

Towards A New Pricing Model for Theater Tickets

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Ticket prices for nonprofit theater companies are currently set using a combination of techniques including benchmarking against competitors, offering discounts to certain audience segments, offering volume discounts such as subscriptions, and assigning different values to different attributes of the attendance experience such as the time of the performance or the location of a particular seat. These techniques appear to be in pursuit of three main goals: to enable patrons with lower abilities or willingness to pay to attend a performance, to price in accordance with changes in customer demand, and to minimize the loss associated with excess capacity in the theater. Our goal is to develop a pricing model that will meet all three of these goals in the most efficient manner while more accurately reflecting the value that audience members place on the different attributes of their experience. This paper will review various research methods that may be used to develop this model, and will recommend a methodology that incorporates the Van Westendorp price sensitivity meter, one or more conjoint experiments, and contingent valuation methods to arrive at a better pricing model for the nonprofit theater.

I. Introduction

Setting ticket prices for a nonprofit theater has become an increasingly complex venture. As with any product, a ticket price must take into account the costs of production, the company's competitive position, the consumer's willingness and ability to pay, and the value that the consumer places on the experience of attending the theater. Beyond these initial constraints, theater companies often engage in price discrimination practices in order to enable consumers with low ability or willingness to pay to attend a performance, to maximize yield from a performance, or to respond to changes in consumer demand. Most theaters engage in a combination of pricing strategies that can result in a complex pricing schedule, yet many theaters are not certain that these pricing strategies are even accomplishing their goals. Pricing theater tickets has become a complex and delicate balancing act, in some cases more of an art than a science, as theater companies attempt to integrate the many forces influencing their price.

Setting the Base Price

At the most basic level, the purpose of charging a price for attending a theater performance is to enable the company to earn revenue to offset the costs of production. The marketing literature differentiates between two basic pricing models.¹ In the cost-plus model, the company determines the total cost of production, allocates this cost across the units produced (in this case, tickets), and sets a price that will enable a predetermined profit margin. In the value-based model, the company measures consumers' willingness to pay for a product, and implements cost saving procedures to reduce the production cost per unit until it is below the price that consumers are willing to pay. Theater companies often find themselves caught in the middle of these two models, as the costs of production often far exceed consumers' willingness

to pay, but those costs are incurred due to artistic decisions and in many cases cannot be reduced. Setting the initial price thus becomes a matter of balancing the costs of production, the consumer's willingness to pay, and the expected revenue from other sources, such as contributed income or earned income from other productions or performances. Ideally, the ticket price will be set at the level that will stimulate enough demand to enable the company to break even. In reality, however, figuring out what price consumers are willing to pay can be much more difficult.

Theater performances fall into the category of experience goods, products that must be consumed before they can be accurately evaluated.² Consumers cannot determine the true value of attending a theater performance until after they have attended, but they must purchase tickets in advance. While some information is available to help consumers decide whether this is likely to be an experience that they will value, such as critics' reviews or advance press about the production, purchasing a theater ticket is always a bit of a gamble. As such, the price of a theater ticket must in part communicate the value of the experience to the consumer. In many cases, this translates into an influence of price on the consumer's perception of the quality of the performance.³ Shows that have higher ticket prices are often perceived to be higher quality experiences. This relationship is not infinite, however; there is an upper limit on consumers' willingness and ability to pay for a ticket to a theater performance. This upper limit may be determined not only by the consumers' own incomes and value for the performance, but also by the nature of the competitive market.

The influence of competition on ticket prices occurs mainly through the estimation of consumers' reference prices. By nature, a theater performance is a unique experience, fundamentally different from any other theater performance taking place at that time in that city

or in any other city. Consequently, many theater managers set their initial prices using an economic value process, which suggests that the price of a ticket should be the sum of the consumer's reference price for similar experiences (tickets to similar performances) plus an additional differentiation value, which is the value of the uniqueness of this particular performance⁴. For instance, many managers employ a benchmarking process in which they examine the range of competitor prices in their market and decide where their performance fits in the range – our performance is worth more than performance A but less than performance B, so our ticket price should be between the prices of those two performances. Setting ticket prices in this manner accomplishes the initial goal of communicating the value of attending the performance to potential audience members without exceeding the range of reference prices for that particular competitive market.

Price Discrimination and Pricing Schedules

Once the base ticket price has been set, many theater companies engage in some form of price discrimination or discounting, offering different prices to different consumers or for different tickets. While the majority of theater consumers have been found to be relatively price insensitive⁵, theaters often feel the need to offer different prices for mission-driven purposes, to reflect differences in demand or willingness to pay among consumers in a particular market, or to maximize yield for the company. One of the most common and most basic forms of price discounting is the volume discount, often framed as a subscription package. Subscriptions involve the purchase of tickets to multiple performances in advance at a set price, usually at a discount off of the price of purchasing the same tickets separately. Usually the consumer must select all of the specific performances he/she will attend ahead of time, although some

companies offer flexible subscriptions that enable the consumer to decide which shows to attend as the season goes on, often for a higher price than a normal subscription. Subscription packages offer benefits to both the consumer and the company: the consumer gets first choice of performances and seat locations, knows in advance that he/she will be able to attend all of the desired performances without fear of sellouts, and often receives a discounted price, while the company receives more cash up front, helping to smooth out the seasonality problems that often plague cash flow for theaters who do not perform year round.⁶ Companies can also use subscription packages in an attempt to balance demand, by bundling shows that are predicted to be less popular with high demand shows and hoping that consumers will attend all of the shows in their package.⁷ Interestingly, research on purchase behavior of subscribers has found that the price discount is often considered to be the least important aspect of the subscription package, while being able to guarantee a desired seat location is one of the most valuable benefits of subscribing.⁸

