An Empirical Analysis of a Marketing Order Referendum for a Specialty Crop

Bobby Mixon, Steven C. Turner, and Terence J. Centner

Specialty crop producers' marketing problems, associated with lack of quality standards and advertising revenues, may detract from profitability. Although marketing orders, approved by producer referenda, offer a means to address these problems, institutional rules can make ratification difficult. In this study, economic structure was found to be more important than producer characteristics in explaining voter behavior in a Georgia Vidalia onions marketing order referendum.

Key words: marketing order, referendum, specialty crop, voting behavior.

Marketing orders for fruits and vegetables have existed since the 1930s with approximately 15% of vegetables and more than half of the fruits and tree nuts produced in 1981 marketed under orders (U.S. Department of Agriculture). A marketing order usually is established to address a marketing, production, or promotion problem faced by producers and handlers in a particular industry for a given geographical area. Some potential benefits are to (a) expand demand, (b) coordinate marketing activities through matching supply with demand, (c) lengthen the marketing season to prevent an oversupply and resulting depressed prices, (d) enhance research and promotion activities, and (e) provide quality, grade, and labeling standards (Heifner et al.).

Little research has examined producer behavior toward the enactment of a marketing order. Halligan empirically examined voting behavior of hops producers in a 1965 federal marketing referendum and found that opposition to the marketing order increased with grower size. The institution of a marketing order constitutes a voluntary change by producers who are influenced by various economic and individual factors. The objective of this article is to analyze factors hypothesized to affect the voting behavior of specialty crop producers toward approval of a marketing order.

Most research concerning marketing orders has analyzed the effectiveness of orders in achieving a stated objective such as orderly marketing or price enhancement. This is often done by contrasting a product covered by an order with marketing absent an order (Shafer; Price). Empirical analysis of a marketing order vote by producers and handlers is uncommon, although several studies have confirmed the benefits of marketing orders. Hoos (1957) and Jamison concluded that orders can be effective in countering cyclically depressed demand and in cutting price troughs relative to price peaks. Hoos (1962) and Jesse estimated a positive relationship between minimum quality standards and demand for some commodities marketed under orders because of increased consumer satisfaction for a quality product. A study by Pritchard of a marketing order for raisins concluded that the order stabilized prices relative to preorder periods.

More recently, Berck and Perloff presented a dynamic model of how owners of profit-maximizing farms would vote to allocate a product between different markets. They assumed the government instituted a marketing order. Cave and Salant also investigated agricultural marketing boards in order to understand the be-

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Behavior of administrative committees authorized to restrict volume (cartels). In an unrelated study, Lee and Tkachyk analyzed congressional voting on farm legislation to identify influential factors. Except for Halligan, there have been no studies analyzing factors that influence producer voting behavior on a marketing order referendum.

Vidalia onions, a specialty crop in Georgia, provided the opportunity to look at an industry that could possibly benefit by adopting a marketing order. Southeast Georgia is known for a mild, sweet-tasting, high-quality onion called the Vidalia for which consumers are willing to pay a price premium (Centner, Turner, and Bryan). These onions are marketed only in May and June, since storage to lengthen the marketing season has not been feasible.

Vidalia growers faced two primary problems. First, produced outside of the Vidalia production area (several Georgia counties) were marketed as Vidalas and were infringing on the Vidalia name. This fraudulent competition added to the second problem, legitimate competition from sweet onions produced in other states. The combined result was a decrease in the Vidalia price premium at the farm level (Centner, Turner, and Bryan).

The Vidalia onion industry may be adversely affected by onions marketed as Vidalas that are grown outside of the production area and not of comparable quality and taste to Vidalia onions. The mislabeling of onions was documented in 1985 when the State Commissioner of Agriculture was successful in litigation against a wholesaler who rebagged onions purchased out of state and sold them as Vidalas (Irvin v. Scott Farms, Inc.). As a response to this marketing practice, Georgia adopted in 1986 the Vidalia Onion Act which established regulations, definitions, and a primary production area. These operate to preclude misuse of the name “Vidalia Onions” in the State of Georgia, give authority for the Commissioner of Agriculture to prescribe Rules of the Georgia Department of Agriculture for Vidalia onions, and provide provisions for the enforcement of its regulations (Official Code of Georgia Annotated). Although the law provides for enforcement in Georgia, it does not preclude persons residing outside of Georgia from selling onions as Vidalas that are not from the Vidalia production area.

