

EQUIVALENT-VALUE PRICING

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Abstract

While traditional conjoint analysis results permit the assessment of price premiums associated with product and service features, less attention has been placed on comparing possible market offerings in terms of the prices which yield equivalent overall customer value. The mechanics of equivalent-value pricing are described and illustrated with three examples (advance reservation programs, student housing, and information service design).

Introduction

"Since my major competitors are now priced at \$X and \$Y, what price should I charge to be competitive with them?" "Charge the same price as competitors" and "charge $(\$X+\$Y)/2$ " are easy but probably incorrect answers. Instead, the equivalent-value price might be considered as a more appropriate response. The equivalent-value price is the price that yields the same overall equivalent value to customers as a particular competitive offering. The "other" competitive market offering presumably has a different price than "your" offering. Indeed, the whole point of equivalent-value pricing is to find the price that equates your offering, in value terms, with the price associated with another offering (bundle of product and service features). For example, the offering **<non-stop flight @ \$400>** might be equivalent in value terms to the offering **<connecting flight @ \$350>** to a particular customer segment. Note that the less desirable connecting-flight option also has a lower price — in this example, just enough lower (\$50) to offset the relative undesirability of the connecting flight compared to the non-stop flight. At the equivalent-value price, customers will be indifferent between the offerings, assuming similar knowledge and access (awareness and distribution, for example).

Traditional conjoint analysis studies quantify product or service feature desirability, assess price sensitivity, and forecast market shares by customer segment. Equivalent-value pricing analysis is another important but relatively underused method of interpreting conjoint analysis study results. Equivalent-value prices are key benchmarks about which thoughtful marketing professionals must be knowledgeable.

Equivalent-value pricing is a particular variation of value-based pricing. For example, it is consistent with perceived relative economic value pricing which establishes brand price differentials based on customer perceptions of brand differences in performance, quality, and service. See Shapiro and Jackson (1978), Forbes and Nitin (1978), and Monroe (1990, pp. 86-103) for discussions of various aspects of value-based pricing. Brand equity is often defined and measured in terms of price premiums that "brands" command

over commodity versions of equivalent offerings (Yovovich 1988, Farquhar 1989, Aaker 1991, and Keller 1993). Brand equity is, of course, just another perspective on equivalent-value pricing. Value-based and competitive pricing have also caught the recent attention of the popular business press. For example, see Saporito (1992) and Sherman (1992).

This paper describes how a firm might price its offerings so they offer equivalent value to a competitor's offering. It illustrates the mechanics of equivalent-value pricing with examples from the author's recent research. Given confidentiality considerations associated with these projects, the actual sources of these examples are not specified and some details have been disguised. However, the essence of the situations are faithfully presented and interpreted. The examples demonstrate how equivalent-value prices may be identified in three business settings: advance reservation programs, student housing, and information service design. In each example, equivalent-value prices are identified from conjoint analysis study results. The associated managerial implications are discussed in detail.

Background

In perfectly competitive markets, firms must charge the same price as their competitors. However, most products and services aren't pure commodities. (Since so much of service offerings is in the actual implementation of the service, obvious opportunities for differentiation of services exist: just execute your service in a superior fashion compared to competitors and differential advantage follows.) While competitors' prices are important, customers also take into account differentiating features and benefits. Hence, pricing depends on the following considerations: (a) organizational revenue, volume, and profit objectives; (b) competitive cost structure; (c) differentiability, from the customer's viewpoint; (d) customer price sensitivity; and, (e) competitive pricing dynamics and response tendencies.

There are three general kinds of pricing approaches: cost-based (markup pricing, target-return pricing), competitive-based (going-rate pricing, sealed-bid pricing), and demand-based (perceived-value pricing, psychological pricing). Equivalent-value pricing is a variant of competitive-based pricing suitable for differentiated products and services. It is a method of establishing your price so that your product or service offering represents equivalent value to your customers as some other offering. That price obviously does not have to be the same as the other offering, if your value is different. Equivalent-value pricing certainly isn't presumed to automatically be the best possible price, since demand and cost conditions aren't taken into account. But, the equivalent-value price is a relevant benchmark, a notable signpost on the way to choosing an appropriate price in any competitive situation.

