Marketing Science

Practice Prize Paper—Applying a Dynamic Model of Consumer Choice to Guide Brand Development at Jetstar Airways

Peter J. Danaher, John H. Roberts, Ken Roberts, Alan Simpson,

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Applying a Dynamic Model of Consumer Choice to Guide Brand Development at Jetstar Airways

Peter J. Danaher
Melbourne Business School, University of Melbourne, Carlton, Victoria 3053, Australia, peter.danaher@monash.edu

John H. Roberts
College of Business and Economics, Australian National University, Canberra, Australian Capital Territory 0200, Australia;
and London Business School, London NW1 4SA, United Kingdom, john.roberts@anu.edu.au

Ken Roberts
Forethought Research, Melbourne, Victoria 3000, Australia, ken.roberts@forethought.com.au

Alan Simpson
Forethought Research, Melbourne, Victoria 3000, Australia; and University of Melbourne, Carlton, Victoria 3053, Australia,
alan.simpson@forethought.com.au

This paper describes the use of a marketing science model by Jetstar, a subsidiary of Australia's leading airline, Qantas, to effectively and profitably compete in the low-cost carrier marketplace. We trace the evolution of the Jetstar strategy from a baseline calibration of its initial position, to its efforts to attain price competitiveness and service parity, followed by its highly focused, cost-effective service delivery strategy. We develop a hierarchical model with parameters estimated at the individual level. This allows us to study not only how service design and pricing initiatives shift the perceived performance of Jetstar relative to its competitors but also how the airline can move market preferences toward areas in which it has competitive advantage. The contribution of the research is substantial. The Jetstar market share went from 14.0% to 18.1% during the first five quarterly waves of the research, and profits went from $79 million in 2006–2007, before the study was commissioned, to $124 million in 2008–2009.

1. Introduction

Jetstar was established in May 2004 as a budget airline by Qantas, Australia's foremost domestic and international carrier. Its purpose is to cover the low-cost segment of the market, which began around 2000 with the launch of a competitor, Virgin Blue. Until the time Jetstar began operations, Virgin Blue had been successfully eroding the Qantas market share by attacking it from below as a no-frills provider. In response, Jetstar was also designed to be a no-frills carrier, predominantly targeted at the leisure market (Ritson 2009).

Jetstar initially achieved some success in this role, reaching a market share of 14% by the beginning of 2008. However, market research results suggested that Jetstar was not generally perceived as competitive in value to Virgin Blue, either in terms of the perceptions of price competitiveness or the quality of its service. Based on this research, Jetstar embarked on a three-stage strategy. First, it addressed unfavorable customer perceptions of price and quality by using price promotions and advertising communications about service levels. Second, Jetstar changed beliefs about quality through a service enhancement program and a more focused quality-based advertising message. The third stage was one of consolidation, to take advantage of the momentum generated by the second stage. The analysis described here had a major impact on the actions taken by Jetstar management. Today, Jetstar remains the only successful low-cost offshoot of a full service airline in terms of shareholder returns.

2. The Management Problem

By the end of 2007, perceptions about Jetstar's lack of price competitiveness were inconsistent with its actual fares in the market. Surprisingly, Jetstar was perceived as more expensive than was Virgin Blue,

even though the actual airfares were nearly identical. This limited the effectiveness of Jetstar as a fighter brand and retarded its financial results. To avoid the financial stress (and ultimate demise) suffered by every low-cost brand of other major carriers, such as British Airways' Go, United's TED, and Delta's Song, Jetstar saw a need to improve consumer perceptions. To this end, Jetstar needed new pricing formats, adaptive service design changes, and effective communications. To design such services, Jetstar management required information on the drivers of evaluation and choice, where Jetstar stood relative to its competitors on these, how drivers and perceptions varied across the population, and the relation of service design features to perceptual drivers.

2.1. The Strategic Approach

Jetstar recognized that its management actions would likely evolve over a period of time in response to market feedback. Consequently, the Jetstar requirements were to understand the market on a continuous basis to first assess customer needs, then develop a strategy to address these needs, and then subsequently monitor to judge whether the strategy had been successful. These strategies were expected to be adapted and refined over time in response to changes in perceptions and needs. This dynamic modeling approach enables us to study the interaction of marketing activity and market analysis in a way that is impossible with the comparative statics commonly used in marketing science applications. To implement this evolutionary approach, Forethought Research first undertook pilot qualitative research, followed by quarterly quantitative studies.[1]

3. Model

To meet the management demands described in §2, our model is developed with a number of requirements in mind. These include the need to (i) simultaneously accommodate a hierarchy of process attributes, (ii) develop a choice model of consumer preferences to enable translation of service performance improvements to share and profit, (iii) capture heterogeneity across the population, and (iv) represent how beliefs and preferences change over time. Simultaneously handling these four requirements is rather challenging and has not previously been attempted in the service quality literature.

