Implications of Heterogeneous Producer Incentives for Marketing Order Continuation

Zoë T. Plakias* and Rachael E. Goodhue
Department of Agricultural and Resource Economics
University of California, Davis

*Corresponding Author: plakias@primal.ucdavis.edu


Copyright 2013 by Zoë T. Plakias and Rachael E. Goodhue. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
Implications of Heterogeneous Producer Incentives for Marketing Order Continuation

Zoë T. Plakias¹ and Rachael E. Goodhue²

¹Ph.D. Student, Department of Agricultural and Resource Economics, University of California, Davis
²Professor, Department of Agricultural and Resource Economics, University of California, Davis

Introduction
Much of the literature on marketing orders assumes perfect competition and examines aggregate costs and benefits to producers. However, recent litigation and termination of long-lived marketing orders suggests that the use of these assumptions has led to the neglect of important distributional consequences of marketing order policies. Although mechanisms are built into marketing order laws to help prevent any one group from forming a marketing order that does not benefit all producers, it is not clear that these mechanisms are sufficient in all situations. Accordingly, the research questions for this paper are:
1. What are the incentives producers face in the presence of producer heterogeneity and/or market power?
2. How do these incentives affect voting outcomes?

Market Structure 1: Heterogeneous Price-Takers
- All producers are price takers
- Variable cost declines for both producer types but the magnitudes differ
- The marketing order increases profits for only the low cost firms
- Scenario Price-Taking 1: In the numerical results
  Result: The marketing order will not be formed/continued because there are more high cost producers than low cost producers at the initial equilibrium.

Market Structure 2: Dominant Firm/Competitive Fringe
- One dominant (low cost) firm and N competitive fringe (high cost) firms
- Variable costs decline for fringe firms only
- The marketing order increases profits for only the fringe firms
- Scenario Dominant 1 in the numerical results
  Result: The marketing order will not be formed, because the fringe firms produce less than 50% of output. If already in place, the marketing order will be continued, because the fringe firms produce more than 50% of output if $N_f > \frac{3}{4}.$

Evidence and Hypotheses from California Agriculture

Strawberries
- Less than 13% of strawberry growers produce 75% of total acreage.¹ One firm dominates the berry market, with a large presence in strawberries and raspberries. Proprietary varieties account for nearly 50% of California acreage.² Yet all appears to be well at the California Strawberry Commission. Perhaps this is a case where everyone benefits?

Olive Oil
- Olive oil producers have proposed a Federal marketing order. The process is being spearheaded by a company that produces a large portion of California and U.S. olive oil. As opposed to the stone fruits, olive oil is a growing industry in California. Is a marketing order the appropriate institution to use in an already heterogeneous industry?

Intuition for Numerical Results
Price-taking 1: Low cost firms benefit more, and their cost advantage hurts high cost firms.
Price-taking 2: High cost firms benefit more, and the decrease in cost advantage hurts low cost firms. Marketing order will not be formed, but low cost firms may be trapped if marketing order already exists because high cost producers are more numerous and produce more than 50% of output.
Price-taking 3: With high supply intercrop and slope of supply and equal benefits, both firms want the marketing order.
Dominant 1: High cost firms benefit more, and decrease in cost advantage hurts dominant firm. Like the second scenario, the dominant firm may be stuck if the marketing order is already in place.
Dominant 2: With high supply intercrop and slope of supply and equal benefits, both firms benefit from the marketing order despite differences.
Dominant 3: Looks very similar to Dominant 2, but if benefit to low cost producer increases slightly more than the range reported here profits for high cost firm become negative and dominant firm gains market share.

Conclusions
- The voting rule does its job in many instances. Marketing orders can be beneficial for all producers, but existence of a marketing order is not sufficient evidence to demonstrate this is the case.
- In some cases, low cost firms may be trapped by the voting rule. A marketing order that would not be formed today might be difficult to terminate today.
- Policy implications: It is important to take market structure into account when evaluating marketing orders. If a marketing order is characterized by some producers benefiting at the expense of others, the voting rule will not always prevent its approval.

Next Steps
- Explore other entry assumptions and market structures
- Model as a unit tax rather than an ad valorem tax
- Think about dynamics, expectations, producer behavior

Selected Numerical Results

<table>
<thead>
<tr>
<th>Scenario</th>
<th>m</th>
<th>αf</th>
<th>αh</th>
<th>Df</th>
<th>Dh</th>
<th>F</th>
<th>Nf</th>
<th>Nh</th>
<th>δf</th>
<th>δh</th>
<th>α</th>
<th>Votef</th>
<th>Voted</th>
<th>Form?</th>
<th>Continue?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price-taking 1</td>
<td>1070</td>
<td>1</td>
<td>0.75</td>
<td>30</td>
<td>20</td>
<td>100</td>
<td>48</td>
<td>27</td>
<td>0.1</td>
<td>0.04</td>
<td>0.05</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Dominant 1</td>
<td>1070</td>
<td>2.25</td>
<td>0.05</td>
<td>30</td>
<td>20</td>
<td>100</td>
<td>73</td>
<td>1</td>
<td>0</td>
<td>0.25</td>
<td>0.05</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Price-taking 2</td>
<td>1070</td>
<td>1</td>
<td>0.5</td>
<td>30</td>
<td>20</td>
<td>100</td>
<td>51</td>
<td>17</td>
<td>0.04</td>
<td>0.1</td>
<td>0.05</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Dominant 2</td>
<td>1070</td>
<td>9</td>
<td>1</td>
<td>410</td>
<td>409</td>
<td>100</td>
<td>171</td>
<td>1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.01</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Price-taking 3</td>
<td>1070</td>
<td>0.7</td>
<td>410</td>
<td>409</td>
<td>100</td>
<td>146</td>
<td>1</td>
<td>0.2</td>
<td>0.2</td>
<td>0.01</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Corresponding author: Zoë Plakias (plakias@primal.ucdavis.edu)