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

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# 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. Labelled 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.

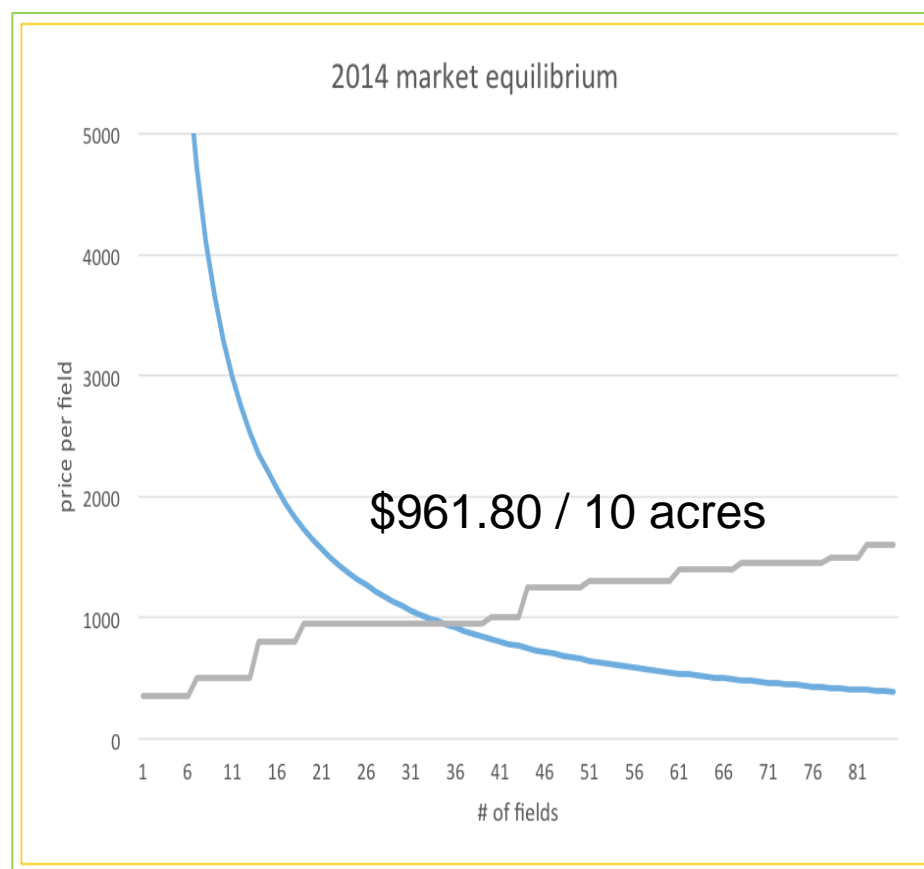
## Proposed Solution

- 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.



VT market equilibrium

## 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)

**YOUR PLEDGE CARD**

Please consider pledging at least \$40 for the first field, and \$25 each for four fields.  
**FOR EXAMPLE: If you can provide 3 fields, I pledge \$30 per field for a potential total of: \$90.**  
**Please fill out all lines in the table below:**

If the Bobolink Project can provide:	I pledge to contribute:	for a potential total of:
1 field	\$_____ per field	x 1 field = \$_____
2 fields	\$_____ per field	x 2 fields = \$_____
3 fields	\$_____ per field	x 3 fields = \$_____
4 fields	\$_____ per field	x 4 fields = \$_____

**OR PLEDGE A SINGLE AMOUNT:** \$\_\_\_\_\_ (This will only be billed if we can provide at least one field).

Offer-schedule and standard solicitation used for RI

**Your Outcome Based Pledge Card:** Please answer questions 1 – 4 below.

**EXAMPLE:** If total public support from you and all others who pledge is sufficient to provide for between 1 and 10 fields, what is the most you will pledge to secure an outcome between 1 and 10 fields?

1. If total public support from you and all others who pledge is sufficient to provide between 1 and 10 fields, what is the most you will pledge to secure an outcome between 1 and 10 fields?

2. What if your support would enable us to do better, by providing between 21 and 40 fields? If we can provide more, between 21 and 40 fields, would you consider increasing your pledge?

3. What if your support would enable us to do better still, by providing between 41 and 100 fields? For an outcome between 41 and 100 fields, what is the most you pledge to contribute?

4. If, with your help, we actually can do better than 100 fields, what is the maximum you will pledge to help achieve such an outcome? (In this case, if we actually raise enough pledges to reach 100 fields, we will bill you only for that share of this pledge that is necessary to support the first number of fields.)

Offer-schedule solicitation used for VT

**Your Pledge Card:**

Please pledge your support below:

Last year the Bobolink Project succeeded in providing 20 fields. We hope to provide 20 fields again this year, or do better by providing 100 fields or more.

**EXAMPLE:** A pledge of \$250 costs you a little over \$30 per field for 8 fields, \$25 per field for 10 fields, and could cost you less per field if others contribute enough. Of course, we hope to provide 100 fields or more this year.