Equivalent-value pricing assumes an underlying model of customer buying behavior. It is presumed that any product or service offering may be viewed as being composed of its underlying features (or benefits) and price. This assumption is the same implicit assumption used in conjoint analysis and other multi-attribute studies. In conjoint

analysis, overall customer offering value is defined as:

$$V(\text{Offering}) = f(\text{Features}, \text{Price})$$

where $V(\text{Offering})$ refers to the "value" (or utility) of the offering and the "offering" is defined in terms of its constituent "features" (or benefits) and "price." Based on this framework, it is possible to compare various offerings and solve for the prices that result in the offerings having equal overall value.

To estimate equivalent-value prices, quantifiable measures of customers' sensitivities to offering features and benefits, as well as to price, are required. Conjoint analysis is an obvious and widely-used technique for developing such feature and price sensitivity trade-offs. For the unfamiliar reader, a non-technical overview of conjoint analysis is provided in an Appendix to this article.

Conjoint analysis originated in mathematical psychology in the 1960s. It was introduced into the marketing literature two decades ago by Green and Rao (1971) and, subsequently, into the mainstream management literature in a now classic and widely cited article in the *Harvard Business Review* (Green and Wind 1975). See also Axelrod and Freundberg (1990) for an introduction to conjoint analysis — and to its jargon. For some recent user-oriented discussion of uses and limitations of conjoint analysis, see Wyner (1992a, 1992b). For status reports on the use of conjoint analysis in industry, see Cattin and Wittink (1982) and Wittink and Cattin (1989). See Green and Srinivasan (1978, 1990), Louviere (1988), and Green and Krieger (1993) for more technically-oriented reviews of the state of the art of conjoint analysis.

Example #1: Advance Reservation Programs

Airlines, hotels, and rental car companies are time-sensitive high-fixed and low-variable cost service businesses. Yield management systems are important to maximize revenues — and profits — in such industries. To implement a yield management system, customer trade-offs for advance reservation situations must be assessed. Market segmentation is crucial here. Discount prices should only be offered to more price sensitive travellers, and especially not to last-minute business travellers who are presumed to be less price sensitive than leisure travellers.

The author recently conducted a large-scale conjoint analysis study to assess how to design an advance reservation program to maximize customer attractiveness. The attributes in this conjoint analysis study included such brand selection factors as discount from standard price, advance booking requirement (days in advance of service usage), penalties for a change or cancellation of a previously-booked reservation, and special service features associated with the reservation. Business and leisure segments were of special interest in this study, given their presumed differential price sensitivities (low price sensitivity of the business segment and high price sensitivity of the leisure segment). Some other obvious considerations are also relevant in such an advance reservation analysis. For example, brand name and "availability" ("scheduling frequency" for airlines, "location" for hotels, and "on/off airport location" for rental cars) would normally be included. Such variables were included in this conjoint analysis study design, but they are

ignored here to simplify the explication.

Sample average conjoint analysis weights, and associated implicit price premiums compared to a non-advance purchase, are shown in Table 1. The implicit price discounts are expressed in terms of percentage discounts from standard rates. In this table, "na" is not applicable and "[base]" refers to the base case. A negative discount is, of course, a price premium.

The overall relative importances for these travel buying factors vary by segment. Following traditional conjoint analysis practice, these overall relative importances are the normalized ranges of the conjoint weights. For example, the sum of the ranges in the conjoint weights is 269 (66+89+97+17) for the business segment. Therefore, the relative importance of "Discount" is 66/269 or 24.5%, expressed in percentage terms. For business travellers, the relative importances of "Discount," "Advance Booking Requirement," "Cancellation Penalty," and "Reservation Type" are 24.5%, 33.1%, 36.1%, and 6.3%, respectively. For leisure travellers, the corresponding relative importances are 32.5%, 14.6%, 28.8%, and 24.1%.