3.1. Conceptual Model

One of the more powerful and robust conceptual models for service industries links value to price and quality (Sweeney et al. 1999) because perceived value is repeatedly demonstrated to correlate well with market share and profits (Zhou et al. 2009). This thinking forms the basis of the widely used Customer Value Analysis model developed largely by Gale (1994). In Gale's model, the key dependent variable is customer perceived value, which is determined by price and quality. These constructs, in turn, are linked to process attributes. In a departure from this standard service quality model, we posit that relative perceived value forms the basis for consumer choice among alternative suppliers. That is, utility is gauged by the relative perceived value of an airline, and this utility is the key element in a choice model.

Although many customer satisfaction/service quality studies operate at a "global level" in that they attempt to associate value with quality and price (e.g., Sweeney et al. 1999), firms also need to know how to improve their overall value by improving their performance at a more microprocess level (Rust and Zahorik 1993). Figure 1 depicts a conceptual model of the global attributes and microprocess attributes relevant to this airline environment and the links between these attributes. Notice that, in our case, initial qualitative research found that consumers consider operational performance and reputation to be the key components of airline quality, and this is incorporated into the third level of Figure 1. As mentioned earlier, Jetstar management expected customer perceptions and needs to change over time in response to their pricing, communications, and service process activity. These dynamics are illustrated in Figure 1 for the model parameters that are reestimated for each survey wave (e.g., $\beta_{i,t}^{\text{Price}}$).[2]

Previous researchers have handled these two demands of gauging the importance of global and micro attributes with a sequence of two regression models, one at the global level, followed by a series of models at the micro levels (see, e.g., Danaher and Mattsson 1994) or by using a LISREL approach to modeling multidimensional, hierarchical constructs (e.g., Brady and Cronin 2001). In this study, however, we use a Bayesian hierarchical model to conceptually "integrate" these two requirements (macrolevel market share evolution with microlevel attribute evaluation for service design) into a single model, as explained below. This approach using our consumer

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[2] Note that all construct and subattribute (value, performance, reputation, etc.) levels also change for each survey wave, but we omit the *t* subscript in Figure 1 for clarity.

Figure 1   Conceptual Model of Consumer Choice for Airline Market at Time *t*
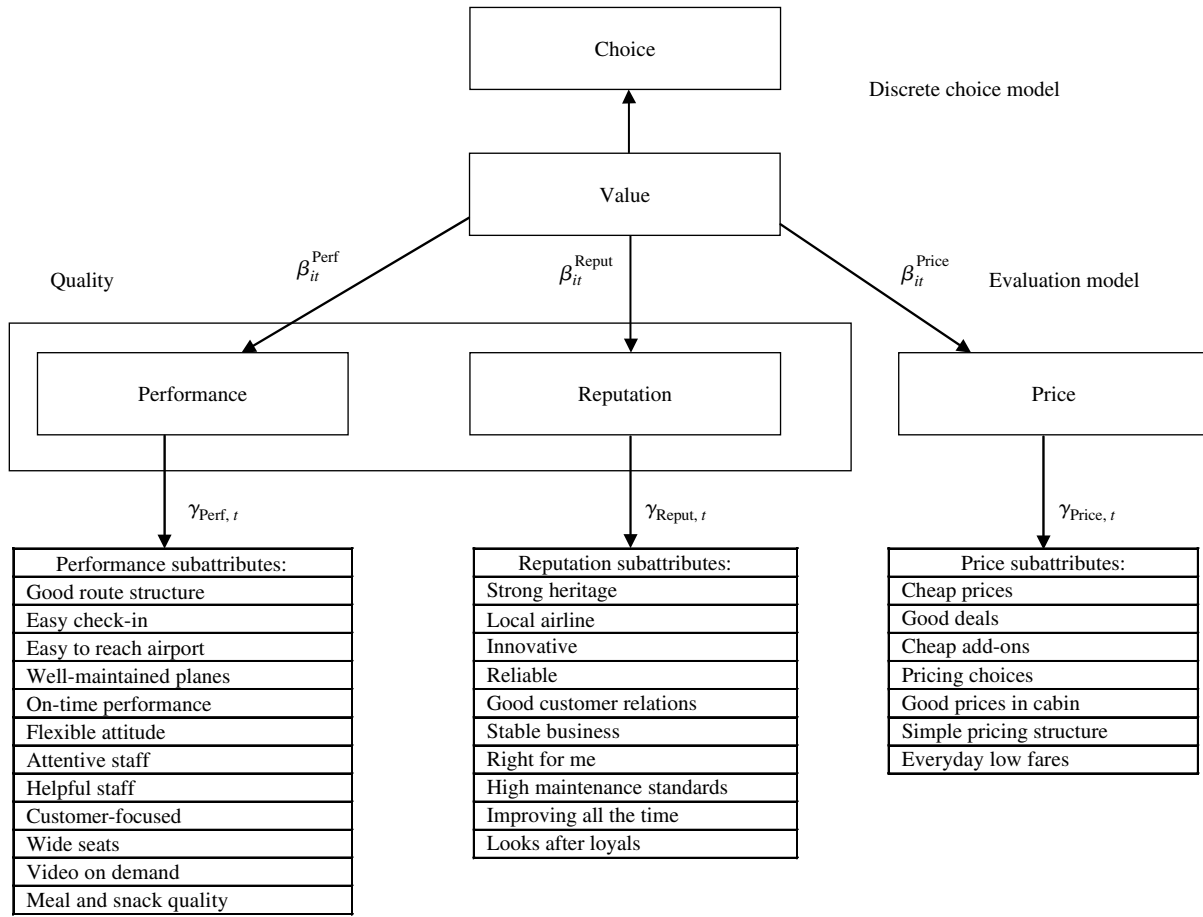
choice framework is novel to the service quality literature. Our method also captures individual-level heterogeneity, an important factor that is often ignored in service management (Danaher 1998).

