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The Effects of a Wholesale Fruit and Vegetable Auction on Produce Marketing and Distribution

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In 1992 a wholesale auction was established by a private firm in Northeast Ohio to market produce for fruit and vegetable producers. The auction was supported by agricultural producers, lenders and government officials because of its perceived value in spurring economic activity in the horticultural production and marketing system. The auction was supported by the community's Amish population as a mechanism to reach economic and family goals. A function of the auction was to help farmers overcome a traditional marketing barrier -- convenient access to buyers.

The wholesale produce auction is located in a county of 81,129 persons which borders Cleveland (Orr, Kassinger 1993). Agriculture is the county's largest industry. The county's proximity to Cleveland and its suburbs makes the county attractive for the marketing of perishable crops such as fruits, vegetables, herbs, flowers and bedding plants. These crops, which can be easily grown on a few acres of land, have the potential for diversification of the farm business away from the traditional crops of dairy, corn, small grains and hay into high value produce crops.

The auction house is in the heart of a community with a large and growing Amish population. There are 53 Amish church districts of about 30 to 50 families each (Miller, 1993). The old-order Amish avoid many modern conveniences and have a strong desire to keep their community separate and distinct from the outside world. They do not use electricity in the home or farm and do not own cars or trucks, but drive a buggy or wagon pulled by a horse. They also do their agricultural field work with horses. The Amish value large extended families with multiple generations living on family farms. Children go to school through the eighth grade and then are expected to take their place in adding to the family income

either through farming or another occupation off the farm. Farming is encouraged and is considered the most desirable occupation. Horticultural production is appealing to the Amish for a number of reasons. It allows them to work at home with their families and to take advantage of the large family labor pool (Yoder, 1996). It also is a more intensive use of the land and produces more dollars per acre.

This study examined the impact of the auction on the local food marketing and distribution system as well as the economic and social effects on the involved businesses and families. Part of this study examined how satisfied producers were with the prices they received, whether they planned to sell again at the auction in 1996, and whether they used last year's auction prices to help them determine what to grow this year.

Methodology

A list of vegetable consignors and buyers was obtained from the owner of the wholesale produce auction house. Original mail questionnaires were reviewed and modified by a panel of The Ohio State University researchers. The instruments were field tested by a sample of fruit and vegetable producers and retailers from another Ohio community which also has a wholesale fruit and vegetable auction.

Data was collected following a modified Dillman procedure for mail questionnaire administration, in order to receive an acceptable response rate (Dillman 1978). Three mailings were done over a two month period.

The entire population of 276 consignors was surveyed with 98 questionnaires returned (36% return rate, 80 usable surveys). The total population of 1,143 auction buyers was also surveyed with 490 questionnaires returned (43% return rate). Of the buyers surveyed, 398 purchased only for their personal consumption. Since the focus of this study was horticultural businesses, only the

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surveys from the 73 wholesale buyers were included in the data analysis. Many of the survey respondents were Amish, accounting for 38% of the consignors and 22% of the buyers.

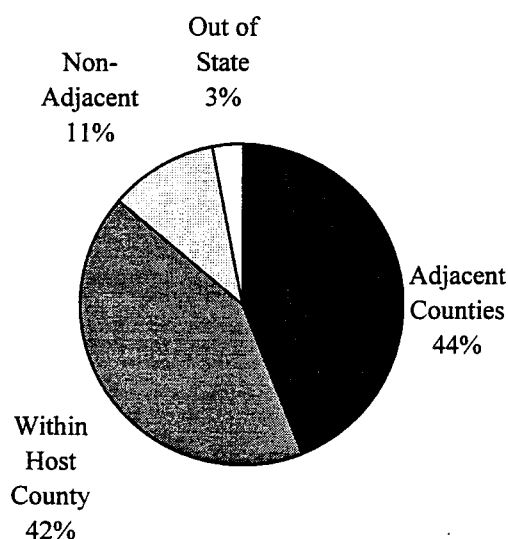
In order to account for non-respondent bias, an assumption was made that late respondents are most like non-respondents (Miller, Smith 1983). The responses to the first mailing (early respondents) were compared to the responses of the second and third mailings (late respondents). An F test was used with criteria of $p < .10$ for all of the variables examined in the study. Not a single statistical difference was found at this level, allowing the conclusion, with 90% confidence, that early and late responses were not different. Therefore the data was extrapolated to the entire surveyed population.

Results and Discussion

Impact on Food Marketing & Distribution

Most of the participants in the auction were from the immediate community. Forty-two percent of the auction participants were from the county where the auction is located, 44% were from adjacent counties, 11% from non-adjacent counties in Ohio and 3% were from other states (Figure 1).

Figure 1. Location of Auction Participants



Since 1992, 39 (50%) of the agricultural business expanded production of horticultural

crops. Twenty-nine of these businesses expanded their vegetable crops, nine expanded in fruit, six in bedding plants with other expansion in cut flowers, herbs and landscape plants. Thirty-four (43%) of the auction consignors started producing new horticultural crops since the auction was established. Twenty-eight started growing vegetables, 7 bedding plants, 3 fruit, 3 herbs, 1 landscape plants and 1 cut flowers.

