The Price of Disclosure in the Thoroughbred Yearling Market

Emily J. Plant
School of Business Administration
University of Montana
Missoula, MT 59812
emily.plant@business.umt.edu

C. Jill Stowe
Department of Agricultural Economics
University of Kentucky
Lexington, KY 40506-0276
jill.stowe@uky.edu


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Emily J. Plant, University of Montana, and C. Jill Stowe, University of Kentucky

MOTIVATION

- When sellers know more about the quality of a good than buyers, asymmetric information exists and can be a barrier to trade (Akerlof 1970, Quarterly Journal of Economics).
- Disclosures, both voluntary and mandatory, represent one possible tool to mitigate the adverse effects of asymmetric information.
- Jovanovic (1982, Bell Journal of Economics) suggests that appropriate incentives exist for sellers to voluntarily disclose all information, yet mandatory disclosure laws are prevalent in many markets.
- In the market for Thoroughbred yearlings, certain conditions are required to be disclosure prior to sale; however, the seller has the ability to disclose any information deemed pertinent.

OBJECTIVES

- To test whether disclosures contain relevant information about the quality of a Thoroughbred yearling; in other words, do market prices adjust to disclosed information?
- To estimate the marginal value of disclosures; how much do sellers gain or lose by disclosing information related to quality?

DATA DESCRIPTION

- 4,795 yearlings that were sold or that did not meet their reserve price (RNA, for reserve not attained) at the 2008 Keeneland September Yearling Sale.
- Data were obtained from the following sources:
  - Keeneland Association, Inc., online database of auction results.
  - 2008 Keeneland Sale Catalogs.
  - The Thoroughbred Times Buyer’s Guide.
  - Keeneland Association, Inc., computer database.

DISCLOSURE VARIABLES

- We can identify the presence or absence of three specific types of disclosures in the veterinary repository:
  - Vet statement: information regarding surgeries, illnesses, medications, or other veterinary-related information deemed pertinent by the seller.
  - Scope: results of an endoscopic evaluation of the yearling’s airways.
  - Eye: details regarding any abnormalities in the yearling’s eye(s).
- The absence of a disclosure statement means that the yearling is free of all conditions that are required to be disclosed.

- The content of the disclosures is unknown (which includes whether information provided is mandatory or voluntary).

VARIABLES

- Variables used in this analysis are:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Expected Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBTOT</td>
<td>Total farm buyer price</td>
<td>+</td>
</tr>
<tr>
<td>VET</td>
<td>Vet statement</td>
<td></td>
</tr>
<tr>
<td>SCOPE</td>
<td>Scope disclosures</td>
<td></td>
</tr>
<tr>
<td>EYE</td>
<td>Eye disclosure</td>
<td></td>
</tr>
</tbody>
</table>

- The marginal value of a scope disclosure is

\[ \text{Marginal Value} = \beta_1 \times \text{Scope Disclosure} \]

- The marginal value of a vet statement disclosure is

\[ \text{Marginal Value} = \beta_2 \times \text{Vet Statement} \]

- We utilize a hedonic pricing model to estimate the determinants of Thoroughbred yearling hammer prices:

\[ \ln(\text{Price}) = \alpha + \beta_1 \times \text{Vet Statement} + \beta_2 \times \text{Scope Disclosure} + \varepsilon \]

- The regressors are the same for the four subsets of data.
- Our study provides evidence that pre-sale quality certification mitigates the need for disclosure.
- Our study provides evidence that pre-sale quality certification mitigates the need for disclosure.
- Results on marginal values inform both sides of the market; the presence of a disclosure reduces price differences among the groups.

RESULTS

- Results from the four hedonic pricing models are below, with results pertaining to the disclosure variables emphasized:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Select/Sold</th>
<th>Select/RNA</th>
<th>Non-Select/Sold</th>
<th>Non-Select/RNA</th>
</tr>
</thead>
<tbody>
<tr>
<td>VET</td>
<td>-0.022</td>
<td>0.080</td>
<td>-0.171***</td>
<td>-0.252</td>
</tr>
<tr>
<td>SCOPE</td>
<td>-0.116</td>
<td>-0.038</td>
<td>0.003</td>
<td>-0.741***</td>
</tr>
<tr>
<td>EYE</td>
<td>0.130</td>
<td>0.228</td>
<td>0.092</td>
<td>0.237</td>
</tr>
<tr>
<td>REPVISIT</td>
<td>0.200***</td>
<td>0.121***</td>
<td>0.134***</td>
<td>0.085***</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.011</td>
<td>-0.002***</td>
<td>-0.003***</td>
<td>-0.005***</td>
</tr>
<tr>
<td>COZ</td>
<td>0.099**</td>
<td>-0.081</td>
<td>0.074**</td>
<td>-0.097**</td>
</tr>
<tr>
<td>RY</td>
<td>0.333***</td>
<td>0.016</td>
<td>0.041</td>
<td>0.135</td>
</tr>
<tr>
<td>DERRY</td>
<td>0.188**</td>
<td>0.099</td>
<td>-0.111**</td>
<td>-0.253</td>
</tr>
<tr>
<td>FIRSTCROP</td>
<td>0.006</td>
<td>0.260</td>
<td>-0.022</td>
<td>-0.130</td>
</tr>
<tr>
<td>SECONDCROP</td>
<td>0.073</td>
<td>-0.173</td>
<td>0.003</td>
<td>0.347**</td>
</tr>
<tr>
<td>LN2008FEED</td>
<td>0.299***</td>
<td>0.245***</td>
<td>0.093***</td>
<td>0.350***</td>
</tr>
<tr>
<td>PROGEO</td>
<td>0.003</td>
<td>0.000</td>
<td>0.002</td>
<td>0.003</td>
</tr>
<tr>
<td>DAMSILAGE</td>
<td>0.085**</td>
<td>0.086</td>
<td>0.050**</td>
<td>0.364***</td>
</tr>
<tr>
<td>DAMSBTPEGY</td>
<td>0.055**</td>
<td>0.062</td>
<td>0.128***</td>
<td>0.178**</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.4701</td>
<td>0.4822</td>
<td>0.5798</td>
<td>0.2654</td>
</tr>
</tbody>
</table>

**", "*", "**" indicates significance at the 1%, 5%, 10% level. Coefficient estimates on Book variables are suppressed.

DISCUSSION

- None of the disclosure variables are statistically significant in the select portion of the sale.
- Quality certification that accompanies being placed in Book 1 or Book 2 provides all relevant quality information.
- In the non-select books, only vet statement disclosures influence price for sold yearlings; the presence of a vet statement disclosure results in an average 17.1% decline in price.
- The marginal value of a vet statement disclosure is -$7,571.68 when evaluated at the mean.
- In the non-select books, only scope disclosures influence price in RNA yearlings; the presence of a scope disclosure results in an average 74.1% decline in price.
- The marginal value of a scope disclosure is -$21,617.97 when evaluated at the mean.
- Both of the attributes from previous studies are significant with the expected signs.

BUSINESS IMPLICATIONS

- Our study provides evidence that pre-sale quality certification mitigates the need for disclosure.
- Results on marginal values inform both sides of the market; the benefits are twofold:
  - Buyers can bid more effectively by understanding the average market value of different types of conditions.
  - Sellers can more accurately set reserve prices and hence sell a higher percentage of their yearlings.

CONTACTS

Emily Plant: emily.plant@business.umt.edu
Jill Stowe: jill.stowe@uky.edu