In a move to increase cooperation among growers and address some of the above concerns in the industry, a state marketing order was proposed in 1987. The scope of the state marketing order for Vidalia onions covered research, promotion, education, and unfair trade practices. It was to be financed by a producer assessment and levy of not more than 7¢ per 50-pounds equivalent of all Vidalia onions sold. For a state marketing order involving standards to be enacted, 51% of growers representing at least 51% of production volume must vote in favor of the order (Official Code of Georgia Annotated). In 1987 a referendum for a Vidalia onion marketing order was not approved. Data from the state referendum were used to identify factors hypothesized to influence producer voting behavior.

Data Source and Description

Data were obtained from two sources within the Georgia Department of Agriculture. One was the registration form of each packer and grower of Vidalia onions. The other was the grower’s ballot from the 1987 referendum. Data were collected on each grower’s voting behavior, acreage devoted to Vidalia onion production, county of operation, and type of operation. Type included two categories, one denoted growers who did not perform any packing function while the other denoted growers involved in packing activities.

Table 1 shows the degree of grower participation in the marketing order election. Although 261 Vidalia onion participants were registered, 18 were packers only and could not vote under Georgia law. Of the 243 potential voters, only 47% (115) voted in the marketing order referendum. Voting was by mail with ballots received for 30 days. Thus, the explicit cost of voting was low. Sixty-four percent (74) voted for adoption of the order, and 36% (41) voted against the order. If the 115 voting growers had all voted in favor of the order, it still would not have been adopted since enactment required that 51% (122) of the total number of producers vote affirmatively.

Another notable feature about the voting behavior of growers in the referendum was the fact that the percentage of voting growers was lower in the two counties accounting for the major production of this product. Toombs and Tatnall Counties accounted for 63% (153) of the registered growers. About 56% of growers in these two counties did not vote, but of those...
### Table 1. Vidalia Onion Growers' Participation in State Marketing Order

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Registered Growers</th>
<th>Growers Who Voted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voted in referendum</td>
<td>115</td>
<td>47.3</td>
<td>-</td>
</tr>
<tr>
<td>Did not vote</td>
<td>128</td>
<td>52.7</td>
<td>-</td>
</tr>
<tr>
<td><strong>N</strong>=243</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voted for order</td>
<td>74</td>
<td>30.5</td>
<td>64.3</td>
</tr>
<tr>
<td>Voted against order</td>
<td>41</td>
<td>16.8</td>
<td>35.7</td>
</tr>
<tr>
<td><strong>N</strong>=115</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

who voted, 58% supported adoption of the order.

### The Models and Hypotheses

The voting decision was hypothesized to be influenced by the characteristics of the individual \((S_i)\) and the external economic situation addressed by the alternatives \((X_i)\). For purposes of this analysis, the vector \(S_i\) was represented by two variables: (a) the number of acres devoted to onion production, and (b) whether the producer was involved in packing activities. The vector \(X_i\) was represented by two economic structure variables. The first had to do with supply and was the total number of producers in the producer's county. The second economic structure variable related to the competitiveness of demand and was the number of packers in the producer's county. Registration and referendum data from 227 growers were used for this analysis.

Two models were developed to try to help explain the voting patterns in the referendum. The models were associated with the two decisions that confronted Vidalia onion producers who were eligible to participate in the marketing order referendum. The first decision was whether to vote, while the second decision involved a positive or negative response. If these two decisions were independent, then single-equation probit methods could be used to analyze each decision.

The general probit form for the \(i\)th producer was

\[ I_i = f(TYPE, ACS, TOTGROW, PACK), \]

where \(I\) was the hypothetical index associated with the probit specification (Judge et al.). The first model attempted to explain the vote-not vote decision, while the second model attempted to explain the vote for or against the order. In both, the independent (explanatory) variables were categorized by individual characteristics or economic structure. These variables were hypothesized to influence the maximizing behavior of individual voters which was reflected in their voting behavior. Two individual characteristic variables were type of producer \((TYPE)\) and acres \((ACS)\) of registered onion production. \(TYPE\) was measured as zero if the producer was a grower only and one if he/she was a grower and a packer. The two economic structure variables were \(PACK\) and \(TOTGROW\). \(PACK\) was defined as the number of packers in the producer's county and could be viewed as a proxy for the competitiveness of local demand. \(TOTGROW\) was the number of registered growers in a county and proxied the competitiveness of local supply.