As would be expected, the conjoint analysis weights show that higher discounts, less stringent advance booking requirements, lower (or no) cancellation penalties, and premium reservation types are preferred by customers in both segments. The leisure segment is more discount sensitive than the business segment. As well, the leisure segment is more reservation-type and less advance-booking sensitive. Given such results, there are some interesting discount-package possibilities.

To estimate the price-value trade-off relationship, a linear relationship was presumed between the extreme points ("Full Price" and "50% Discount") of the discount attribute. As may be noted, there is some slight lack of linearity, but this is a reasonable approximation given these sample data. For example, the business segment utility increments from "Full Price" to "25% Discount" and from "25% Discount" to "50% Discount" are 29 and 37, respectively. For the leisure segment, the corresponding utility increments are 43 and 46. With a true linear relationship between utility and price (discount), the utility increments from "Full Price" to "25% Discount" and from "25% Discount" to "50% Discount" would be equal. A more sophisticated analysis might estimate the discount sensitivity with a regression analysis. In such a regression model, the conjoint utility weight would be the dependent variable and price would be the independent variable.

Given these sample results in Table 1, a 50% discount increment (from "Full Price" to "50% Discount") is associated with a utility increase of 66 (78-12). Algebraically, $66U=50$ implying that $U=50/66$ for the business segment. A utility point in the business segment is equivalent to a discount of 50/66, expressed in percentage terms. For leisure travellers, the corresponding value is 50/89 per cent. These utility discount values were used to estimate the implicit price discounts in the Table 1 for the various levels of the other non-price attributes ("Advance Booking Reservation," "Cancellation Penalty," and "Reservation Type").

Table 1

Implicit Price Premiums in the Advance Reservation Program Example

Attributes and Levels	Business Segment		Leisure Segment	
	Conjoint Analysis Weights	Implicit Price Discounts	Conjoint Analysis Weights	Implicit Price Discounts
Discount:				
Full Price	12	na	08	na
25% Discount	41	na	51	na
50% Discount	78	na	97	na
Advance Booking Requirement:				
No Advance Purchase	91	[base]	85	[base]
7 Days in Advance	52	29.5%	72	7.3%
15 Days in Advance	31	45.5%	64	11.8%
30 Days in Advance	20	53.8%	52	18.5%
45 Days in Advance	02	67.4%	45	22.5%
Cancellation Penalty:				
No Penalty	98	[base]	90	[base]
25%	71	20.5%	54	20.2%
50%	24	56.2%	32	32.6%
100%	01	73.5%	11	44.4%
Reservation Type:				
Standard Reservation	34	[base]	12	[base]
Premium Reservation (A)	51	-12.9%	48	-20.2%
Premium Reservation (B)	46	-9.1%	78	-37.1%

Using the base case as the reference, the equivalent-value prices (discounts) for three proposed advance booking programs for leisure travellers are shown in Table 2. The base case here is the standard booking condition; it is currently well-demanded under normal pricing and competitive conditions.

Table 2 describes two discount programs of interest to the study client. The "Modest Discount" program involved a 15 day advance purchase and 25% cancellation penalty for a standard service offering. A "Major Discount" program required a 30 day advance purchase and a 50% cancellation penalty, again for a standard service offering. The equivalent-value prices (discounts) for the "Minor Discount" and "Major Discount" programs are 36.5% and 55.6%, respectively. With such discounts, these programs would be of approximately equivalent value to leisure customers as the standard no-advance-purchase requirement.

These discount programs involve substantial advance purchase requirements and associated cancellation penalties. As such, they are presumed to be of relatively little interest to business travellers, who normally can't make long lead-time advance reservations and for whom cancellation penalties would be impractical. These leisure-traveller discount programs thus effectively "fence out" the less price-sensitive business traveller.