While subscription packages do offer benefits to both parties, recent trends in consumer behavior have suggested that the overall popularity of subscribing in advance is decreasing. Theatre Facts 2003, the Theatre Communications Group's annual survey of nonprofit theaters in the U.S., reports that only 6% of theater attenders in 2003 were subscribers, and the New York Times recently reported a similar decline in advance purchases for Broadway tickets⁹. According to the Times article, younger consumers in particular are shying away from advance purchases because they value the flexibility of not being locked into a schedule more than the discount in price. In keeping with this idea, several recent studies of demand for theater performances have concluded that today's audience members value the loss of their time more than the outlay of

money, and that time constraints have a much stronger influence on attendance decisions than price discounts¹⁰.

Many theaters also engage in third degree price discrimination, offering discounted tickets to certain consumer segments who are perceived to be less willing or able to pay, such as senior citizens or college students. These discounts are often an element of a mission-driven program to reach out to historically underserved populations, enable low-income consumers to attend performances, or educate or market to future arts consumers who currently cannot afford the ticket price. The benefits of such programs are often seen in increases in audience diversity, accomplishment of mission-driven initiatives, or even simply increases in attendance. Discounts based on customer segmentation are considered to be an economically inferior method of price discrimination, however, since they rely on assumptions and estimates of willingness and ability to pay¹¹. By discounting to senior citizens, for example, the company does enable seniors who may be on a fixed income or unable to pay the ticket price to attend, but by default seniors who are willing and able to pay are also offered a discount, and end up paying a lower price than they would have otherwise. After all, who would turn down a discount that is offered to them? By offering discounts to an entire customer segment, the company does capture the price sensitive consumers within that segment, but it also loses revenue on those audience members who would be willing to pay a higher price.

The economic solution to this problem is to instead engage in second degree price discrimination, in which different value packages are offered and consumers are able to self-select the package that reflects their willingness to pay. Theater companies accomplish this better than most companies by offering different prices for different days, times, or seat locations. These differences in prices reflect either changes in consumer demand (a Saturday night

performance is more desirable than a Wednesday afternoon performance) or differences in the consumption experience (a seat in the seventh row will have a better view and better acoustics than a seat in the thirtieth row). By creating packages that reflect these differences in value and offering them at different prices, consumers can self-select the value option that is right for them. If they want the Saturday night, seventh row experience, they must be willing to pay for it, if they are not willing to pay for it, the Wednesday afternoon, thirtieth row experience is available, or the Saturday night, thirtieth row, or the Wednesday afternoon, seventh row, etc. The consumer signals his or her willingness to pay by the package he or she selects. The challenge for theaters, however, is to determine the value of these various options (Saturday versus Wednesday, evening versus afternoon, seventh row versus thirtieth row) and let the prices of the packages reflect those values.

In addition to these differences in value and price, theaters also offer different prices for different shows, in response to predicted differences in consumer demand. This can be even more challenging, since the factors that create differences in value between shows are more difficult to measure, factors such as quality, popularity, and reputation¹². It is difficult enough to quantify the value of the seventh row location, how can one quantify the value of the director's reputation? In response to this, many theaters simplify their efforts by using a basic peak-load pricing model, in which the overall pricing schedule is shifted upward for shows that are expected to have higher demand and downward for shows that are expected to have lower demand¹³. In this manner, a global measure of value influences the overall range of prices, and the differences between price levels within the schedule remains constant. This technique requires managers to make good predictions, and can be risky if demand for a show is predicted inaccurately.

In particular, one of the risks involved in any pricing technique is the chance of empty seats in the theater. While price is certainly not the only factor that contributes to low attendance, in fact it has been found to be a minor factor at best, empty seats do have a strong influence on the company's profitability. Since the costs of production have already been incurred by the time a show opens, and the cost of a particular performance is virtually the same regardless of how many people are in the theater, every empty seat is less revenue to offset that cost, and any amount of revenue received for a seat goes directly to the bottom line. This is viewed by economists and accountants as an excess capacity problem. Theaters respond to this problem with techniques like rush tickets, pay-what-you-can tickets, and half-price day-of-show tickets. These tickets are all designed to become available after advance sales have been completed (ranging from the day of the performance to half an hour before the curtain rises, depending on the theater), and are offered at a dramatic discount. From the consumer's perspective, waiting for a rush ticket implies a risk that the performance will sell out and often a long wait in line, but in exchange for the time and the risk, the consumer receives a significant discount. While these practices help to avoid the problems associated with excess capacity, they often end up being used as first aid for inaccurate predictions of demand and poor pricing strategies. When half-price ticket booths receive large bundles of leftover tickets on the day of a performance, this may be an indication that the performance was priced incorrectly.