3.2. Hierarchical Model for the Consumer Decision Process

We employ a hierarchical Bayes model to capture differences in consumer tastes as well as variations in their perceptions. Consistent with our conceptual model, we develop a model consisting of two interrelated layers. The first, or top, layer is a multinomial logit model for consumer choice of the probability that respondent i chooses airline j:

$$P_{ij} \mid \mathbf{y}_{ij}, \boldsymbol{\beta}_i = \frac{\exp(\mathbf{y}_{ij}\boldsymbol{\beta}_i)}{\sum_{j'} \exp(\mathbf{y}_{ij'}\boldsymbol{\beta}_i)}, \qquad (1)$$

for $i = 1, \ldots, n$ respondents and j' ranging over the consideration set of airlines about which a respondent is aware.[3] At this top layer, the variables $\mathbf{y}_{ij}$

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[3] This model is run separately for each survey wave so we could add a further time subscript, but we omit it for notation simplicity. Note that we control for awareness and consideration to represent the choice process.

are respondent ratings for each airline on the "global attributes" of Performance, Reputation, and Price. Therefore, $\boldsymbol{\beta}_i$ is a three-dimensional vector, with components β_{ik} being the importance weight that individual i places on global attribute k ($k = 1$ is Operational Performance, $k = 2$ is Reputation, and $k = 3$ is Price Competitiveness). That is,

$$y_{ij}\boldsymbol{\beta}_i = airline\_dummies + \beta_i^{\text{Perf}}\text{Perf}_{ij}$$
$$+ \beta_i^{\text{Reput}}\text{Reput}_{ij} + \beta_i^{\text{Price}}\text{Price}_{ij} + \varepsilon_{ij}. \qquad (2)$$

In keeping with our conceptual model in Figure 1, we construct a second layer in which the global attributes are, in turn, functions of a set of relevant microprocess subattributes as follows:

$$y_{ijk} \mid \mathbf{x}_{ijk}, \boldsymbol{\gamma}_{ijk}, \sigma_k \sim \text{N}(\mathbf{x}_{ijk}\boldsymbol{\gamma}_{ijk}, \sigma_k). \qquad (3)$$

Specifically, we write the linear model as

$$y_{ijk} = \gamma_0 + airline\_dummies + \sum_{l=1}^{L_k} \gamma_{ikl}x_{ijkl} + \delta_{ijk}. \qquad (4)$$

Here, $\mathbf{x}_{ijk}$ is a vector containing individual i's evaluation of airline j for each of the L_k subattributes

Table 1   Parameter Estimates for the Choice Model

	Wave 1		Wave 2		Wave 3		Wave 4		Wave 5	
	β	S.E. (β)	β	S.E. (β)	β	S.E. (β)	β	S.E. (β)	β	S.E. (β)
Performance	3.392	0.042	2.172	0.061	2.204	0.070	1.686	0.043	2.752	0.056
Reputation	2.973	0.044	2.283	0.042	2.229	0.061	2.264	0.062	2.159	0.060
Price competitiveness	4.464	0.059	3.287	0.053	3.009	0.054	2.914	0.043	3.088	0.050
n	1,813		1,977		1,617		1,724		1,685	
Percent certainty[a]	0.907		0.963		0.946		0.935		0.944	