The dependent variables were \(VOTE_1\) and \(VOTE_2\). \(VOTE_1\) was a zero if the producer did not vote and one if he/she did. Likewise, \(VOTE_2\) was assigned a zero if the voting producer voted "no" and a one for a "yes" vote. \(TYPE\) was hypothesized to have a negative impact on \(VOTE_1\) and \(VOTE_2\). The rationale behind this hypothesis was that it appeared that growers had a vested interest in voting and, in fact, voting for a marketing order, according to the price analysis of Centner, Turner, and Bryan. On the other hand, those involved in packing activities had less incentive to vote or vote in the affirmative. The expected impact of \(ACS\) on \(VOTE_1\) and \(VOTE_2\) was uncertain. Halligan found size of operation to be associated with opposition to marketing orders, which would imply a negative sign for the specification of this study. On the other hand, as acreage devoted to Vidalia onions increased, one could expect it to be in the producer's interest to vote and to vote for passage of the marketing order.

For the economic structure variable, \(PACK\), one would expect that the smaller the number of packers in the producer's county, the more likely growers would vote. A large number of packers implied competition, and one would expect a producer to be less inclined to vote for the marketing order when competition for onions was keen. \(TOTGROW\) was hypothesized to have a negative influence on voting due to the attitude that one vote would have less effect in a county with a large number of
Table 2. Coefficient Estimates for Probit Models of Voting Decision

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 (VOTE1)</th>
<th>Model 2 (VOTE2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.311426</td>
<td>.506032</td>
</tr>
<tr>
<td>ACS (Grower's acreage registered to Vidalia onion production)</td>
<td>(.1702)</td>
<td>(1.95)</td>
</tr>
<tr>
<td>TYPE (Type of grower: 0—grower, 1—grower/packer)</td>
<td>-.0001597824</td>
<td>-.000328937</td>
</tr>
<tr>
<td>TOTGROW (Number of growers in county)</td>
<td>-.052811</td>
<td>.206926</td>
</tr>
<tr>
<td>PACK (Number of packers in county)</td>
<td>.0087172</td>
<td>-.0399901</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>7.1713</td>
<td>10.492**</td>
</tr>
</tbody>
</table>

* Significant at .1 level; ** Significant at .05 level.

(a) Grower decision to vote: O-did not vote; 1—voted.
(b) Grower vote on state marketing order: O-voted against order; 1—voted for order.
(c) The null hypothesis is that all parameter estimates except the constant equal zero and the degrees of freedom refer to this test.

growers. On the other hand, the more growers in a county, the greater the apparent benefit of a marketing order, especially if promotion (expanded demand) was an ingredient of the order. Thus, the hypothesized positive relationship between TOTGROW and voting “yes.”

Hypothesizing appropriate signs for the explanatory variables in these voting models was difficult. Marketing order voting behavior is influenced by many different factors including perceptions, psychology, and industry leadership as well as other socioeconomic factors. Furthermore, these types of decisions have not been studied much in the past. By contrast, directional hypotheses for pricing models, for example, are much easier to develop because past analyses show much more predictable patterns. The results of the probit models are shown in table 2.

Results

In general, only the market structure variables (PACK and TOTGROW) appeared to be significant in either of the models. A surprising result was the seemingly irrelevant influence of the number of acres in onion production on voting behavior. This was in contrast to Hal- ligan’s findings. Although TYPE exerted some influence on voter behavior, it was far from significant in either model.

