Marketing Ecosystem Services Using an Individual Price Auction Mechanism: 
Lessons from Bobolink Farming

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Background

• Bobolinks, white-winged blackbirds, are legally protected, not endangered. Labeled as “species of concern.”
• Bobolinks establish ground nests in hay fields from mid-May to early June which coincides with the peak nutritional value of hay.
• Harvesting of hay causes almost complete loss of Bobolink eggs and young from destroyed nests and exposure to predation.
• There has been a 75% decline in Bobolink population in the past 40 years in the northeast.

Objective

i. Creating markets for (localized) public goods by
- Generating revenues from consumer demand.
- Leveraging knowledge from experimental Economics.
- Leading donors to contribute more of their personal value.

ii. Analyzing the roles that alternative elements in the solicitation for contributions might or might not play in the successful generation of revenues.

Critical need: Rules of exchange that reduce free-riding, enable providers to
Benefit.

Proposed Solution

• Connect individuals’ payment to specific goods.
• Create market to balance “supply” (marginal cost) with demand (average revenue).
• Individualized price auction (IPA): IPA solicits bids based on units provided. IPA requires each contributor to make decisions over the entire possible range of units available, to trace out their demand schedule. Pareto optimum level of provision is established if each individual reveals his/her full marginal value. This auction is not incentive compatible.

Creating the Market

Supply side: We made contracts with the local farmers in RI and VT who agreed to postpone their hay harvesting during the nesting season of grassland birds. In VT a uniform-price reverse auction was used to obtain farmer’s bids to enroll 10-acre fields in bird friendly hayfield management and winning bidders were paid the same price. Farmers’ bids were used to develop the marginal cost curve.

Demand side: The residents in nearby communities received payment cards by direct mail marketing which requested support to protect the nesting habitat of these grassland birds. The residents contributed real money to support the farmers. Contributions from residents were used to develop an aggregate marginal revenue curve. Here we focus only on the demand side of the market.

Elements of the payment cards
• Per field price vs total for each quantity
• Suggested donation: High vs low, no suggestion vs some suggestion
• Option for “flat” donation vs no option
• The extent of the “offer schedule”: Continuous field: 1, 2, 3, 4 for RI. Field ranges for VT: 20 fields; 40 fields; and 100 fields
• Division of ranges (e.g.: 100 fields can be subdivided in to 1-20 fields, 21 – 40 fields, 41-100 fields and more than 100 fields)
• Information on provision point (cost of contracting with the farmers)

Results

<table>
<thead>
<tr>
<th>Rhode Island (Jamestown and Aquidneck Island)</th>
<th>Vermont</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donation raised $6,100 from total 99 donors.</td>
<td>$32,000 from total 334 donors.</td>
</tr>
<tr>
<td>Acres protected 40 acre.</td>
<td>40 acre.</td>
</tr>
<tr>
<td>Per field ($10 acres) compensation paid to landowners $3800 per field to one Jamestown farmer, $780 per field for three fields to two landowners.</td>
<td>$960.61 per field for 34 fields to five landowners</td>
</tr>
<tr>
<td>% of donors contributed flat amount (even using offer-schedule solicitation) 45% in Jamestown, 31% in Aquidneck Island.</td>
<td>80% (but only 41% made a flat donation using online pledging system)</td>
</tr>
<tr>
<td>% of donors failed to pay pledge 8.5%</td>
<td>2%</td>
</tr>
<tr>
<td>Range and average donation $10 to $400 in Jamestown, $10 to $500 in Aquidneck Island.</td>
<td>$10 to $300, one outlier $5,000.</td>
</tr>
<tr>
<td>Average $157.50 per donor.</td>
<td>Average $157.50 per donor.</td>
</tr>
</tbody>
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Other important findings:
• Higher donation amount from online donors with same treatment in VT.
• A higher field outcome (outcomes of 100 fields vs 20 and 40 fields) failed to generate significantly higher donation from offer-schedule solicitation in VT.
• Standard solicitation method generated significantly higher donations from 20 and 40 field treatments as compared to a 100 field treatment ($p = 0.0002 and 0.05 respectively) and significantly higher donation from 40 field treatment as compared to a 20 field treatment ($p = 0.0001) in VT.

Challenges Remaining

• Natural inertia from standard (common) donation approach and difficulty of the novel approach.
• Designing mechanisms to capture the full willingness to pay which are simple enough so as not to lose revenue from less participation.