Other discount programs may be assessed using equivalent-value pricing analysis. Of particular interest to the study client were reservation-type packaging options. By packaging relatively low-cost but high-value ancillary travel options in with the basic service, potentially attractive and distinctive market offerings could be designed. And, once again, these options could be designed and priced to attract leisure travellers without necessarily being of much interest to the less price-sensitive business travellers.

Example #2: Student Housing

In its planning to construct new dormitories for upperclass students, a university was concerned with determining the kinds of housing that would be particularly attractive to upperclass students. The university had the typical housing rule for freshmen. Unless living at home, freshmen were required to live in university housing during their initial year at the university. Upperclass students were free to live in off-campus housing, if they wished.

Since the university had adopted the goal of increasing the proportion of upperclass students living in university housing, desirable housing stock would need to be constructed so that students would voluntarily choose on-campus housing options. The major competitor for this new housing stock would be a wide range of existing off-campus private-market housing options.

A second issue was also of interest to the university: what prices (rent) could be charged for this new housing stock? These prices would have obvious implications for economic and financial analyses of the viability of the new student housing.

Table 2

Equivalent-Value Pricing Analysis in the Advance Reservation Program Example

(a) Possible Advance Reservation Programs

	Base	Minor Discount	Major Discount
Attributes:			
Discount	Full Price	? [To Be Determined]	? [To Be Determined]
Advance Booking Requirement	None	15 Days in Advance	30 Days in Advance
Cancellation Penalty	None	25% Penalty	50% Penalty
Reservation Type	Standard	Standard	Standard

(b) Equivalent-Value Prices (Discounts) of the Possible Advance Reservation Programs

	Base	Minor Discount	Major Discount
Conjoint Utility Points Associated With Non-Discount Attributes:			
Advance Booking Requirement	85	64	52
Cancellation Penalty	90	54	32
Reservation Type	12	12	12
Sub-Total	187	130	96
Conjoint Utility Points Associated With Discount Attribute	8		
Base Case Total Utility Points	195		
Difference From Base Case		-65	-99
Estimated Discount of Each Conjoint Utility Points		0.5618	0.5618
Equivalent-Value Price (Discount)		36.5%	55.6%

With an elaborate conjoint analysis study, students' housing preferences were analyzed and their reactions to potential new housing stock, on a segment by segment basis, were assessed. This conjoint analysis study was built around current competitive housing offerings by both the university and its private-market competitors. Attributes in this housing demand study included dwelling type and occupancy (dorm, suite, or apartment with one or two students per bedroom), room size (small, medium, large), ownership and management (university-owned or privately-owned), security arrangements (key, security guard, intercom), building size (small-rise, medium-rise, high-rise), building condition (new or old building, good condition or needs repair), location relative to center of campus (minutes walking or driving distance), fitness facility availability (none, next door, 5-minute walk), nature of lease (monthly, 9-month, 12-month), and monthly per-person rent (\$300 to \$700, in increments of \$50). Because of the presumed importance of price (rent) in this market, nine levels of price (rent) were included in the experimental design; the other eight housing attributes had three levels each within the conjoint study design. Appropriate statistical analysis revealed that a single linear price term was a satisfactory approximation to the nine levels of price.

Given the complexity of this conjoint analysis study, an individual-level conjoint design was not possible. Rather, three questionnaire versions were required to cover the total of 27 profiles in the study design (one attribute with nine levels and eight attributes with three levels each). Thus, only aggregate (segment level) trade-off weights could be estimated in this conjoint analysis study.

With the results of this conjoint analysis study in hand, it was possible to assess the equivalent-value prices that students would require to find the new housing options to be of equal interest to currently-available and generally sought-after housing options. Equivalent-value price (rent) calculations for the sophomore market segment are shown in Table 3. For the sophomore segment, the price term in the conjoint model implied a \$3.993 per utility point implicit value. Thus, in comparing two offerings that differ by 10 utility points, the corresponding price difference to just offset the 10 utility point difference would be \$39.93 per month rent.