The goal of this project is to determine if these techniques can be improved through a more accurate understanding of consumer value, demand, and willingness to pay for theater tickets. A pricing model that more accurately reflects consumer value would enable theater companies to make better use of their current pricing strategies, creating packages of shows, days, times, and seats that more accurately reflect the consumers' willingness to pay for those

attributes, and as a result may cut down on the need for less efficient means of increasing attendance such as discounts to customer segments and excess capacity tickets. The next section of this paper will summarize the key attributes involved in consumers' valuation of a theater experience. Section III will discuss the various research methods available to determine accurate values for these attributes. Finally, Section IV will recommend a plan of action for this project.

II. Attributes of the Theater Experience

When a consumer purchases a theater ticket, he or she is purchasing the opportunity to have a particular experience, one which is influenced by a number of different attributes of the show, the performance, and the individual consumer's experience. All of these attributes in some way are reflected in the individual ticket and therefore in the ticket price. In order to understand the value that a consumer may place on an individual ticket, we must first understand the various components of the ticket and how each of these components may be valued by the consumer. This section will identify the components or attributes of a theater ticket, and the following section will discuss various methods for measuring the value of these attributes.

Studies of demand for theater performances have repeatedly found that the most influential aspects of the performance are the attributes of the show itself¹⁴. These may include broad factors such as the genre of the show, the consumers' familiarity with the show, or the reputation of the company, as well as specific perceptions associated with the playwright, the play, the director, the lead actor/actress, or the company. While highly influential, these attributes can be among the most difficult to measure and quantitative analyses of their influence often group them into a broad, overall category such as "quality." In addition to attributes of the show, consumers also consider attributes of the specific performance, such as the day, time, and

venue. This category of attributes is considerably easier to measure, since there are often clearly dominating alternatives (e.g. Saturday is better than Wednesday). The exact value of these alternatives, however, is unknown – theaters commonly assume that weekend shows will be valued higher than weekday shows, and evening shows higher than afternoon shows, but the consumer’s perceived differences in value between those alternatives has not been measured effectively.

For many consumers, the key attributes in the value of the experience are the differences in the individual’s experience in the theater, many of which are associated with attributes of the seat. The primary attribute of interest in this category is seat location, however this is a broad category in of itself that can be broken down further. One attribute of seat location is the view of the stage, which can itself be broken down into two components: the distance between the seat and the stage, and the angle of the sightline from the seat. Theaters often must combine these two components when setting prices for seats, but we have little data concerning the relative value of being close to the stage versus having a direct sightline to the center of the stage. In addition, for many theaters acoustics vary from seat to seat, and this may lead to differences in value, especially when combined with view factors. If the seats under the balcony offer excellent direct sightlines but poor acoustics, they may be less valuable than a seat on the side of the theater but not under the balcony. In addition to proximity to the stage, seat location also must consider proximity to the aisle, to the lobby, to bathrooms, or to other patrons. Having to climb over many patrons to reach one’s seat, for example, may make the seat less valuable even if it has the best sightlines.

In addition to location factors, the seat itself also has attributes that are of interest. The comfort of the seat may be an important factor, whether it be due to the width of the seat or

possibly the softness of the cushions. The amount of legroom offered in front of the seat may also influence the value of the seat, as can the rake of the theater and/or the offsetting of seats to improve sightlines. These attributes may also influence the value of location attributes; for example, a tall individual may place more value on an aisle seat if he knows that the legroom in non-aisle seats is small, or a short individual may place more value on an aisle seat if the rake of the seats is shallow and she is likely to not be able to see over the person in front of her.

Finally, there may be additional attributes associated with the ticket that may add value to the package. For example, a ticket that includes admission to a reception after the show, a talk back with the actors, or a special cocktail area reserved for patrons who have paid a certain price level may be more valuable. In addition, administrative policies can make a ticket more valuable; for example, the ability to return a ticket for a refund may add value by reducing the risk involved in purchasing a ticket in advance. In the same manner, the option to exchange a ticket for a different performance may also make a ticket more valuable. One element of additional value that has become popular with sports stadiums is the seat license, a kind of subscription of subscriptions, in which the consumer pays an up-front fee for the right to buy a subscription (or season tickets) to a particular seat for multiple seasons, as many as twenty years. These licenses are often used as a means of raising capital for a major project, such as the construction of a new stadium or theater¹⁵. As with a regular subscription, the company gets the cash up front, and for the consumer, the benefit is having first dibs on their desired seat location. This is an interesting way to add value, especially considering the high value that theater consumers already place on seat location, however with the current trends leading away from subscriptions and advance sales, there may be resistance on the part of consumers. In particular, some sports consumers responded to the institution of seat licenses as unfair; the company was now asking them to pay

twice for the same seat¹⁶. It will be interesting to see if arts consumers see seat licenses as a positive benefit, or as an unfair cost.

