiness and other firms

Occupational Category	Agribusinesses No.	Agribusinesses Percent	Other Firms No.	Other Firms Percent
Executive, administrative or managerial	292	15.1	1,381	9.6
Professional Specialty[1]	711	3.7	777	5.4
Sales Representatives	131	6.8	762	5.3
Clerical Workers[2]	125	6.5	1,154	8.1
Precision Production Craft, and Repair[3]	192	9.9	2,125	14.8
Operators, Fabricators[4]	583	30.1	5,833	40.7
Laborers	520	26.9	1,984	13.9
Other: Not Elsewhere Categorized	22	1.0	299	2.2
Total	1,936	100.0	14,315	100.0

[1]Includes engineers, scientists, computer programmers, accountants, architects, physicians, etc.
[2]Includes secretaries, typists, stenographers, word processor specialists.
[3]Includes mechanics, repairers, machinists and metal craftsmen, construction craftsmen, etc.
[4]Includes machine operators, assemblers, inspectors, truck drivers, material handlers.

While **higher education** and technical training are generally considered to be important to today's businesses, close proximity to post-secondary schools was not noted as a major consideration by most of the firms surveyed.

State and local taxes were rated as relatively important by both durable and nondurable manufacturing firms and slightly less important by service establishments. The overall tax burden on business was rated higher than most of the individual taxes. Among the individual taxes, worker's compensation and unemployment insurance were frequently mentioned as important location considerations. There were no significant differences between the ratings of agribusiness and other firms.

Incentives and infrastructure were the last category of location factors examined. Within the two manufacturing groups, the agribusiness firms generally rated these factors somewhat more highly than did their counterparts. Statistically significant differences in ratings were found for availability of local financing (both durable and nondurable manufacturing), availability of state financial and development incentives (nondurable manufacturers), incentives for venture capital formation (durable manufacturers), and a streamlined process for obtaining government permits (nondurable manufacturers).

Overall, the analysis of location factors has several implications for development planners and policy makers. The first is that, while similar to other basic sector firms as regards many of the factors that affect location decisions, agribusiness firms differ from counterpart companies in some significant ways. A second is that the importance of various location factors differs among specific types of agribusiness firms (e.g., durable vs. nondurable manufacturers).

Developers will likely be more successful if they are able to focus their marketing efforts on specific types of firms that find most of the area's attributes to be generally satisfactory and if they can tailor local and state incentives and assistance to address priority needs of a specific type of firm. While some authors have found that tax climate and development incentives are insignificant in influencing firm location decisions, the results of this analysis cast doubt on the generality of that conclusion.

States and localities cannot ignore their relative status with respect to these fiscal factors, but across-the-board tax rebates or incentive plans likely are not the appropriate solution. Rather, development programs need to be designed to address the specific needs of the types of facilities the area regards as prime targets in its development effort.

CONCLUSIONS AND IMPLICATIONS

As rural communities seek opportunities for economic growth and diversification, leaders and decision makers in both public and private sectors need information that will enable them to target their development efforts. Specifically, they need insights about the factors that are most important in influencing firms' location decisions and about the relative contributions to the local or state economy that can be expected from firms of different types. This study addresses these issues as they relate to agribusiness firms in the Upper Midwest region.

Table 5. Net employment change in previous ten years.

Type of Firm	Agribusiness Firms Total Jobs Created	Agribusiness Firms Jobs Per Firm	Other Firms Total Jobs Created	Other Firms Jobs Per Firm	Total	Percent
Relocating Firms	135	15.0	3,393	55.6	3,528	32.4
New Firms Since 1977	674	20.4	1,734	28.4	2,408	22.1
Existing Firms	406	19.3	4,551	47.4	4,957	45.5
Total	1,215	19.3	9,678	44.4	10,893	100.0
Percent of Total	11.2	--	88.8	--	100.0	--

Analysis of factors affecting location decisions reveals that agribusiness firms differ from their counterparts in the manufacturing and export services sectors in significant ways. The strong orientation of all classes of agribusiness firms to sources of supplies and raw materials and of agribusiness durable manufacturers to customers indicates that these firms are indeed ones that many agriculturally dependent rural areas could appropriately select as priority targets for development efforts.

This conclusion gains further support when the population of the counties where different types of firms are located is examined. The mean 1980 population of the agribusiness firms' site counties was 44,261, compared to 52,122 for other firms, and 57 percent of these firms were located in counties with less than 10,000 population, compared to 39 percent of other firms.

The analysis of location factors also indicates that substantial differences exist among classes of agribusiness firms with regard to the salience of specific attributes. For example, food processors and other nondurable manufacturers identify water supply and water treatment as very important location considerations whereas these factors typically are less salient for some other types of agribusiness. Communities likely will be more successful in development efforts if they can tailor their assistance/incentives to address the specific needs of a particular candidate industry or firm.

The analysis of the economic contribution of different types of firms indicates that substantial variations do exist both among the different types of firms and also within each group. These findings suggest that a community needs to first clarify its development objectives and then concentrate its efforts on firms that have attributes consistent with those goals (Gillis and Shaffer 1985). For example, agribusiness firms included in this study tended to hire fewer workers than their counterparts, but they had significantly higher levels of in-state purchases, which would imply that they would stimulate higher levels of income and employment in other sectors of the local and state economies. The agribusiness firms also differed from other companies in the occupational composition of their work force. Decision makers should be aware of these differences when formulating community development strategies.

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