Scope and Limits of CVM to Measure the “Intangible” Benefits of Sports Events

John C. Whitehead

Bruce K. Johnson
Contingent Valuation Method

- Contingent valuation is a survey-based economic technique for the valuation of non-market resources, such as environmental preservation or the impact of contamination.

- While these resources do give people utility, certain aspects of them do not have a market price as they are not directly sold--for example, people receive benefit from a beautiful view of a mountain, but it would be tough to value using price-based models.

Contingent Valuation Method

Most ___________ method for estimating environmental values.

a) widely used
b) controversial
c) legitimate
d) both a and b
Contingent Valuation Method

Most ___________ method for estimating environmental values.

a) widely used
b) controversial
c) legitimate
d) both a and b
The Problem

- Intangible benefits of sports teams and arenas are significant but not as large as most public subsidies.
- Mega-events help identify their host cities to the rest of the world and may plausibly generate highly valuable civic pride benefits for local residents.
Background

- Krutilla, Conservation Reconsidered, *AER*, 1967
- Market goods vs nonmarket goods
- Use values vs nonuse values
- Uniqueness
- Irreversibility/ Irreplaceability

Nonmarket goods that are unique and irreplaceable are those most likely to generate significant intangible (i.e., nonuse) values.
## Environmental Examples

<table>
<thead>
<tr>
<th></th>
<th>Unique</th>
<th>Not Unique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irreplaceable</td>
<td>Grand Canyon, Bald Eagle</td>
<td>Striped shiner</td>
</tr>
<tr>
<td>Replaceable</td>
<td>Visibility at the Grand Canyon</td>
<td>Urban air quality</td>
</tr>
</tbody>
</table>
## Sports Examples

<table>
<thead>
<tr>
<th>Irreplaceable</th>
<th>Unique</th>
<th>Not Unique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky Derby,</td>
<td>Replaceable</td>
<td>Olympics, Cleveland Browns</td>
</tr>
<tr>
<td>Manchester United FC</td>
<td></td>
<td>St. Louis Cardinals (football)</td>
</tr>
<tr>
<td>Replaceable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Measurement of Intangible Values

- Revealed preference methods
- Stated preference methods
  - Contingent valuation
  - Contingent behavior
  - Choice experiments
Advantages of CVM

- Flexible
  - *ex-ante*
  - Beyond the range of historical experience
- Non-use values
- Uncertainty
### CVM of Sports (millions of 2006 $)

<table>
<thead>
<tr>
<th>TEAM (Survey Year)</th>
<th>Discount rate</th>
<th>Total WTP</th>
<th>Nonuse Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>London Olympics (2004)</td>
<td>5%</td>
<td>NA</td>
<td>$3,849</td>
</tr>
<tr>
<td>Portland MLB (2003)</td>
<td>6.25%</td>
<td>$81</td>
<td>$60</td>
</tr>
<tr>
<td>Pittsburgh Penguins (2000)</td>
<td>8%</td>
<td>$77</td>
<td>$56</td>
</tr>
<tr>
<td>Jacksonville Jaguars (2002)</td>
<td>7%</td>
<td>$40</td>
<td>$28</td>
</tr>
<tr>
<td>Jacksonville NBA (2002)</td>
<td>7%</td>
<td>$29</td>
<td>$21</td>
</tr>
<tr>
<td>UK Basketball (1997)</td>
<td>8%</td>
<td>$9</td>
<td>$3</td>
</tr>
<tr>
<td>Minor League Baseball (1997)</td>
<td>8%</td>
<td>$8</td>
<td>$0.9</td>
</tr>
<tr>
<td>Minnesota Vikings (2003)</td>
<td>NA</td>
<td>$106</td>
<td>NA</td>
</tr>
<tr>
<td>Alberta Amateur Sports (2006)</td>
<td>6%</td>
<td>$188</td>
<td>NA</td>
</tr>
</tbody>
</table>
CVM Challenges

- Hypothetical bias
- Validity and reliability
- Long-lived policy
- Multi-part policy
- Appropriate property rights
- Aggregation
Hypothetical Bias

- Hypothetical
- Cheap Talk
- Uncertainty Correction

WTP
Validity and Reliability

Validity
- Content (i.e., face)
- Criterion (SP = true WTP)
- Construct (i.e., theoretical)
- Convergent (RP = SP, etc.)

Reliability
- Temporal (Test-Retest)
- Variance
Long-lived policy

- What is the appropriate payment schedule?
  - One-time payment
  - Annual payment for $t$ years
  - Annual payments into perpetuity
- Implicit discount rate
  - 18%
  - 57%
Multi-part Policy

![Graphs showing WTP-A and WTP-B comparisons.](Image)
Appropriate Property Rights

Theory

- \( V(Q,Y) = V(Q^0,Y+WTA) \)
- \( V(Q,Y-WTP) = V(Q^0,Y) \)
- \( WTP \approx WTA \)

Practice

- \( WTA > WTP \)
- Endowment effects
- Status quo effects
- Lack of good substitutes
Aggregation

- Standing: Users vs nonusers
- Geographic extent of the market

![Diagram showing WTP (Willingness to Pay) vs Distance (Municipality)]
Suggestions for future CVM sports research

- Data enrichment: combine RP and SP
  - Contingent behavior
  - Decomposition of use and nonuse values
- Choice experiments
  - Convergent validity of CE and CVM
Conclusions

- Mega-events may plausibly generate highly valuable civic pride benefits for local residents.
- The difficulty is in devising a plausible CVM scenario in which mega-events might relocate and for which respondents might plausibly pay.
- A number of CVM design issues have yet to be considered in the CVM of sports.