The base case alternative in Table 3 was a university-owned apartment with a rent of \$410 per student per month at the time of the study. This base case university-owned apartment was a widely-demanded offering.

As may be noted in Table 3, the base case and four alternative housing options varied on many of the eight non-price attributes. Alternatives #1-#3 were possible housing variations in the new housing stock the university contemplated constructing. They featured a variety of living conditions, with regard to number of bedrooms and dwelling occupancy. Alternative #4 is a typical private-market offering, shown for purposes of comparison.

The complete conjoint analysis results revealed the primacy of privacy to upperclass students. Coming from an environment of freshmen two-people-per-room dorms, a private bedroom — even if of small size — was the clear favorite. This explains why

Table 3

Equivalent-Value Prices in the Student Housing Example

	Conjoint Utility Points Associated With Non-Price (Rent) Attributes	Equivalent-Value Price (Rent)
Base Case: University-Owned Two Bedroom Apartment, Two Students Per Room (medium-sized rooms; resident assistant on-site; key and intercom security; medium-rise building; old building, good condition; 15-minute walk from center of campus; no fitness facility nearby; 9-month academic-year lease)	448.42	\$410 [base]
Alternative #1: University-Owned Four Bedroom Apartment, One Student Per Room (small-sized rooms; resident assistant on-site; key and intercom security; medium-rise building; new building; 15-minute walk from center of campus; 5-minute walk to fitness facility; 9-month academic-year lease)	478.72	\$531
Alternative #2: University-Owned Two Bedroom Apartment, Two Students Per Room (medium-sized rooms; resident assistant on-site; key and intercom security; medium-rise building; new building; 15-minute walk from center of campus; 5-minute walk to fitness facility; 9-month academic-year lease)	447.51	\$406
Alternative #3: University-Owned One Bedroom Apartment, Two Students Per Room (medium-sized rooms; resident assistant on-site; key and intercom security; medium-rise building; new building; 15-minute walk from center of campus; 5-minute walk to fitness facility; 9-month academic-year lease)	445.35	\$398
Alternative #4: Private-Market Two Bedroom Apartment, One Student Per Room (medium-sized rooms; key and intercom security; medium-rise building; old building, good condition; 20-minute drive or subway ride; no fitness facility nearby; 12-month lease)	452.82	\$428

university housing Alternative #1 had such a high equivalent-value price — \$531 compared to the base case of \$410. These upperclass students derived considerable value from this offering, and they were prepared to pay a substantial premium compared to a base case housing option with two students per room. Alternatives #2 and #3 again were less valued than the base case, due to the inclusion of two students per bedroom.

Obviously, a wide range of offering variations could be assembled and assessed using equivalent-value pricing analysis. In this particular situation, the university shifted the design of the new housing stock toward private-bedroom apartments, reflecting the strong preferences shown in this conjoint analysis study for that kind of living environment. In addition, equivalent-value pricing analysis was used as an integral component of the financial analysis of the various proposed housing design possibilities. The equivalent-value results also provided useful input into the re-pricing of the university's wide range of existing housing stock (with widely varying vintage and amenities).

Example #3: Information Service Design

In some on-going research, the author is assessing the potential value of various presentation formats for marketing research results within a marketing information system. The information service design problem is crucial due to the large amount of marketing research information that is routinely presented to the marketing managers in this firm.

A simple conjoint analysis survey with two attributes, price and presentation format, is being used in this research effort. To assess user preferences for the various presentation formats, conjoint analysis approaches the preference elicitation process indirectly. Rather than other self-reported measures of "understanding," "ease of use," and the like, format preference is assumed to be represented by the price premiums, if any, that users are prepared to pay for a particular presentation style.

The presentation formats include the current situation as a base case (a traditional multi-column tabular presentation format) and two alternative presentation formats involving either graphics or the addition of other base case data (such as past values of the relevant marketing data). Price levels include both the current and higher prices. Price really plays two roles in this study. It is a pricing mechanism, simulating what an outside supplier might charge for more elaborate presentations of marketing research results. It is also an opportunity cost mechanism, proving direction for the marketing research information system designers toward the highest priority elements to include in the evolving information service design.

