Using Assurance Contract to Encourage Private Provision of Ecosystem Services: Evidence from a Pilot Field Experiment

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Introduction

- We generalize the dominant assurance contract (Tabarrok, 1998) to the threshold public good provision.
- This contract offers, to donors who agree to donate a minimum price, an assurance payment as compensation in the event that fundraising fails to achieve the threshold needed to fund the good.
- We conduct a field experiment that uses the assurance contract to solicit private contributions to support bird (Bobolinks) habitat in Rhode Island, USA.

Experiment Background

- The goal is to use community contributions to pay farmers for altering farming practices in order to provide better ecosystem and environmental services such as bird habitat.
- We compensate farmers who are willing to delay their harvest practice, as farmers’ harvest their first cut of hay at a time coincides with the bird nesting season.
- The field experiment was conducted in April and May, 2014. We chose Jamestown and Aquidneck Island, Rhode Island, as the study areas.
- We use both mail and an online website (BobolinkProject.com) to approach local residents and collect contributions.
- We used the stratified random sampling process for the mailing approach and constructed five different treatment groups.

Experiment Treatment

<table>
<thead>
<tr>
<th>Suggested Price (SP)</th>
<th>No Assurance Contract</th>
<th>Assurance Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D1 (AP: $20)</td>
<td>A1 (AP: $40)</td>
</tr>
<tr>
<td></td>
<td>D2 (AP: $40)</td>
<td>A2 (AP: $40)</td>
</tr>
</tbody>
</table>

Treatment D1: Donation (SP=40), residents will be asked whether they are willing to donate at least $40. They can also specify other amounts.

Treatment D2: Donation (SP=60), everything else is the same as in Treatment D1, except residents will be asked whether they are willing to donate at least $60.

Treatment A1: Assurance (SP=40, AP=20); residents will be first asked whether they are willing to donate at least $40 (SP). If they answered yes, they will receive $20 (AP) if we fail to raise enough money to provide the bird habitat. If they answered no, they are not eligible for the assurance payment.

Treatment A2: Assurance (SP=40, AP=40); everything else is the same as in Treatment A1, except residents who are willing to contribute at least $40 will receive $40 assurance payment if the project fails.

Treatment A3: Assurance (SP=60, AP=40); everything else is the same as in Treatment A2, except residents who are willing to contribute at least $60 will receive $40 assurance payment if the project fails.

Results

<table>
<thead>
<tr>
<th></th>
<th>Aggregated Donations</th>
<th>Mean</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$4,377</td>
<td>$65.33</td>
<td>$50.00</td>
<td>$0</td>
<td>$250</td>
<td>67</td>
</tr>
<tr>
<td>By Town</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jamestown</td>
<td>$3,322</td>
<td>$60.40</td>
<td>$50</td>
<td>$0</td>
<td>$160</td>
<td>55</td>
</tr>
<tr>
<td>Aquidneck Island</td>
<td>$1,055</td>
<td>$67.92</td>
<td>$60</td>
<td>$40</td>
<td>$250</td>
<td>12</td>
</tr>
<tr>
<td>By Donation Approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web</td>
<td>$1,500</td>
<td>$62.50</td>
<td>$50</td>
<td>$15</td>
<td>$250</td>
<td>24</td>
</tr>
<tr>
<td>Mail</td>
<td>$2,877</td>
<td>$66.91</td>
<td>$60</td>
<td>$0</td>
<td>$160</td>
<td>43</td>
</tr>
<tr>
<td>By Donation Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donors in 2013</td>
<td>$1,842</td>
<td>$68.22</td>
<td>$50</td>
<td>$30</td>
<td>$160</td>
<td>27</td>
</tr>
<tr>
<td>Others</td>
<td>$2,533</td>
<td>$63.38</td>
<td>$55</td>
<td>$0</td>
<td>$250</td>
<td>40</td>
</tr>
</tbody>
</table>

- In addition to the summary statistics above, our regression results suggest that conditional on donation, there is no significant difference in terms of the donation amount between the mailing approach and the online approach.

- We find that a higher suggested price help increase the donation significantly under the no assurance contract treatments, while a higher suggested price actually leads to a lower donation amount with the assurance contract when an assurance payment $40 is used.

- Overall, we find that the assurance contract does not help increase donation amount among those who decided to donate.

- We find the presence of assurance payment can significantly increase the donation probability using online donation data.