It appears the only explanatory factor tested that had explanatory power in explaining whether a grower would vote (model 1) was TOTGROW. Furthermore, the negative sign of the parameter estimate coincided with the hypothesis that the more growers in a county, the less likely an individual grower would vote. Holding all other variables constant at their sample means, an increase of one grower in a county (TOTGROW increased one unit) would have the effect of decreasing the probability of an individual producer in that county voting in the referendum by .4 of 1%. This result was consistent with the perception of the paradox of not voting (since the chance of one’s vote making a difference is about zero, why trouble to vote?) (Schwartz). But the small number of Vidalia onion growers eligible to vote was a countervailing factor to the paradox of not voting. One individual vote comprised almost one-half of a percent of the total population of eligible voters. Furthermore, model 1 was not significant at a .10 level, which implied that the decision to participate in the state referendum was random (or at least not explained by the included variables).

This would lead to model 2 which modeled the decision to vote for or against the referendum and was significant at a .05 level. In model 2, the influence of TOTGROW and PACK was as hypothesized, and both were significant at the .05 level. A one-unit increase in
Table 3. Predictive Ability of Voting Behavior Models versus Actual Behavior

<table>
<thead>
<tr>
<th>Item</th>
<th>Actual</th>
<th>Model 1 (VOTE1)</th>
<th>Model 2 (VOTE2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>52</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>63</td>
<td>22</td>
</tr>
<tr>
<td>Total (actual)</td>
<td>115</td>
<td>112</td>
<td>227</td>
</tr>
<tr>
<td>Number of Correct Predicted</td>
<td>132</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Percent of Correct Predicted</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pseudo $R^2$ (Maddala)</td>
<td>.04</td>
<td></td>
<td>.12</td>
</tr>
</tbody>
</table>

* Grower decision to vote: 0 — did not vote; 1 — voted.
* Grower vote on state marketing order: 0 — voted against order; 1 — voted for order.
* 243 onion growers and grower/packers were eligible to vote in the referendum. Data for this analysis were available from 227 growers and grower/packers.

TOTGROW, with all other variables held constant at their means, would have the effect of increasing the probability of a producer voting for the marketing order by .7 of 1%. On the other hand, a one-unit increase in PACK, at other variables' sample means, would have the effect of decreasing the probability of a producer voting by 1%. The insignificance of model 1 (.10 level) and significance of model 2 (.05 level) lend empirical credibility to using two separate probit models to explain voter behavior in this state marketing order referendum.

Table 3 shows the predictive abilities of the models. Model 1, which measured the grower's decision to participate in the marketing order election, predicted 84 growers would not vote and 143 would vote. The criterion for a correct prediction was that the individual prediction had to be correct. For example, in model 1 only 52 of the 115 nonvoters and 80 of the 112 voters were correctly predicted. Thus, the voting behavior of 132 out of 227 (58%) individuals was correctly predicted using model 1. Model 1 had a pseudo $R^2$ (Maddala) of .04. Model 2 correctly predicted 58 out of 72 votes for adoption of the order and 18 out of 40 votes against adoption. Thus, model 2 had a correct prediction rate of 68% and a pseudo $R^2$ (Maddala) of .12.

Perhaps the most striking result of this analysis was the indicated irrelevance of individual characteristics on the decision to vote and how to vote. In both models, only economic structure variables were significant in their relationships to the voting decision. It appeared that for individual voters, the surrounding social and economic situations were the determining influences. It was in the context of these networks, both social and economic, where the voting decisions were made. It should be mentioned that the data base in this analysis was limited in that many socioeconomic variables, such as age, education levels, organization of business, annual producer marketings, etc., were unavailable. This was due, in large part, to the lack of data for specialty crops in general and producers in particular.

Implications

Results of the empirical analysis of the growers' voting behavior showed that the number of acres in sweet onion production for an individual grower did not have a significant influence on whether a grower voted or how he/she voted. Furthermore, the distinction between growers and grower-packers was not a significant explanatory factor on voter behavior. Rather, factors external to the individual grower and related to economic structure appeared to exert a stronger influence on voting behavior. These variables were the total number of growers and the number of packers in a county. A grower was less likely to vote if there were a large number of growers in his/her county, but if the grower did vote, he/she was more likely to vote for the marketing order. As packers in a county increased, the likelihood of a grower voting for the state order decreased.