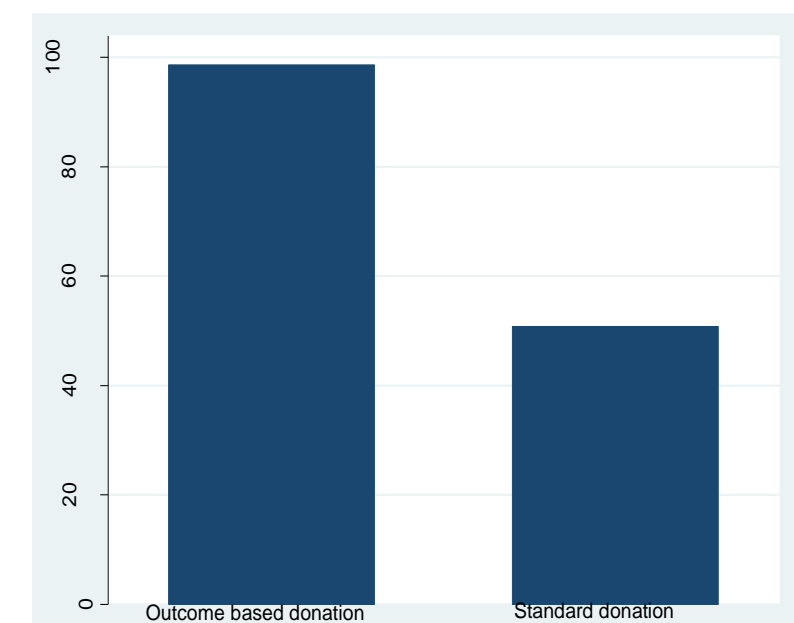
**Pledge:** What is the most you will pledge to help support bird habitat on farmers’ hayfields? I pledge \$\_\_\_\_\_ in total to help the Bobolink Project this year.

(We will only bill you for the portion of your pledge we actually need to support the number of fields we deliver)

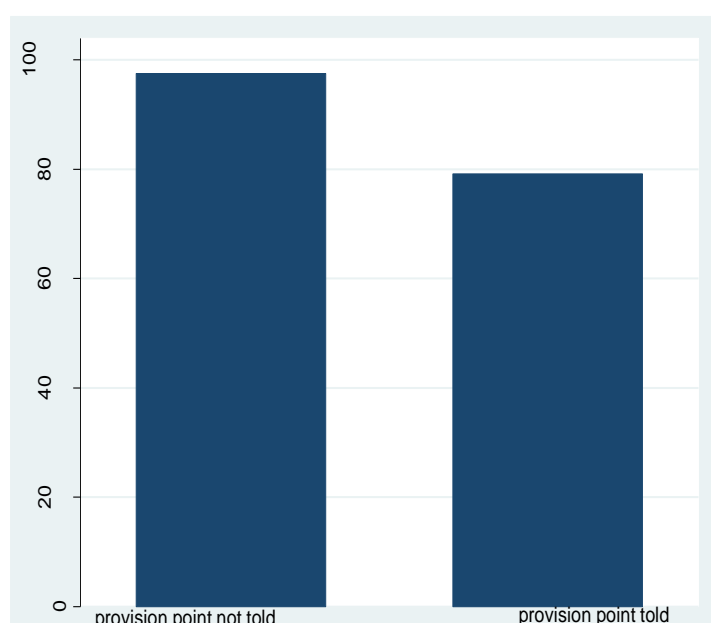
Standard solicitation used for VT

## Results

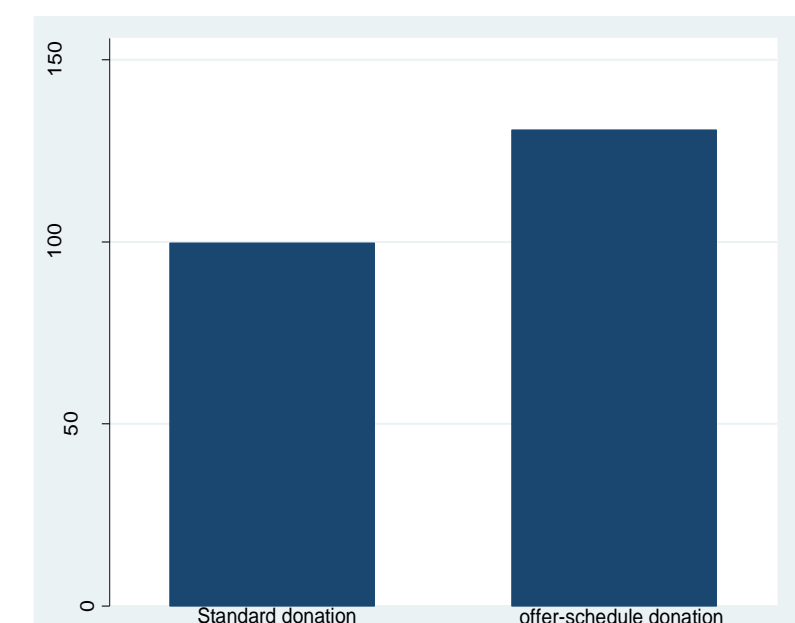
	Rhode Island (Jamestown and Aquidneck Island)	Vermont
<b>Donation raised</b>	\$6,100 from total 99 donors.	\$32,000 from total 234 donors.
<b>Acres protected</b>	40 acres.	340 acre.
<b>Per field (10 acres) compensation paid to landowners</b>	\$3800 per field to one Jamestown farmer, \$780 per field for three fields to two landowners.	\$960.61 per field for 34 fields to five landowners
<b>% of donors contributed flat amount (even using offer-schedule solicitation)</b>	45% in Jamestown, 31% in Aquidneck Island.	80% (but only 41% made a flat donation using online pledging system)
<b>% of donors failed to pay pledge</b>	8.5%	2%
<b>Range and average donation</b>	\$10 to \$400 in Jamestown, \$10 to \$500 in Aquidneck Island.	\$10 to \$300, one outlier \$5,000. Average: \$157.50 per donor.



Offer-schedule solicitation generated 90% higher pledges (P=0.0013) than flat solicitation in RI



Info on provision cost made no significant difference (P=0.82).



Offer –Schedule solicitation generated higher pledges, even if donated flat amount (P = 0.0001) in VT.

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.