Note. These are the importance weights for the global attributes.
   [a]Hauser's (1978) measure of goodness of fit for choice models, based on log-likelihoods.

corresponding to global attribute k, and it is appropriately defined to accommodate the intercept and airline dummy variables. The dimension of this vector depends on the number of relevant subattributes. For instance, the subattributes for Performance include "good route structure," "easy check-in," and "easy to reach airport." The complete list of subattributes is given in Figure 1; there are 12, 10, and 7 subattributes for Performance, Reputation, and Price, respectively.[4] The γ_{ikl} parameters are importance weights placed on each subattribute corresponding to individual i, global attribute k, and subattribute l.[5]

To complete the model specification at any specific point in time, we allow

$$\boldsymbol{\beta}_i \mid \boldsymbol{\beta}, \mathbf{B} \sim \mathrm{N}(\boldsymbol{\beta}, \mathbf{B}) \qquad (5)$$

and

$$\boldsymbol{\gamma}_{ik} \mid \boldsymbol{\gamma}_k, \boldsymbol{\Gamma}_k \sim \mathrm{N}(\boldsymbol{\gamma}_k, \boldsymbol{\Gamma}_k). \qquad (6)$$

Hence, our model captures unobserved heterogeneity in respondent preferences through the distributions around $\boldsymbol{\beta}_i$ and $\boldsymbol{\gamma}_{ik}$, as defined in Equations (5) and (6).

3.3.   Sample and Questionnaire Design

Domestic leisure travelers departing from Sydney, Melbourne, and Brisbane in Australia form the target market for the study. Respondents are selected so as to be demographically representative of New South Wales, Victoria, and Queensland residents in accordance with the 2006 Australian Bureau of Statistics census data.[6] Demographic stratification by age, gender, state, and metro/rural ensures representativeness of the sample. An online survey was designed and

pilot tested by Forethought Research. We report on the first five quarterly survey waves, with the first quarter being January to March 2008.

Each of the five quantitative waves reported here consisted of between 1,600 and 2,000 respondents (see Table 1 for exact numbers), selected using stratified random sampling. Respondents were recruited from a large online panel of 160,000 people to complete a Web-based survey lasting approximately 20 minutes. Only about a quarter of these panelists were eligible, given the criteria of having flown on a domestic leisure flight in the past year.

There are five airlines operating in this market: Jetstar, Qantas, Rex (Regional Express), Tiger Airways (owned by Singapore Airlines), and Virgin Blue. Ideally, we would get interviewees to evaluate all five airlines, but this lengthens the survey considerably, thereby increasing respondent fatigue. To alleviate this problem, respondents are queried about just two airlines. These airlines represent a random selection from those that respondents have flown in the past year and also those that they have not flown, but about which they feel they have sufficient familiarity to evaluate. Further details about the questionnaire are included in Appendix A of the electronic companion to this paper, available as part of the online version that can be found at http://mktsci.pubs.informs.org/.

3.4.   Estimation

The likelihood equation for discrete choice models is of the form

$$L = \prod_i \prod_j P_{ij}^{Z_{ij}}, \qquad (7)$$

where $z_{ij} = 1$ if the jth item was chosen by respondent i and 0 otherwise. The conversion of scale for the Value variable to a discrete choice analogue was achieved via the following transformation: $z_{ij} = 1$ if $v_{ij} > v_{ij'}$ and $z_{ij} = 0$ if $v_{ij} < v_{ij'}$, where v_{ij} is the score given to the worth-what-paid (i.e., value) question by respondent i for airline j and $v_{ij'}$ is the value score for the other airline evaluated. In the case of ties between v_{ij} and $v_{ij'}$, one airline was chosen at random with a probability of one-half.

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[4] Note that the subattributes in Figure 1 have been disguised for commercial reasons. Although the flavor of the results and the management implications that flow from them are not altered by this change, any competitive insight that could be obtained from observing the real subattribute names and values is removed.

[5] As for the top-level importance weights, we initially had γ_{ik} also varying by airline, but the empirical results did not show significant variation across airlines.

[6] These states represent more than 77% of Australia's population.

As the maximum likelihood equation for Equation (7) involves estimating high dimensional integrals, we used a Gibbs sampler to estimate the unobserved heterogeneity as well as estimate the other random effects in the model in a fully Bayesian context. We present the full technical details in Appendix B of the electronic companion.

4. Implementation and Results

Although the research is ongoing, we describe the first five quarterly waves of the market research, which correspond to the first three major stages of the strategy. Prior to this research, the strategy that Jetstar adopted was entitled "everyday low prices." The three stages of migration described here are referred to internally at Jetstar as "low fares—good times," "focused service delivery," and "consolidation." The first wave of market research established a baseline of perceptions, preferences, and behavior against which to track changes as a result of management actions over these three stages. The relation between these three stages of implementation and the five waves of monitoring is detailed in Table C.1 in Appendix C of the electronic companion.

