The Economic Impact of the Services Provided by and Electronic Trade Platform: The Case of MarketMaker

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Introduction

- E-commerce may have the potential to double sales revenues and decrease costs through greater efficiencies of operations.
- Most studies evaluating E-commerce websites have focused on assessing user-perceived quality rather than on the economic impacts these sites generate.
- Studies evaluating the effectiveness of specific agricultural E-commerce platforms are very limited and descriptive in nature.

Objectives

The main goals of this study are:

1) To estimate the economic benefits of MM on registered producers.

2) To determine how producers’ characteristics and perceptions affect the economic valuation of the site.

MarketMaker

- MM is one of the most extensive collections of electronic searchable food industry related data engines in the country (Figure 1).

- MM website is used by producers as a free marketing tool that helps identifying new markets and providing potential clientele with detailed information about farmers’ product portfolio, geographic location and contact information.

- To date, the site is operating in 18 states throughout the country with over 17,500 profiles – including 7,698 for producers – and receives about 1 million hits per month.

Data and Methods

- Contingent valuation methods were employed to estimate the economic benefits of MM on registered producers.

- Theoretically, producers’ willingness to pay (WTP) for the services provided by MM represents the increase in profits attributed to the adoption of MM.

- Email and mail surveys were distributed to 1,446 producers registered on MM in 7 participant states: AR, FL, GA, IN, IA, MS, and SC. The overall response rate of the survey was 15.7%.

- Respondents’ characteristics were analyzed using both parametric and nonparametric techniques (Table 1).

- The producer WTP question was asked using a double-bounded elicitation format.

- First, participants were asked if they are willing to pay an annual fee ($\delta_1$) for participating in MM and then a follow up question was asked with another bid, higher ($\delta_2$), or lower ($\delta_3$) depending on the response to the first question.

- Responses were analyzed using a censored regression approach. Six statistical distributions were considered in the modeling of the producer WTP: Normal, Weibull, Log-normal, Exponential, Log-logistic and Gamma distributions.

Results and Discussion

- Based on the AIC results, the Log-logistic (LL) distribution was the preferred distribution for the WTP analysis.

- The mean WTP and marginal effects for the LL distribution are:

  \[ E(WTP|X) = \exp\{X\beta\}(1 + \sigma)/(1 - \sigma) \]

  \[ \Delta E(WTP|X) = \beta_i E(WTP|X) \]

  where $X_i$ is a vector of covariates, $\beta$ a vector of parameters and $\sigma$ is the shape parameter.

- On average, producers are willing to pay $47.02 (i.e. $16.64) annually for the services they receive from MM.

- The WTP value also is a measure of the increase in annual profits attributed to the use of MM and could also be used as a guide if a participation fee is imposed in the future.

- The estimated aggregate annual economic value that registered producers place on the services provided by MM is $361,960. This aggregate estimate only represents a portion of the total benefits generated by MM since other users of the site are not considered in the analysis (e.g., consumers and farmers markets).

- Empirical results indicate that region, registration type, the number of marketing contacts received due to MM, gender of the participant, and firm’s total annual sales have a significant effect on producers WTP for the serviced provided by MM (Table 2).

Table 2. Coefficient and Marginal Effect Estimates Log-logistic model (n=227)

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>Marginal effect</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>2.0966</td>
<td>0.2320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration</td>
<td>0.1054</td>
<td>0.0208</td>
<td></td>
<td>0.1315</td>
</tr>
<tr>
<td>Time registered (Months)</td>
<td>0.0204</td>
<td>0.0014</td>
<td>0.0088</td>
<td>0.0028</td>
</tr>
<tr>
<td>Time spent on MM activities (Min/hrs)</td>
<td>0.0283</td>
<td>0.0091</td>
<td>0.1064</td>
<td>0.3283</td>
</tr>
<tr>
<td>Type of user (Active=1, Passive=0)</td>
<td>0.2113</td>
<td>0.0346</td>
<td>0.3356</td>
<td>0.1652</td>
</tr>
<tr>
<td>Marketing contacts</td>
<td>0.0733</td>
<td>0.0081</td>
<td>0.3581</td>
<td>0.0823</td>
</tr>
<tr>
<td>Total annual sales ($1,000)</td>
<td>0.1389</td>
<td>0.0204</td>
<td>0.4967</td>
<td>0.2043</td>
</tr>
<tr>
<td>Survey type (Mail=1, Email=0)</td>
<td>0.0755</td>
<td>0.0096</td>
<td>0.4365</td>
<td>0.0854</td>
</tr>
<tr>
<td>$\delta_1$</td>
<td>0.0020</td>
<td>0.0028</td>
<td>0.0088</td>
<td>0.0038</td>
</tr>
</tbody>
</table>

Log-likelihood function: -1395

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