III. Measuring the Value of Attributes

The challenge of thinking about theater tickets as a collection of attributes, each with a different value, is that all of these different values must somehow be measured and combined to arrive at a price for a particular ticket. While audience members may be able to articulate the value of some attributes of a ticket, such as the addition of a reception of the value of being able to exchange a ticket, other attributes, such as the value of legroom or the number of people sitting between the consumer and the aisle, would be much more difficult for the consumer to directly assess. In order to accurately price a package of attributes, one must be able to estimate a value for the overall package as well as incremental values for each of the attributes that may be included in the package. A number of research methods have been used in similar contexts to infer or calculate the value of attributes of a product, as well as the value of the overall package. Several applicable methods will be discussed in this section, and Section IV will recommend a set of methods that seem most suited to pricing theater tickets.

Van Westendorp Price Sensitivity Modeling

The Van Westendorp Price Sensitivity Meter¹⁷ was developed as a method for assessing consumers' willingness to pay in a broad sense. The primary benefit of this method is its usefulness in establishing the range of acceptable prices for a particular product. It has not been found to be very effective at establishing an ideal or optimal price, nor at determining the perceived value of specific attributes of a product, but it can be useful for establishing the

boundaries of prices, and may be a simple way to assess the ceiling and floor of consumer willingness to pay.

The measure uses four basic questions to assess consumers' willingness to pay for a product:

1. At what price do you begin to perceive the product as so expensive that you would not consider buying it? (Too expensive)
2. At what price do you begin to perceive the product as so inexpensive that you would feel that the quality cannot be very good? (Too inexpensive)
3. At what price do you perceive that the product is beginning to get expensive, so that it is not out of the questions, but you would have to give some thought to buying it? (Expensive)
4. At what price do you perceive the product to be a bargain – a great buy for the money? (Inexpensive)

The range of responses to each question are plotted as frequency distributions and mapped onto each other. According to the meter, it is the intersections of these various responses that are of the most interest and usefulness in setting prices. The range of acceptable prices is considered to be the range of prices between the Point of Marginal Cheapness, the point at which an equal number of consumers perceive the price to be expensive as too inexpensive, and the Point of Marginal Expensiveness, the point at which an equal number of consumers perceive the price to be inexpensive as too expensive.

The interpretation of these points can be fairly intuitive. In setting the price floor, the company wishes to enable as many price sensitive consumers as possible to be able to purchase tickets without lowering the price so much that the perception of the product's quality suffers. Below the Point of Marginal Cheapness, there are more customers who believe that the product is of poor quality than there are customers who would be happy to pay the low price, and the company's attendance would suffer. In setting the price ceiling, the company wishes to maximize profit per ticket without alienating consumers by setting a price that is perceived to be

gouging, overpriced, overvalued, or in some way unfair. Above the Point of Marginal Expensiveness, there are more consumers who perceive the price as too expensive than there are consumers willing to pay the high price. Again, attendance would suffer, and while profits on the tickets that were sold would be higher, it is unlikely to make up for the loss of volume. The ideal range of prices, therefore, would be between these two points, where the majority of consumers perceive the prices to be not so inexpensive that the product must be of poor quality, but not so expensive that the product is overvalued.

The primary concern with using this method is that the questions ask consumers about their perceptions of the price, and not their purchase intentions. A consumer may believe that a price is reasonable but still not wish to purchase the product, or in turn a consumer may perceive a price as being higher than desirable but be willing to purchase the product in spite of the overvalued price. This caveat may be less of a concern if the research is done with current attenders rather than non-attenders, and may be partially controlled for by also including questions that ask directly about consumers' attitude toward the product or purchase intentions. A secondary concern that has been raised about the Van Westendorp Meter is that the prices reported may be influenced by a consumer's reference price and the accuracy of his or her knowledge of competitor prices. Researchers may wish to include questions asking participants what they would expect to pay for such a product or what they believe the "going rate" is for such a product in order to try to control for this effect. Finally, this method can be useful for determining the overall range of acceptable prices, but will not provide any information about the optimal price levels or price distinctions within that range. To be useful in designing a pricing schedule, therefore, the Van Westendorp Meter must be used in conjunction with a

method designed to assess the incremental value of the various attributes of a product, such as conjoint experimentation, contingent valuation, hedonic pricing, or auctions.

Conjoint Experimentation

A conjoint experiment, or conjoint analysis, is a technique that was developed by marketing researchers for the specific purpose of determining the incremental value of the attributes of a product¹⁸. It is often used in new product development, product design, and pricing research as a way to assess valuation of attributes that consumers would have difficulty reporting a value for. Constructing a conjoint experiment enables the consumer to engage in behaviors that are familiar, similar to real shopping experiences, and easy to understand, such as making a choice between two products or attributing an expected price to a product. However, the structure of the experiments allows this data to be used to determine an incremental value for each of the attributes of interest to the researcher. The premise behind this technique is that by considering the attributes jointly, the researcher is able to calculate the relative values of attributes that if considered alone, would be difficult or impossible to value accurately. By using an experimental design and a regression-based analysis, the researcher can calculate each individual participant's utility for each of the attributes in question.

For example, let's suppose that we were interested in only two attributes: time of performance and seat location. And let's suppose that each of those attributes had only two levels: a consumer could attend a 2:00 or an 8:00 performance, and sit in the orchestra or the balcony. The questions of interest are what is the incremental value of moving from the 2:00 to the 8:00 performance, or from the balcony to the orchestra? Most consumers would have

difficulty answering these questions directly, but through a conjoint experiment, the answers can be calculated from the consumers' choices.

