Bidding on Priceline

Chris K. Anderson  
*Cornell University*, cka9@cornell.edu

John G. Wilson  
*University of Western Ontario*

Gouren Zhang  
*University of Western Ontario*

Follow this and additional works at: [https://scholarship.sha.cornell.edu/articles](https://scholarship.sha.cornell.edu/articles)

Part of the *Hospitality Administration and Management Commons*

**Recommended Citation**


A companion article, "Setting Prices on Priceline", in the same journal issue can be found here: [http://scholarship.sha.cornell.edu/articles/220/](http://scholarship.sha.cornell.edu/articles/220/)

This Article or Chapter is brought to you for free and open access by the School of Hotel Administration Collection at The Scholarly Commons. It has been accepted for inclusion in Articles and Chapters by an authorized administrator of The Scholarly Commons. For more information, please contact hotellibrary@cornell.edu.

If you have a disability and are having trouble accessing information on this website or need materials in an alternate format, contact web-accessibility@cornell.edu for assistance.
Bidding on Priceline

Abstract
Priceline.com is an Internet-based corporation offering services (airline tickets, hotel rooms, rental cars, and home mortgages) with the option for consumers to dictate prices. Priceline's original success stemmed from its innovative "name your price" approach whereby consumers bid for service with Priceline to find a willing provider at the bid price. Consumers are only allowed to bid once on a service so they must be strategic in bidding—bid too low and potentially lose out on service, bid too high and overpay for the service. While they are only allowed to bid once per product, bidders can slightly alter their service and potentially re-bid in an effort to get new information (from failed attempts)—such alterations may include a different class of hotel (3 star versus 4), a flight with 1 stop versus direct, or (as in the case below) a different class (economy versus luxury) of rental car.

The case is designed to cover a broad range of topics while introducing students to auctions. The case teaches strategic bidding while covering probability, decision analysis, and integer programming. The case has had great success at the undergraduate and MBA levels as students enjoy the setting, are familiar with Priceline, and immediately see an everyday use of management science.

Keywords
bidding, Priceline, auctions, pricing

Disciplines
Hospitality Administration and Management

Comments
Required Publisher Statement
© INFORMS. Reprinted with permission. All rights reserved.
Case Article

Bidding on Priceline

Chris K. Anderson
School of Hotel Administration, Cornell University, Ithaca, New York 14850, cka9@cornell.edu

John G. Wilson, Gouren Zhang
Richard Ivey School of Business, University of Western Ontario, London, Ontario, N6A 315 Canada
{jwilson@ivey.uwo.ca, gzhang@ivey.uwo.ca}

Priceline.com is an Internet-based corporation offering services (airline tickets, hotel rooms, rental cars, and home mortgages) with the option for consumers to dictate prices. Priceline’s original success stemmed from its innovative “name your price” approach whereby consumers bid for service with Priceline to find a willing provider at the bid price. Consumers are only allowed to bid once on a service so they must be strategic in bidding—bid too low and potentially lose out on service, bid too high and overpay for the service. While they are only allowed to bid once per product, bidders can slightly alter their service and potentially re-bid in an effort to get new information (from failed attempts)—such alterations may include a different class of hotel (3 star versus 4), a flight with 1 stop versus direct, or (as in the case below) a different class (economy versus luxury) of rental car.

The case is designed to cover a broad range of topics while introducing students to auctions. The case teaches strategic bidding while covering probability, decision analysis, and integer programming. The case has had great success at the undergraduate and MBA levels as students enjoy the setting, are familiar with Priceline, and immediately see an everyday use of management science.

Key words: auctions; pricing

History: Received: April 2007; accepted: July 2008. This paper was with the authors 4 months for 2 revisions.

We provide a short introduction to the case, Bidding on Priceline, addressing how it has been used and some of the pedagogical outcomes of the case. The case has been used successfully in very diverse settings, such as in introductory and elective operations management, and management science courses for MBAs and business undergrads. If the case is used towards the end of a course in which students have been exposed to optimization and decision analysis, it provides a good review and a chance to use multiple modeling techniques. The case has also been used as an introduction to decision analysis as bidding provides an intuitive example of payoff and probability tradeoffs.