Since this is a classic individual-level conjoint analysis study, it is possible to calculate the implicit price premiums associated with each respondent's trade-offs. The equivalent-value prices here are the price premiums that would leave these respondents indifferent between the existing presentation format for this marketing research study and the alternative formats.

Some sample results are shown in Table 4. These are the implicit price premium values associated with the second and third types of presentation formats, compared to the base case.

As may be noted from the results in Table 4, the alternative formats are valued more than the base case format. The price premiums are positive for all respondents, so there is a unanimity of views of the positive nature of the alternative formats (compared to the base case). There is a wide range of variation of implicit price premiums in evidence: respondents all don't see the world identically. Such respondent heterogeneity in conjoint analysis studies is to be expected. However, when we only see aggregated (averaged) results, it is often easy to forget the individual variability inherent in such averages.

Table 4

Equivalent-Value Prices in the Information Service Design Example

Respondent	Implicit Price Premiums Compared To The Base Case Presentation Format	
	Format #2	Format #3
1	5333	6667
2	667	1333
3	667	1333
4	667	1333
5	250	2000
6	1333	2667
7	667	1333
8	667	1333
9	4800	6000
10	2462	4000
11	1250	2500
Mean	1705	2773
Standard Deviation	1765	1952

Some ways of summarizing these conjoint analysis results include the following observations:

- Compared to the base presentation format, the average price premium for formats #2 and #3 are \$1,705 and \$2,773, respectively. These respondents favor format #3 over #2 (and over the base case, since the price premium is positive).
- For these eleven respondents, three respondents see the incremental value of format #2 as being at least \$2,000, while six respondents see format #3's value as being at least \$2,000.
- There is substantial variation in individual price premiums associated with these presentation formats. The ranges in price premiums for formats #2 and #3 are \$667-\$5,333 and \$1,333-\$6,667, respectively.

By examining a number of information service design components in this fashion, it is possible to use equivalent-value pricing analysis to value various design and presentation options. These valuations provide considerable guidance to system designers in choosing design options and in prioritizing their programming and design efforts.

Managerial Implications and Recommendations

Alfred Marshall, the eminent economist, once said "We might as reasonably dispute whether it is the upper or the under blade of a pair of scissors that cuts a piece of paper, as whether value is governed by utility or cost of production." However, customer utility (value) and vendor cost are not the only relevant considerations. Marshall did not account for the presence of competition in contemplating the sources of value. Equivalent-value pricing is built on the premise that competitive standing is fundamental to the construct of value. Indeed, value is only a meaningful construct when compared to other competitive offerings — or, more abstractly, to any other possible use of the money that would be spent to purchase an offering. Using some other offering as a reference point, equivalent-value pricing offers a concrete procedure for establishing a price level that yields the same overall value as that other offering. With equivalent value, the two offerings should yield approximately equivalent (although unknown) demand levels.

Given the importance of price in equivalent-value pricing analysis, customers' price sensitivities must be estimated reliably. Obviously, a statistically significant price effect must be present in any market segment in which an equivalent-value pricing analysis is conducted. Since the price sensitivity value is used as a divisor, it must obviously be a non-zero and relatively reliably-estimated number.

While equivalent-value pricing analysis is typically conducted at the level of a market segment using aggregate conjoint analysis results for that segment, it is important to examine respondent heterogeneity for nominally-scaled attributes. Some examples of nominally-scaled attributes include the following: reservation types, availability of frequent traveller points, dwelling type (apartment, suite, or dorm room), room size (small, medium, or large), and presentation formats of marketing research studies. More generally, nominally-scaled attributes involve the presence or absence of particular product or service features, but not the quantitative magnitude of such features. If, for example, half the respondents love and half hate a particular marketing research study

presentation format, the average results could show a price premium of \$0 implying no net preference for the format over the base case. Perverse heterogeneity could mask strong effects as averaging out to zero. However, nothing could be farther from the truth.