4.1. Initial Position (Wave 1): January 2008

At the time of the baseline calibration (Wave 1), Jetstar was almost exclusively using a "low price" message in its communications, but the points of proof to make this credible were not evident to consumers. The first task of Wave 1 was to establish just how far behind Jetstar was on price and quality perceptions.[7] Figure 2 shows that at the beginning of the new strategic initiative, Jetstar had a 6.9% perceived price disadvantage to Virgin Blue (7.05 versus 7.57, respectively, on a 10-point scale).[8] Although this may not sound a lot, it is quite important in the price-aware end of the market. The Jetstar overall quality disadvantage can be seen from Figure 3 to be even greater, at 22.3% (6.02 versus 7.75). This invites a naïve interpretation—namely, that Jetstar should focus on quality because it lags behind Virgin by a much greater amount on quality than it does on price. However, our model reveals that what is more *important* to customers is price. Additionally, because price is a search attribute and quality an experience attribute, Jetstar management considered the response function of price would be more sensitive to management activity than that of quality in the short term (Wright and Lynch 1995).

Table 1 shows that price is the most important global attribute, with an estimated coefficient of 4.464.

[7] Quality is a combination of perceived operational performance and perceived reputation and is measured separately in the survey instrument (refer to Figure 1).

[8] For proprietary reasons, we cannot display the results for Qantas.

Figure 2   Evolution of Price Perceptions for All Airlines
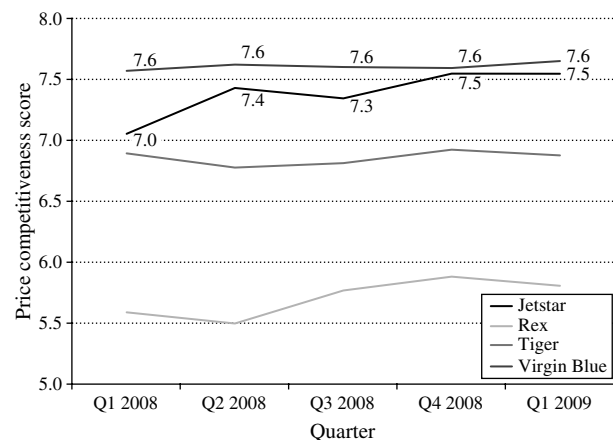
This is followed by operational performance (3.392) and then reputation (2.973). Table C.2 in Appendix C of the electronic companion expresses these global attributes in terms of the constituent subattributes that drive them, showing management where the most traction can be gained with improved pricing and service design. For example, in Wave 1, the importance of perceived on-time performance is critical in the determination of overall operational performance perceptions, having the largest estimated coefficient of 0.214. Furthermore, everyday low fares (0.252), cheap fares (0.280), and good deals (0.209) are the primary drivers of price competitiveness.

We can also make use of the heterogeneity component of our model to understand further the extent to which there is individual-level variation in the importance weights for the key global attributes of operational performance and price. Such an analysis is not possible with a simple regression model. Figure 4 plots the individual-level random effects for the importance weights for performance and price in Wave 1, which are β_i^{Perf} and β_i^{Price} in the