The case has been used over multiple classes within the same course; in the first class it is used as an introduction to the course (obviously having not covered any formal tools). Students find the case topical and interesting as it provides a unique way to frame a modeling course. We return to the case again once we have completed discussions on decision analysis and optimization. This method works especially well in non-case environments where students can work on the case over a longer period of time. This allows them the chance to complete more complex analysis.

Case Setting

The case centers on a student with upcoming travel and the need to rent a car. The student can choose to rent the car via traditional methods (a travel agent, Expedia, or from the supplier directly, e.g. Hertz.com) or more novel approaches such as Priceline.com. The case provides a quick introduction into the “name your price” format of Priceline, focusing on the determination of bids to place on the site.

Case Focus

The case can be used as a simple introduction to auctions where students develop a deeper understanding of expected outcomes and the tradeoff between losing the auction and paying too much. This simple, single-auction example can then be extended into a setting with a sequence of bids for multiple auctions where
students develop a conditional bidding strategy for subsequent auctions given the failure of earlier bids. The optimal bid sequence can be treated as an optimization problem or as a decision tree. The case provides a rich setting for students to make assumptions in the face of incomplete information, updating this information in the event of unsuccessful bids.

**Student Interaction**

Students should be encouraged to experiment with Priceline prior to the class. They should submit bids without disclosing credit card or personal information and assess the information the site provides to bidders. Similarly, they should visit other travel sites (Expedia, Orbitz, Hotwire, etc.) to compare and contrast the purchase transaction. While the case is written from the standpoint of renting a car, students should also be encouraged to attempt the acquisition of an airline seat or hotel room.

As a post-case assignment or reflection question, students can be asked to visit the many sites geared to helping potential Priceline users. Once such site, www.biddingfortravel.com, is a message board where other Priceline users report successful and failed bids for rental cars, flights, and hotel rooms.

The Bidding on Priceline case provides an interesting illustration of the application of management science approaches. The case appeals to a very broad audience and requires very little industry-specific knowledge. Modeling approaches vary from simple decision analysis to potential complex dynamic programs using Bayes’ theorem. It provides an excellent illustration of benefits to making simplifying assumptions.
Bidding on Priceline

A student wants to travel to New York. He has purchased his airline ticket and is starting to schedule his three-day trip. First, he thinks he should rent a car at the airport. His friends give him two suggestions: (1) go to www.priceline.com to “name his own price,” (2) go to a traditional car rental agency website such as www.hertz.com.

Priceline.com is an Internet-based corporation offering serviced-based products such as airline tickets, hotel rooms, rental cars, and home mortgages. For its rental car services, Priceline provides a wide array of car types from categories such as economy, standard, and full-sized cars. Once you are on Priceline.com and have selected Rental Cars from the option button, the procedure for bidding on this site is as follows (Figure 1):

1. You choose the type of place where you want to rent a car, the pick-up city, and the pick-up and drop-off date and time.
2. You then enter the flight information, driver information, and (most importantly) name your own price for renting this particular type of car (Figure 2).
3. If you offer an extremely low price, Priceline will inform that your offer is not likely to be accepted by any agency and provide suggestions about how much to bid in order to get the car. You are allowed to bid only once for each type of car, which means you have to be careful about the amount of money you bid, potentially paying full rate if not successful (Figure 3).
4. Whether you follow this suggestion or not, Priceline will process your request as you go to the next step and let you enter personal identification and credit card information.
5. You will be notified if your offer is accepted within one hour. There are two possible results: either you can rent the car at the price you named or your offer is rejected and you cannot bid on this car class again for this particular arrival/drop-off combination.

When the bidder offers a low bid Priceline will provide some insight into potentially more successful bids without offering specific information. For example, Figures 4 and 5 are Priceline suggestions offered after a user enters very low bids for standard and full-sized cars.

An alternative option is to go to www.hertz.com to make a reservation for renting the car. Figure 6 is a price quote from Hertz.com offered on the same date as the bids on Priceline.com in Figures 4 and 5.