The auction was found to be an efficient and accepted part of the local food marketing system. Most consignors (61%) said the auction was a very important product outlet and 57% indicated it was the easiest way to sell. Most buyers (64%) said the auction was the easiest way to buy product. A total of 38% of consignors stated that they started growing more produce because of the auction. Respondents were also asked whether they could sell the same amount of produce without the auction. The results from this question were compared to the results on whether the respondent started growing more because of the auction (Table 1).

Table 1. Grower Dependence on Auction

		Could sell same amount without auction.	
		No	Yes
Started growing more because of auction.	No	5	35
	Yes	10	15

Chi-square

Pearson = 6.555*** $P < .01$

The Chi-square value, with $p < .01$, revealed a high degree of statistical significance. Those who started growing more produce because of the auction were substantially more likely than others to say that they could not sell the same amount if the auction were not in business. This indicates that not only has the auction stimulated production, but that there is now some perceived dependence on the auction by participants.

A total of 68% of the consignors and 96% of the buyers felt that the product moved at a fair price through the auction. Eighty percent of consignors stated that they would sell again at the auction in 1996. In order for a marketing system to be efficient, it must provide "signals" for the

producers as to what to grow. Typically in a market economy, price is considered to be the most important signal. The crucial question is; how do producers form their expectations as to what the prices of various crops will be by the time they harvest? Two competing theories currently address this issue: adaptive expectations, and rational expectations (Irwin and Thraen, 1994). Under the former, producers use previous years' prices to compute the expected values. Under rational expectations, they use much more complicated formulas, which may or may not incorporate past prices. This study did not attempt to resolve this debate, but it did ask the simple question; were last year's prices considered in the following year's planting decisions? Of those who expected to sell again next year, 75% said that the prices they observed at the auction would help them decide what to plant the following year. This finding is somewhat supportive of the adaptive expectations model, and demonstrates that producers in the area are taking the price "signal" at the auction very seriously. Additional research could attempt to determine exactly how these producers form their price expectations and make their planting decisions.

Economic and Social Affects on Families

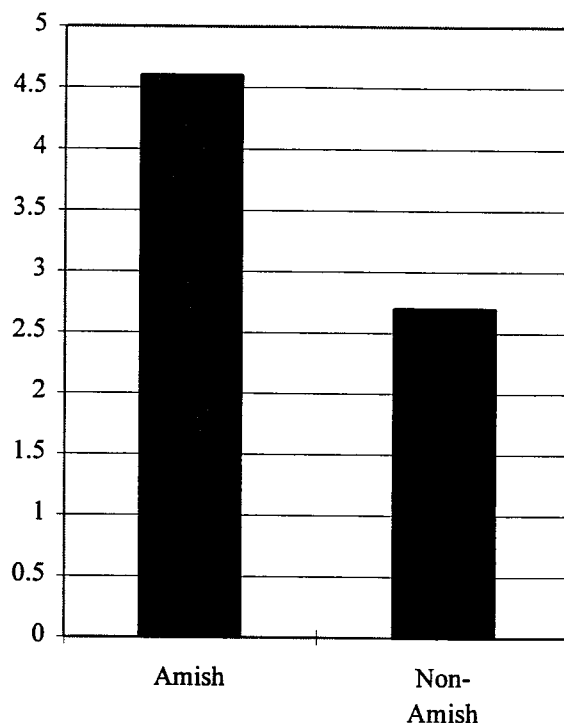
Eighty percent of the Amish auction participants and 66% of the non-Amish participants felt that growing produce helped their families maintain their way of life. No significant difference was found in how Amish and non-Amish responded to this question (F, with $p < .1$ as the criterion).

Thirty-five (29%) of the auction participants hired 189 individuals who were not family members to work in their businesses. The range of employees was 1 to 50 with a mean of 5.4 and median of 3 non-family workers.

There was more than one family member working in 75% of the businesses. All businesses had a mean of 3.29 family members working in the business. The F value, with $p < .01$, revealed a high degree of statistical significance in the number of family members working in the family business, with a mean of 4.6 Amish and 2.7 non-Amish. (Figure 2). This was true as well with respect to the ability of family members to remain on the farm. Sixty-one percent of the Amish auc-

tion participants and 43% of the non-Amish indicated that growing horticultural crops allowed more of their family to remain on the farm.

Figure 2. Number of Family Workers in the Horticultural Business



Note: Overall Mean = 3.29

Thirty-nine percent of the Amish and 34% of the non-Amish said that horticultural crop sales are a major source of income for their families. This difference was not statistically significant, indicating that substantial portions of both groups rely on horticultural crops as an important source of family income.

Conclusions

The results of this study demonstrated that in northeast Ohio the establishment of the wholesale fruit and vegetable auction had several important economic and social effects. The auction stimulated horticultural production with growers adding to production, as well as adding new products to their line. The auction was found to improve the efficiency of the marketing system, ultimately assisting involved individuals and families in reaching their economic and social goals.

Wholesale fruit and vegetable auctions appear to have good potential as economic development tools for communities with large Amish populations. Community leaders should consider the establishment of these enterprises when there is a need to assist horticultural producers with more convenient access to buyers.

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