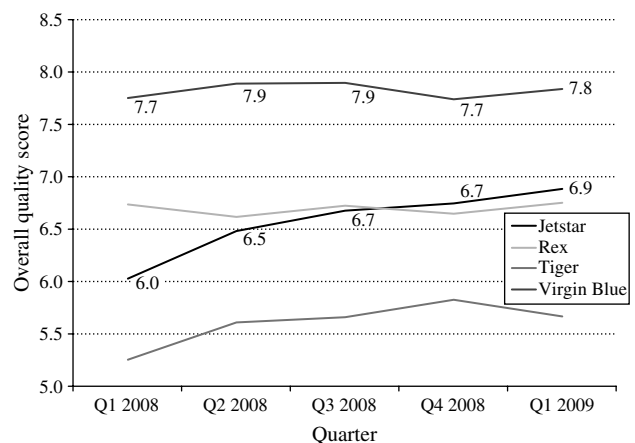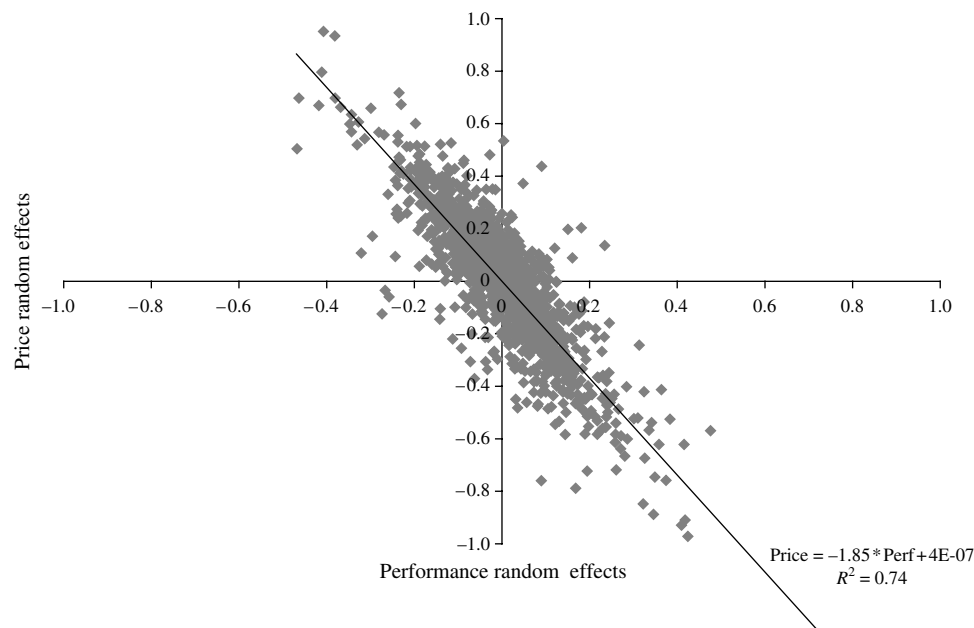Figure 3   Evolution of Quality Perceptions for All Airlines

Figure 4   Price Random Effects vs. Performance Random Effects—Wave 1

$$\text{Price} = -1.85 * \text{Perf} + 4\text{E-07}$$
$$R^2 = 0.74$$

notation of Equation (2).[9] Two things are apparent. First, there is greater variation in the β_i^{Price} random effects, which range between -1 and 1, whereas β_i^{Perf} ranges between -0.5 and 0.5. This indicates that the price attribute generates more extreme importance weights than does performance. Second, the relationship between β_i^{Perf} and β_i^{Price} is linear and negative, with a regression line fitted to these observations showing that price random effects are about twice those of performance. Indeed, those persons that place high importance on price place low importance on performance, and vice versa. That is, for price-sensitive customers, it is harder to compensate for poorly perceived prices with improved performance because of their lower-quality coefficients. Although a price/quality trade-off is generally expected, Figure 4 enables us to gauge the strength of this trade-off, which very much favors price in this case.

4.2.   First Stage of Intervention: Addressing Price Perceptions and the Quality Gap
The first intervention required Jetstar to gain at least a perception of price parity with a significant part of the target market, given that attribute's importance in the domestic leisure market. Additionally, given the price elasticities from the detailed models, management changed the theme of Jetstar communications and advertising to focus on a price guarantee that promised that Jetstar would offer a 10% price reward to any customer that found "a lower fare online on

[9] Strictly speaking, the random effects in Figure 4 are the deviations from the mean values of β_i^{Perf} and β_i^{Price}.

the same route for a comparable time" (see Figure C.1 in Appendix C of the electronic companion).

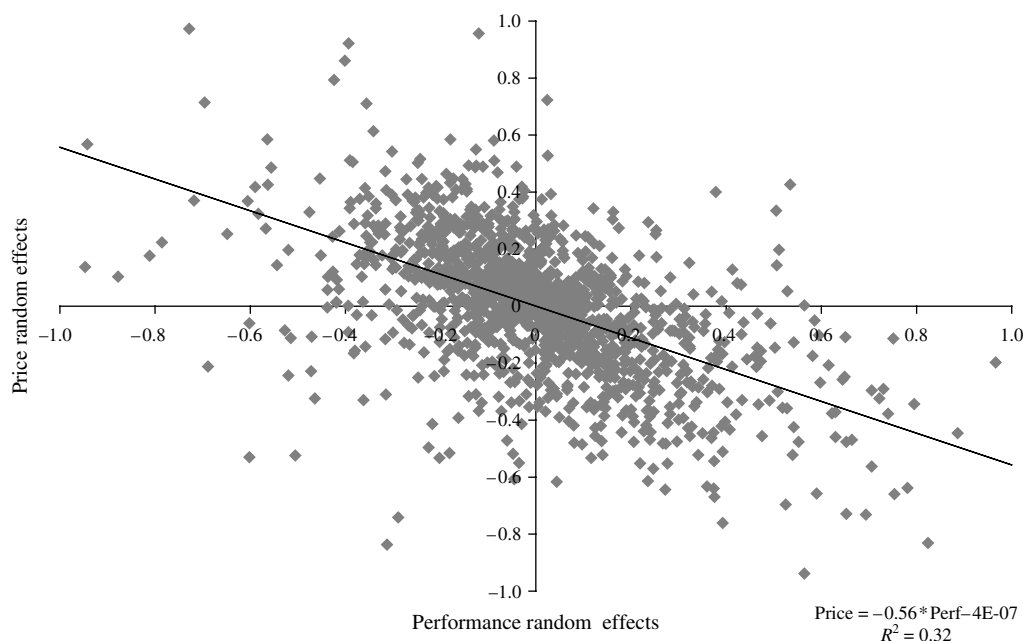### 4.3.   Monitoring the Results (Wave 2): April 2008
The price perception of Jetstar relative to Virgin Blue improved dramatically as a result of the Stage 1 initiatives (see Figure 2). From a 6.9% deficit in March 2008, price perceptions of Jetstar changed markedly to a 2.5% deficit in only three months (7.42 versus 7.62). By March 2009 (Wave 5 of the quarterly tracking), Jetstar was within 1.3% of price parity overall and well ahead of Virgin on the key pricing subattributes it was targeting.