Several conclusions can be drawn from these results. First, apathy seemed to be a major factor in this state marketing order election.
Only 17% of the total growers voiced opposition, but their position won. One could argue that the structure of the voting rules made the growers aware that not voting was equivalent to a "no" vote. This is almost paradoxical since apparent voter apathy could in fact have been strategic voting behavior. Second, individual characteristics appeared to have little explanatory power on the voting for this marketing order, at least as shown by the models. On the other hand, economic structure variables appeared to have a stronger influence on voter behavior. The competitiveness of local demand, as measured by number of local packers, appeared to have a negative influence on support for a state marketing order. Large local supply, as measured by the number of local growers, appeared to have a positive influence on support for a marketing order.

A specific implication of this analysis is that much greater grower participation would be necessary for the implementation of a state marketing order for Vidalia onions. Assuming the 64% positive majority vote, a voting rate of 80% of all growers would be needed to generate the required 122 affirmative votes. This would be a major change from the actual 47% voting rate.

As an alternative, a federal marketing order may be easier to approve via a referendum of Vidalia onion producers. Although approval of a federal order requires affirmation by two-thirds of the growers or growers producing two-thirds of the volume of Vidalia onions, this supermajority is calculated from the growers voting in the referendum (U.S. Code). Thus, through the organization and mobilization of growers favorably disposed to a marketing order, growers may achieve a supermajority vote as nonvoters do not impact the vote. This occurred in March 1989 when Vidalia onion growers were successful in approving a referendum for an interim federal marketing order where 144 out of 146 producers voted in favor of the interim order.

Specialty crop growers should be able to articulate the goals behind the impetus for implementing a marketing order. From these goals, an initial decision whether to pursue the state or federal marketing order can be made. This is a crucial decision since ratification rules and jurisdiction are different between the two. The Vidalia onion referendum examined here is a good example. An argument could be built for pursuing the state marketing order due to the lower referendum requirements for passage (51% affirmative vote for a state order versus two-thirds affirmative for a federal order). However, since nonvoters are not counted as passive negative votes in a federal referendum, it might be easier for producers to adopt a federal marketing order. In addition, a federal marketing order has greater jurisdiction which could stimulate grower interest resulting in increased voter participation and affirmative action.

This study is relevant to growers of specialty crops for several reasons. The proponents of a marketing order should be aware of the rules of ratification. Some state marketing order ratification rules make maximum voter participation necessary. Even moderate levels of voter apathy make ratification difficult. It is clear that to enact a marketing order sufficient producer interest must be generated. Results of the Vidalia onion analysis indicate four areas of concentration for proponents of marketing orders.

First, the probit analysis revealed that producers in counties with a large number of growers were more likely to vote for the marketing order but they were also less likely to vote. It is not known if that pattern would be repeated in other industries. Nevertheless, proponents could develop strategies to increase voter participation in areas with large numbers of growers.

Second, the analysis suggested that economic factors relating to supply and demand were more influential than characteristics of the voter. Again, a caveat is in order when trying to generalize this result to other industries. But this result is logical since a marketing order is an economic alternative that attempts to affect both consumer and producer surplus in the short run (Berck and Perloff). Strategies that educate and inform voters regarding the economic consequences of a marketing order would appear to be most effective.

Third, strategies that concentrate on increasing voter participation in general would appear to increase the probability of enacting a marketing order. In the Vidalia onion referendum, lack of grower participation made passage of the state marketing order impossible. Without incentives for voting or penalties for not voting, it would appear that passage of a Vidalia onion state marketing order would be difficult. Of course, economic education about the benefits and costs of a marketing order would pre-
sumably increase grower participation in most marketing order referendums.

Fourth, a strategy for producers may be to seek a federal marketing order. Although a federal order requires a supermajority affirmative vote and requisite findings by the U.S. Secretary of Agriculture, only those voting are considered in calculating the affirmative vote. Thus, as shown by the votes on state and federal marketing orders for Vidalia onions in Georgia, a concentrated effort by producers in favor of a federal order may lead to a supermajority positive vote facilitating the implementation of an order. Of course, subsequent required referenda could lead to the demise of an order.

Grower referenda on marketing orders offer unique opportunities to explore the impact of various factors on voting behavior. The results presented here, indicating that growers’ voting behavior was influenced by their wallets, should come as no surprise. Referenda studies from other regions and crops could add broader knowledge and perhaps validity to the results of this study.

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References