There are two basic methods of conjoint experiments. The first is a choice-based experiment, in which the outcome of interest is which combination of attributes is preferable. In this type of experiment, we would make up four sample tickets with each of the four combinations of attributes (a 2:00 orchestra ticket, an 8:00 orchestra ticket, a 2:00 balcony ticket, and an 8:00 balcony ticket), present the participant with these combinations and ask them to choose which combination they prefer. This method is often used in product design studies, but if price is incorporated into this type of study, it must be used as an additional independent variable, which does not meet the goals of this study.

For this purpose, it seems much more appropriate to use a ratings-based experiment. The design is the same, the participant would see one of the four combinations of attributes, but the participant's task would be to assign a price to that particular combination of attributes. In other words, the participant might see a question like this:

One ticket to the
8:00 performance
balcony seat

How much would you be willing to pay for this ticket? \$_____

The consumer would respond to multiple combinations of attributes, and the incremental value of each attribute can be calculated by examining the differences between ratings. For example, if the response to the question above is 20% lower than the response to a ticket for an 8:00 performance with an orchestra seat, that 20% is the value of moving from the balcony to the orchestra.

In a more realistic experiment, there would be multiple attributes, each with multiple levels, creating a more complex experimental design. Each of the levels of each attribute can be expressed as a dummy variable, enabling the data to be used in regression analysis to determine the precise incremental value of moving between each of the levels for each of the attributes. Thus, although the consumer is only evaluating full packages of attributes, which is more comfortable and easier to do, the data can enable the researcher to derive values for each level of each attribute.

Conjoint analysis has several advantages over other methods of estimating consumer valuation¹⁹. First, as stated before, it enables the researcher to assess incremental values for attributes that would be difficult to assess through direct questions. The nature of the data also allows researchers to look for average valuations across consumers, or for differences between consumers in their valuation of different attributes, which may be helpful in determining not only which attributes are most important overall, but also whether there are certain groups of consumer who value seat location more than time of performance, and others who feel the opposite way. Finally, the analysis can be used to examine many attributes with many levels without the need for a separate survey or test for each combination. The main drawback to conjoint analysis, however, comes from exactly the same possibility: because each level of each attribute must become its own dummy variable and have its own role in the experimental design, a fully crossed design with many attributes and many levels could quickly become very, very big with many, many conditions. Conjoint analysis is usually done as a within-subjects design, which helps to alleviate the problem, but the coding and analysis of the data can still be time consuming with a design that complex.

Contingent Valuation

Contingent valuation is a process similar to conjoint analysis that is often used by economists to assess the values of public goods and government propositions. In a contingent valuation study, a participant is given a description of a good and asked questions about their willingness to pay for the good²⁰. Willingness to pay may be asked through open-ended questions (How much would you be willing to pay for this good?) or closed-ended questions (Would you be willing to pay \$X for this good?). Closed-ended questions have been found to be somewhat easier for participants to respond to, but the use of closed-ended questions requires the researcher to predetermine prices for the respondents to consider²¹. Many contingent valuation studies use a combination of willingness to pay measures (e.g. How much would you be willing to pay to have a clean lake?) and willingness to accept measures (e.g. How much would you be willing to be compensated for the loss of a clean lake?) to zero in on an accurate measure of true value.

Contingent valuation can be used to evaluate combinations of attributes in a similar fashion to conjoint analysis, or participants can be asked specific questions about the value of a particular attribute. For this reason, contingent valuation questions may be able to be used in conjunction with conjoint analysis for attributes which are easily reported, but which have too many levels to be easily used in conjoint analysis. For example, distance between the seat and the stage can be measured in sections or in rows, but in a theater with many rows, it may be difficult to include that many levels in a conjoint design. However, those rows could be divided into sections solely for the purpose of the experiment, and once a base value for each section has been established, participants could then be asked specific valuation questions about the rows within each section (How much would you pay to move up one row? How much would you accept as a price reduction to move back one row?).

Some researchers have expressed concerns that contingent valuation studies may not reflect accurate perceived values.²² There is some evidence to suggest that prices reported in contingent valuation studies are relatively constant within each survey, suggesting that participants find a price level that is comfortable for them and continue to respond in that manner. However, a review of the use of contingent valuation for the evaluation of environmental goods finds that hypothetical valuation studies do not differ statistically from valuation studies that use real goods²³, suggesting that this may be more of a carryover effect, in which the earlier questions in the study influence responses to the later questions, than a problem with the use of hypothetical goods. If this is the case, counterbalancing the order of the products evaluated in the study should help to counter this problem.

Hedonic Pricing

Hedonic pricing is a regression-based, indirect method of estimating the value of a particular attribute by modeling consumers' willingness to pay for two products that differ by one attribute. This technique is often used to estimate the value of attributes that consumers would have a difficult time valuing accurately when asked direct questions. For example, hedonic pricing has often been used to estimate the value of certain attributes of houses in the real estate market. By finding two properties that have the same attributes with the exception of one and examining the history of purchase prices associated with those houses, any differences in the market value of the houses can be attributed to the one attribute. This technique has often been used by environmental researchers to determine the negative effect of factors such as pollution or proximity to landfills on the value of a property. Hedonic pricing has also been used to infer values for attributes of cultural products such as fine wines or visual arts, for example,

the value that a particular well-known artist adds to the purchase price of a painting²⁴.