Service quality improvements also had a substantial effect on consumer perceptions. The overall quality gap was narrowed from 22.3% to 17.9% (6.5 versus 7.9 in Figure 3). Given the difficulty of communicating two messages to the marketplace simultaneously (price and quality), management was reasonably happy with this result.

4.4.   Second Stage of Intervention: A Focus on Cost-Effective Service Quality
With the achievement of perceived price parity for a large percentage of the population, Jetstar addressed its perceived deficit in quality. Jetstar tackled that gap by focusing on a few specific subattributes that had high importance and offered good opportunity on which to achieve a point of difference over Virgin Blue at low cost. For proprietary reasons, we cannot disclose the exact subattributes chosen by Jetstar. However, for illustration purposes, Table C.2 of the electronic companion shows that if the subattributes with the highest importance weights for

Figure 5   Price Random Effects vs. Performance Random Effects—Wave 5

Price = $-0.56 *$ Perf-4E-07
$R^2 = 0.32$

Operational Performance are selected in Wave 2, then Jetstar should focus on on-time performance and having attentive and helpful staff (assuming equal cost of provision).

4.5.   Monitoring the Results (Wave 3): July 2008
The price perception of Jetstar relative to Virgin Blue continued to improve. From a 6.9% deficit in March 2008, perceptions of price competitiveness for Jetstar changed markedly to a 3.3% deficit in only six months (7.4 versus 7.6 in Figure 2). Over this time period, the improvement in service quality for Jetstar was also considerable. On average, by Wave 3 in Q3 2008, some 31% of the perceived service quality disadvantage for Jetstar was overcome (see Figure 3, where the difference declines from 22.3% to 15.5%), with particularly strong results for Jetstar's key target attributes.

4.6.   Third Stage of Intervention: Consolidation
Given the success of its Stage 2 strategy of maintaining price comparability and moving to focused differentiation (see Figures 2 and 3), Jetstar saw no need to dramatically alter its marketing activity. Because of lags in consumer belief updating, Jetstar could still gain further advantage by continuing its current message and service improvement from the second stage.

4.7.   Monitoring the Results (Waves 4 and 5): October 2008 and January 2009
In Wave 4, Jetstar maintained its price perceptions, whereas Virgin Blue lost ground. By the end of the period covered by this study, Jetstar had closed more than 80% of the price competiveness perception gap

(see the last quarter scores in Figure 2). With respect to quality, the average gap had narrowed by 45% (see Figure 3, where a 22.3% deficit in Wave 1 had been reduced to a 12.2% deficit in Wave 5).

Given that Jetstar, and also Virgin, evolved from a low-price strategy to one of good quality at a low price, it is interesting to see if this trend in price/quality trade-off is reflected in the consumer heterogeneity of tastes. Figure 5 plots the price and performance random effects in Wave 5, thereby updating the Wave 1 situation in Figure 4. Here, we see dispersion in performance importances on a much more equal footing to those of price. The slope of the regression line has declined substantially, from -1.85 in Wave 1 to -0.56 in Wave 5. This is evidence that the market has changed in terms of its preferences even in this 15-month period. No doubt the heavy Jetstar advertising, combined with its tangible service quality improvements over this time period, contributed to these revised customer preferences.

5.   Assessing the Benefits
Benefits from the strategy, and the marketing measurement and modeling associated with it, accrued at a number of levels. We discuss them under the headings of operational, strategic, and financial benefits.