In fact, for half the respondents, the base case is preferred while for the other half the alternative format is preferred. With nominally-scaled attributes, aggregate conjoint results can easily mask substantial and meaningful respondent heterogeneity.

The base case offering for equivalent-value pricing should be a widely-demanded offering. It would be risky to base equivalent-value prices on obscure or small-demand brands, since their customers may exhibit peculiar demand tendencies which may not generalize to the broad market of all customers.

Relevant range issues are especially important to remember in equivalent-value pricing analysis. For example, in the advance reservation program example, the discount variable only ranged from 0% to 50% in the conjoint analysis study design. Predicted equivalent-value discounts outside this range, especially substantially outside this range, are suspect. The conjoint study limits cannot be extended indefinitely due to the linearity assumption implicit in equivalent-value pricing analysis. Indeed, the estimated equivalent-price discounts for business travellers would be about 75% and 118% for the "Minor Discount" and "Major Discount" programs described earlier. These obviously exceed the limit of the relevant range of the discount variable ("Full Price" to "50% Discount") used in the design of the conjoint analysis study.

Equivalent-value prices do not take demand nor the number of competitive offerings into account. Obviously, this is a limitation. However, the equivalent-value price is merely a price level that results in an offering having an overall value equal to some other offering. That may not be the best possible thing to do, nor the best possible offering to which one should be compared. Nevertheless, the equivalent-value price is a relevant reference point, rather like a break-even price level.

Since the equivalent-value price offers equivalent overall customer value (considering product attributes and price), customers should be indifferent among offerings priced at their equivalent-value prices. Assuming equal awareness and distribution access, approximately equal market shares and sales volumes should follow — by definition. However, a vendor may not be indifferent among alternative product attribute and price bundles. Profitability may differ for alternative product attribute and price bundles, and a thoughtful vendor will search for least-cost equivalent-value options.

Conjoint analysis results can be used to quantify the desirability of product or service features, to assess price sensitivity, and to forecast demand and market share. Equivalent-value pricing analysis is another important approach to representing the results of conjoint analysis studies. Equivalent-value prices are not necessarily the "best" possible price, and they certainly aren't the "optimal" price (whatever that means). Nevertheless, equivalent-value prices are key benchmarks about which the thoughtful marketing professional must be knowledgeable. At a minimum, selecting the equivalent-value price leads to a competitive price.

Oscar Wilde described a cynic as someone "who knows the price of everything and the value of nothing." However, it is not enough to simply know the price of competitive offerings; value is relevant too. And, value is relative to that offered by competitors. Equivalent-value pricing is a useful approach to assess competitive value in intuitively meaningful and readily-operational terms. As the examples in this paper suggest, it has wide potential applicability.

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Appendix — Conjoint Analysis Overview

Conjoint analysis seeks to measure and quantify customers' values for underlying buying factors, offering attributes, characteristics, and features (performance, quality, and service, for example) and price. In effect, conjoint analysis reverse engineers customers' buying decisions. With knowledge of customers' buying values, important product positioning and pricing questions such as the following may be addressed:

- (1) What buying factors are most important to customers? For example, how important is "service" to customers?
- (2) What buying factor levels are most valued by customers? For example, how important is "service responsiveness — within one hour" to customers?
- (3) How much will customers pay for particular buying factor levels? For example, what is the implicit dollar premium that customers will pay for "service responsiveness — within one hour" compared to "service responsiveness — within one day"?

There's even more to conjoint analysis than addressing just these three questions (market share prediction and simulations under various competitive "what-if" scenarios as well as customer segmentation, for example) but a detailed discussion of these advanced issues is beyond the scope of this overview appendix. See Green and Krieger (1993) for an up-to-date technically-oriented review of conjoint analysis, product positioning, and pricing.