Hedonic pricing often requires the use of actual sales data, preferably with multiple sales figures for the same product²⁵, information that may or may not be available depending on the historical data collected by a particular theater company. Ideally, this historical information will be based on prices that were determined by market forces, which may also limit the usefulness of ticket prices if prices were limited by managerial decisions in the past. Hedonic pricing may also be difficult to use when trying to infer values for more than one attribute, and may provide estimates that are inferior to more direct methods. This method may be best suited, therefore, for use as a supplemental technique if a theater decides that they need to have an estimate for the value of an attribute that consumers would have difficulty valuing directly, such as the value of having a particular actor or director for a show.

Auctions

Auctions have often been used to infer consumers' willingness to pay in situations in which direct questioning may not produce an accurate assessment. Consumers are asked to engage in a hypothetical auction for a particular package of attributes (for example, a ticket for *The Music Man* on Saturday at 8:00, seventh row seat, including an option to exchange the ticket), and are asked to bid against each other for the right to purchase the product. Consumers' willingness to pay for the package is inferred from their bids, and more specifically from the highest bid which they are willing to make, or the price point at which they drop out of the auction and concede the product to a higher bidder. By varying the components of the packages available for auction, this method can also provide an estimate of the value of individual components of a package by examining the difference in bids between packages that are identical

with the exception of one attribute. This process would be similar to the process used in conjoint experimentation, and might enable incremental value to be estimated without the need for a completely crossed design.

Auctions have been found to be an accurate way to estimate consumer willingness to pay when consumers have a real expectation that by having the highest bid, they will win the product. Research has suggested that hypothetical auctions, however, have been found to be less reliable than real auctions, because consumers do not behave as they really would when real money is not involved. Consumers may be more likely to perceive the auction process as a game and play to win, or may be willing to incur more risk when they know that they will not have to pay real money. For example, auctions have been known to fall victim to the “winner’s curse,” in which the winning bidder is actually less satisfied with the outcome than the runner-up because the winner wonders whether he or she bid too high. The runner-up can be confident that his or her bid was reasonable because there was someone willing to bid higher, but the winner will always wonder whether he or she overvalued the product.²⁶

Even in real auctions, these effects can occur when participants believe that they, personally, will not win the auction, and so it is fruitless to bid as they really would. This would imply that auctions may provide the most accurate measures of willingness to pay for consumers who are at the high end of the willingness to pay range, and less accurate measures for consumers whose true willingness to pay is lower. This suggests that auctions may be an effective way to determine a price ceiling for tickets, but perhaps a less reliable way to infer price floors. Finally, auctions also assume that consumers will be comfortable with the idea of bidding for theater tickets and will behave in the same way that they would if they were purchasing a ticket through typical channels. Since theater tickets are not normally auctioned, it

may be that consumer behavior in an auction may not be an accurate indicator of consumer behavior outside of that context. In addition, consumers participating in an auction may be influenced not only by their own perception of the product's value, but also by their opponents' perception of the product's value.²⁷ This may color the inference of a participant's true valuation, as well as limit the similarity between the auction process and the consumer's normal purchase behavior.

IV. Recommended Action Plan

The goal of this project is to develop a pricing model for theater tickets that would enable companies to accommodate variance in consumer willingness to pay, adjust for changes in consumer demand, and minimize loss from excess capacity. In order to accomplish this, companies would need to understand what attributes of the theater experience are valuable to consumers, and the incremental value of each of these attributes in the consumer's perception. By using this information in a pricing model, the company would be able to construct a smoother pricing schedule in which the price of each ticket reflected a more accurate valuation of the various attributes of that ticket (including attributes of the show, performance, seat, and ticket). Ideally, theaters would conduct research that would enable them to derive a monetary value for every level of every attribute of the ticket; however, there are some attributes for which this is more feasible than others. In addition, companies still need to consider the influences of production cost and competition.

With this in mind, a combination of research methods and estimation methods seems to be in order to develop the best possible pricing model. I recommend that the company begin by establishing the range of acceptable prices for its tickets, using the Van Westendorp Meter to

assess the maximum range and adjusting the endpoints of the range to accommodate the influence of production costs and consumer reference prices. For example, although the Van Westendorp Meter may recommend a price floor of \$12.00, if the company knows that with a price floor that low there is no chance for the show to break even, considering production costs and other sources of income, it may be necessary to set a slightly higher price floor.

Once the range of acceptable prices has been established, the next task should be to establish a base pricing schedule for the seats in the house. Using either conjoint analysis or contingent valuation, the company should research incremental values for each of the attributes of the seat (e.g. sightlines, acoustics, legroom, proximity to the aisle) and use those values to calculate a base price for each seat in the house. A second analysis should be conducted to determine the incremental value of attributes of the performance (e.g. day, time, venue). This information can then be combined with the base seat prices to adjust the overall range of prices in the house upward for more valuable performances and downward for less valuable performances.