5.1.   Operational Benefits
One of the main operational benefits was that Jetstar was able to greatly improve on its forecasting performance, using the combination of consumer-level and market-level techniques. The correlation between the

Table 2   Jetstar's Revenue and Profitability Over the Study Period

Date	Revenue ($)	Revenue % of Qantas group	Profit ($)	Profit as a % of Qantas group
Year end 30 June 2007	1.020 billion	7	79 million	8
Year end 30 June 2008	1.414 billion	10	104 million	8
Year end 30 June 2009	1.605 billion	12	118 million	76

model's share predictions for Jetstar and the actual share realized is very high, at 0.92. In an industry with an enormous cost of excess capacity in terms of planes, crew, and ancillary facilities, the resultant better forecasts had huge direct cost savings.

Additionally, largely as a result of a service improvement program, a major cultural transformation was undertaken. This migrated the organization from being efficient, safe, responsible, and consistent to one with a stronger customer service orientation. The quality drive was supported by the CEO, who visited every Jetstar port to emphasize the expected behaviors. All employees received a DVD pack outlining "who we are" and "what we expect" and were told that their performance would be judged against the company values. Managers were provided with a decision support system to enable them to determine appropriate areas of focus. To cement the behavioral change, Jetstar redefined its key performance indicators (KPIs), with 40% of executives' bonuses linked to the market research levels for the quality drivers chosen by Jetstar.

5.2. Strategic Benefits

One effect of the share gains of Jetstar was to put pressure on the Virgin Blue economic model, and in February 2009, Virgin announced that it would start reducing capacity.[10] It was not the objective of Jetstar to damage Virgin Blue, but one measure of the reduced degrees of freedom Virgin suffered over the period can be seen from its profit, which went from $279 million in 2006–2007 to a loss of $183 million in 2008–2009.

In addition to providing strong flanking defense to Qantas from the attack by Virgin Blue, Jetstar also provided a growth vehicle for Qantas. The brand has been launched in Singapore, Vietnam, Japan, and New Zealand, and all locations are now highly profitable. Transportability of the method to other organizations, industries, and management problems is discussed in more detail in Appendix D of the electronic companion (with examples of several applications).

[10] See Harper (2009).

5.3. Financial Benefits

The Jetstar revenue and profit contribution increased dramatically during the period of the study and remains on a strong upward trajectory, as shown in Table 2. One of the business imperatives of the Qantas parent was that Jetstar be financially profitable in its own right. By focusing in areas directed by the research and designing a migration path to its vision, Jetstar has reached the stage where in the first half of 2009 it provided more than 100% of the Qantas group's profits.

Jetstar ascribes $35 million of its improved profit performance to initiatives associated with the study. David May, marketing director, suggests that each share point is worth $86 million. The share gain of 4.1% represents an additional $86 million × 4.1 = $353 million per annum. A conservative estimate has 10% of this revenue flowing directly to the bottom line, yielding $35 million of contribution per year. If the decay rate of those share gains is 20% and the discount rate is 15%, then the net present value of the increased share is $116 million.

5.4. Prognosis

As illustrated in Table 3, the market share for Jetstar has increased by 29% (4.1 share points, unweighted by availability) in the first 12 months of this research/strategy initiative. If we examine Figures 2 and 3, we can see that Virgin has maintained its strong position on the price/quality combination, being Gale's (1994) "value for money." This has made it a formidable competitor. By contrast, Jetstar was initially in a poor position, with perceived mediocre price competiveness and low quality. However, by Wave 5, Jetstar was in a position almost comparable to Virgin in the eyes of a large proportion of the target market. Moreover, Jetstar has improved its perceptual position while growing its profit, whereas Virgin Blue

Table 3   Jetstar's Market Share of Domestic Australian Leisure Air Travel

Wave	Date (field dates)	Jetstar market share (%)
1	March 2008	14.0
2	May 2008	14.6
3	September 2008	15.2
4	December 2008	16.1
5	March 2009	18.1

has remained relatively stationary but has accrued major losses.

6. Summary

The research described in this paper tackles an important management problem: the marketing actions needed to migrate customer beliefs in a cost-effective way. As opposed to comparative statics, we need a series of actions over time with feedback between each stage to enable the adaptive management of marketing activities toward the long-term vision. For a flanker brand such as Jetstar, we need to account for consumer differences and dynamics, both of beliefs and tastes. Future research could examine possible strategic responses by Jetstar's competitors, using the model's capability for adaptive response.

We meet the Jetstar management needs by marrying a multilevel choice model with unobserved heterogeneity and dynamics. In the case of Jetstar, the potential benefits from this approach have been realized by the commitment of top management to its results and the engagement of staff to the implementation of its recommendations through their KPIs and reward structures.

7. Electronic Companion

An electronic companion to this paper is available as part of the online version that can be found at http://mktsci.pubs.informs.org/.

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