Now there are two options for our would-be traveler—he can either bid on Priceline.com or make a reservation on Hertz.com. Given his student status, he wants to spend as little money as possible. Obviously, he should try Priceline.com first, since it gives him a chance (without any cost except time) of renting a car at a very low price. He is traveling alone with very little luggage so it won’t make much difference whether he chooses an economy, standard, or full-sized car. Since he gets only one chance to bid for each type of car, he needs to work out a solution so that he can take the maximum advantage of Priceline.com. As a final thought he wonders if he can extract any information from failed bids, i.e. if his first bid is unsuccessful, how should he alter his subsequent bids?
Figure 1 Renting a car at Priceline.com
Figure 2  Entering Customer Information

**Flight Information** (Optional)
This will be used by the rental car company to monitor flight delays.

- What airline are you Flying?  
- Your flight number:

**Driver Information**
Please enter the name and age of the driver. Only the person whose name is entered below may pick up the car at the rental counter.

- First:  
- Mi:  
- Last:  
- Driver’s age at pickup:  

**Name Your Own Price. The best price and quality guaranteed!**
Total charges, including *taxes and fees*, are displayed on the following page.

<table>
<thead>
<tr>
<th>Good Chance</th>
<th>$47.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Chance</td>
<td>$49.00</td>
</tr>
</tbody>
</table>

Total charges, including *taxes and fees*, are displayed on the following page.

Figure 3  Bid Insight from Priceline.com for Economy Car

**We Want You To Get Your Car!**
$12 per day would be a great price to get for your Economy Car but it’s so far below currently available retail rates that none of our partners are likely to accept it.

To increase your chances of getting a rental car we suggest using one of the prices below. Remember, you cannot just increase your price if your offer is not accepted.

<table>
<thead>
<tr>
<th>Good Chance</th>
<th>$47.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Chance</td>
<td>$49.00</td>
</tr>
</tbody>
</table>

Figure 4  Bid Insight from Priceline.com for Full-Sized Car

**We Want You To Get Your Car!**
$15 per day would be a great price to get for your Full-size Car but it’s so far below currently available retail rates that none of our partners are likely to accept it.

To increase your chances of getting a rental car we suggest using one of the prices below. Remember, you cannot just increase your price if your offer is not accepted.

<table>
<thead>
<tr>
<th>Good Chance</th>
<th>$58.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Chance</td>
<td>$60.00</td>
</tr>
</tbody>
</table>

Figure 5  Bid Insight from Priceline.com for Standard Car

**We Want You To Get Your Car!**
$15 per day would be a great price to get for your Full-size Car but it’s so far below currently available retail rates that none of our partners are likely to accept it.

To increase your chances of getting a rental car we suggest using one of the prices below. Remember, you cannot just increase your price if your offer is not accepted.

<table>
<thead>
<tr>
<th>Good Chance</th>
<th>$50.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Chance</td>
<td>$62.00</td>
</tr>
</tbody>
</table>

Figure 6  Rental Car Prices from Hertz.com

**What**
- Select a Vehicle:
  - $88.99 USD Daily
    - Ford Escort or Similar
    - Compact 3-Door or Similar
    - Auto Trans-Air Con
    - Vehicle Details
  - $88.99 USD Daily
    - Mazda 6 or Similar
    - Intermediate 4-Door or Similar
    - Auto Trans-Air Con
    - Vehicle Details
  - $88.99 USD Daily
    - Ford Taurus or Similar
    - Full-Size 4-Door or Similar
    - Auto Trans-Air Con
    - Vehicle Details
  - Select for Quarte
    - Hyundai Accent or Similar
    - Economy 3-Door or Similar
    - Auto Trans-Air Con
    - Vehicle Details
  - Select for Quarte
    - Ford Mustang Coupe or Similar
    - Standard 2-Door or Similar
    - Auto Trans-Air Con
    - Vehicle Details
  - Select for Quarte
    - Mercury Grand Marquis or Similar
    - Premium 2-Door or Similar
    - Auto Trans-Air Con
    - Vehicle Details

**Your Requested Itinerary:**
- Where: New York City
  - JFK Airport, Building 300
  - Return: Federal Circle, New York City, NY, US
  - When: Mon, Dec 15 2003
    - 10:00 AM
    - Return: Thu, Dec 19 2003
    - 10:00 AM
- How: Make a Change
  - No changes have been applied.
  - Rental Qualifications & Requirements