Technically, the same procedure could be used to account for attributes of the show (e.g. performers, director, playwright, reputation), but these attributes are much more numerous and difficult to quantify and evaluate. The incremental value of having performer A over performer B are not nearly as clear to either the consumer or to the company as the incremental value of moving one row forward. Therefore, unless there is strong reason to engage in such analysis, it would likely be more efficient and realistic to continue to use peak-load pricing for attributes of the show, adjusting the entire price schedule upward for shows that are predicted to have high demand and downward for shows that are predicted to have low demand. This will rely on the manager's expertise in making predictions of demand, but as Nagle and Holden point out, this

should not be discounted as a legitimate means of setting prices. Managers know their markets, their products, and their audiences better than any statistical program, and managerial expertise is often the best tool to rely on when attempting to determine the value of more qualitative attributes such as these.²⁸

Finally, add-on attributes of the ticket such as the option to exchange or return tickets or additional benefits such as receptions, talk backs, or access to restricted areas should be added as an additional fee on top of the ticket price. The value of these add-ons can be assessed through contingent valuation, as consumers are likely to be able to answer direct questions about these attributes. The end result will be a set of prices for the house that operates on a sliding scale according to the attributes of the performance and the expected demand for the show, with the possibility for additional add-on benefits to increase the price of a particular ticket.

This model would minimize the amount of estimation that managers would be required to make, maximize the company's ability to accurately reflect consumer value and demand in the ticket price, and create a fair pricing schedule in which there are real differences between the experiences offered by each ticket that are reflected in that ticket's price. Consumers would be able to self-select into the price level that best fits their willingness to pay, and to select the specific set of attributes that is most valuable to them, ensuring that they receive the experience that they value without being over- or undercharged for it. Ideally, this improved mapping of the pricing schedule to consumer value would also enable more consumers to find a ticket and price that meets their needs, reducing the problem of excess capacity and maximizing the benefit to both the consumers and the company.

About the Author

Jennifer Wiggins Johnson is Assistant Professor of Marketing at Kent State University. She holds a PhD in Marketing from the University of Wisconsin-Madison and an MA in Business from the Bolz Center for Arts Administration, also at the University of Wisconsin-Madison. Her research centers primarily on charitable donation behavior and consumption of arts and cultural products. Jennifer has published her work in the *Journal of Marketing*, the *Journal of Business Research*, the *Journal of Consumer Psychology*, and the *International Journal of Arts Management* and has given numerous presentations on arts marketing, audience development, and consumer valuation of the arts. Prior to entering academia, Jennifer worked in the marketing departments of several nonprofit theater and music organizations.

References

I. Introduction

¹ Nagle, Thomas T. and Reed K. Holden (1995), *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*. Englewood Cliffs, NJ: Prentice Hall.

² Hoch, Stephen J. and Young-Won Ha (1986), "Consumer Learning: Advertising and the Ambiguity of Product Experience," *Journal of Consumer Research*, 13 (September), 221-33, Neelamegham, Ramya and Dipak Jain (1999), "Consumer Choice Process for Experience Goods: An Econometric Model and Analysis," *Journal of Marketing Research*, 36 (August), 373-87.

³ Brucks, Merrie and Valarie A. Zeithaml (1991), "Price and Brand Name as Indicators of Quality Dimensions." Cambridge, MA: Marketing Science Institute.

⁴ Nagle, Thomas T. and Reed K. Holden (1995), *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*. Englewood Cliffs, NJ: Prentice Hall.

⁵ Colbert, François, Caroline Beaugard, and Luc Vallée (1998), "The Importance of Ticket Prices for Theatre Patrons," *International Journal of Arts Management*, 1 (Fall), 8-15, Scheff, Joanne (1999), "Factors Influencing Subscription and Single-Ticket Purchases at Performing Arts Organizations," *International Journal of Arts Management*, 1 (Winter), 16-27.

⁶ Newman, Danny (1977), *Subscribe Now! Building Arts Audiences through Dynamic Subscription Promotion*. New York: Theatre Communications Group.

⁷ Ansari, Asim, S. Siddarth, and Charles B. Weinberg (1996), "Pricing a Bundle of Products or Services: The Case of Nonprofits," *Journal of Marketing Research*, 33 (February), 86, Venkatesh, R. and Vijay Mahajan (1993), "A Probabilistic Approach to Pricing a Bundle of Products or Services," *Journal of Marketing Research*, 30 (November), 494-508.

⁸ Scheff, Joanne (1999), "Factors Influencing Subscription and Single-Ticket Purchases at Performing Arts Organizations," *International Journal of Arts Management*, 1 (Winter), 16-27.

⁹ McKinley, Jesse (2002), "Broadway Getting the Jitters As Advance Ticket Sales Fall," in *The New York Times*. New York, Voss, Zannie Giraud, Glenn B. Voss, Christopher Shuff, and Katie Taber (2003), "Theatre Facts 2003: A Report on Practices and Performance in the American Nonprofit Theatre Based on the Annual TCG Fiscal Survey," Theatre Communications Group.