To provide an overview of conjoint analysis, we'll use a simplified version of the advance reservation program example described in this article. Our focus is on interpreting the results of conjoint analysis studies, not on their design or fielding. In pricing service variations, it's natural to analyze customers' preparedness to pay premiums for upgraded offerings. For example, in the hotel market place, we might be concerned with pricing basic rooms compared to upgraded rooms with various special features and enhanced services. (Of course, there might be many more than just the two buying factors, room price and room type, within a full-scale hotel market conjoint analysis study.) Suppose that we had the following estimates of conjoint analysis utility trade-off weights from a completed conjoint analysis study:

Buying Factor Attributes (and Levels)	Conjoint Analysis Utility Trade-Off Weights
Room Prices:	
\$50	100
\$60	81
\$70	54
\$80	0
Room Type:	
Basic	21
Upgraded (A)	61
Upgraded (B)	54

These trade-off weights might be for a single customer. Alternatively, they might represent the average trade-off weights for all customers in a particular segment.

These trade-off weights reflect predictable results. Higher room prices are associated with lower utility and basic rooms are valued less than upgraded rooms. Have we simply discovered the obvious? Yes — but we've accomplished much more. These trade-off weights express customer preferences in quantifiable terms. We haven't learned simply that lower priced rooms are preferred, but we've learned something about the strength of this preference. One way of summarizing these results is with relative importances, the normalized ranges of the buying factor level weights. For these trade-off weights, the ranges are $100-0=100$ and $61-21=40$. Normalizing these ranges to sum to 100% results in the relative importances 71.4% and 28.6% for room price and room type, respectively. Given these researcher-designated buying factor ranges ("\$50" to "\$80" and "Basic" to "Upgraded (A)"), it appears that room price is substantially more important than room type to these customers ***within these buying factor ranges***.

With regard to the specifics of customer preferences, customers prefer "Upgraded (A)" to "Upgraded (B)" rooms. This, of course, isn't the final word on the offering design and positioning problem. If "Upgraded (A)" rooms are much more expensive than "Upgraded (B)" rooms to provide to customers, it might be more profitable to offer only "Upgraded (B)" rooms at a more modest price than "Upgraded (A)" rooms. If "Upgraded (A)" and "Upgraded (B)" rooms cost about the same to deliver, then these results indicate the clear superiority of the "Upgraded (A)" offering. Rather than relying on guessing ("sound managerial judgment"), these conjoint analysis results provide the hotel manager with solid evidence as to the preferred market offering.

The real managerial payoff from these trade-off weights lies in our ability to estimate price premiums or equivalent-value prices from these results. For these sample results, let's express the room price results in terms of a single trade-off between price and utility. We could be quite sophisticated and fit a regression line through these data. Alternatively, let's just use the end-points and estimate an overall average effect of room price on utility. (This simple approach overlooks the possibility of a non-linear relationship between room price and utility.) For these room prices, a range of \$30 (\$80-\$50) is associated with a difference of 100-0=100 utility points. Thus, each utility point is implicitly valued at \$0.30 by these customers.

Given the estimate of \$0.30 per utility point, we can now calculate the implicit price premiums that customers are prepared to pay for upgraded rooms compared to "Basic" rooms:

- For "Upgraded (A)" rooms, the 40 extra utility points (from 21 to 61) translate into an implicit \$12.00 room premium. A customer who is prepared to pay \$55.00 for a "Basic" room should be prepared to pay \$67.00 for an "Upgraded (A)" room.
- For "Upgraded (B)" rooms, the 33 extra utility points (from 21 to 54) translate into an implicit \$9.90 room premium. A customer who is prepared to pay \$55.00 for a "Basic" room should be prepared to pay \$64.90 for an "Upgraded (B)" room.

With these quantifiable results, the hotel manager is in an informed position to design and price upgraded hotel rooms.

Source: Randall G. Chapman, "Equivalent-Value Pricing,"
Pricing Strategy & Practice: An International Journal,
Volume 2, Number 2 (1994), pp. 4-16.