¹⁰ Corning, Jonathan and Armando Levy (2002), "Demand for Live Theater with Market Segmentation and Seasonality," *Journal of Cultural Economics*, 26 (August), 217-35, Kopczynski, Mary and Mark Hager (2002), "The Value of the Performing Arts in Five Communities," Performing Arts Research Coalition (Ed.): Pew Charitable Trusts, Throsby, C. David (1994), "The Production and Consumption of the Arts: A View of Cultural Economics," *Journal of Economic Literature*, 32 (March), 1-29.

¹¹ Pigou, A. C. (1920), *Collected Economic Writings*. London: Macmillan Press, Samuels, Simonetti (1993), "Indirect Taxation Through Price Discrimination in the Health Care Industry," PhD Dissertation, Department of Economics, University of Wisconsin.

¹² Lévy-Garboua, Louis and Claude Montmarquette (1996), "A Microeconomic Study of Theatre Demand," *Journal of Cultural Economics*, 20, 25-50, Throsby, C. David (1990), "Perception vs. Quality in Demand for Theatre," *Journal of Cultural Economics*, 14, 65-82, ---- (1994), "The Production and Consumption of the Arts: A View of Cultural Economics," *Journal of Economic Literature*, 32 (March), 1-29, Urrutiaguer, Daniel (2002), "Quality Judgements and Demand for French Public Theatre," *Journal of Cultural Economics*, 22, 185-202.

¹³ Borenstein, Severin and Nancy L. Rose (1994), "Competition and Price Dispersion in the U.S. Airline Industry," *The Journal of Political Economy*, 102 (August), 653-83, Nagle, Thomas T. and Reed K. Holden (1995), *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*. Englewood Cliffs, NJ: Prentice Hall.

II. Attributes of the Theater Experience

¹⁴ Corning, Jonathan and Armando Levy (2002), "Demand for Live Theater with Market Segmentation and Seasonality," *Journal of Cultural Economics*, 26 (August), 217-35, Lévy-Garboua, Louis and Claude Montmarquette (1996), "A Microeconomic Study of Theatre

Demand," *Journal of Cultural Economics*, 20, 25-50, Throsby, C. David (1990), "Perception vs. Quality in Demand for Theatre," *Journal of Cultural Economics*, 14, 65-82.

¹⁵ Walker, Don (1999), "Seat Licenses May Be Packers' Pass to Future," in *Milwaukee Journal Sentinel*. Milwaukee, WI.

¹⁶ Raley, Dan (2002), "Seat License Fee, Sharp Ticket Increase Force Some to Draw the Line," in *Seattle Post-Intelligencer*. Seattle, WA.

III. Measuring the Value of Attributes

¹⁷ information available at <http://www.mv-research.com>.

¹⁸ Churchill, Gilbert A., Jr. (1999), *Marketing Research: Methodological Foundations* (Seventh ed.). Fort Worth, Texas: The Dryden Press.

¹⁹ Nagle, Thomas T. and Reed K. Holden (1995), *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*. Englewood Cliffs, NJ: Prentice Hall.

²⁰ Cummings, Ronald G. and Laura O. Taylor (1999), "Unbiased Value Estimates for Environmental Goods: A Cheap Talk Design for the Contingent Valuation Method," *The American Economic Review*, 89 (June), 649-65.

²¹ Cropper, Maureen L. and Wallace E. Oates (1992), "Environmental Economics: A Survey," *Journal of Economic Literature*, 30 (June), 675-740.

²² Diamond, Peter A. and Jerry A. Hausman (1994), "Contingent Valuation: Is Some Number Better Than No Number?," *The Journal of Economic Perspectives*, 8 (Autumn), 45-64., Epstein, Richard A. (2005), "The Regrettable Necessity of Contingent Valuation," available at <http://www.culturalpolicy.uchicago.edu/CVMPapers/Epstein.html>.

²³ Cropper, Maureen L. and Wallace E. Oates (1992), "Environmental Economics: A Survey," *Journal of Economic Literature*, 30 (June), 675-740.

²⁴ Chanel, Olivier, Louis-André Gérard-Varet, and Victor Ginsburgh (1996), "The Relevance of Hedonic Price Indices," *Journal of Cultural Economics*, 20, 1-24, Combris, Pierre, Sebastien Lecocq, and Michael Visser (1997), "Estimation of a Hedonic Price Equation for Bordeaux Wine: Does Quality Matter?," *The Economic Journal*, 107 (March), 390-402.

²⁵ Chanel, Olivier, Louis-André Gérard-Varet, and Victor Ginsburgh (1996), "The Relevance of Hedonic Price Indices," *Journal of Cultural Economics*, 20, 1-24.

²⁶ Milgrom, Paul R. (1989), "Auctions and Bidding: A Primer," *The Journal of Economic Perspectives*, 3 (Summer), 3-22.

²⁷ Milgrom, Paul R. and Robert J. Weber (1982), "A Theory of Auctions and Competitive Bidding," *Econometrica*, 50, 1089-122.

IV. Recommended Action Plan

²⁸ Nagle, Thomas T. and Reed K. Holden (1995), *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*. Englewood Cliffs, NJ: Prentice Hall.