

THE VALUE TO CONSUMERS OF IT-SUPPORTED À LA CARTE PRICING: AN EMPIRICAL TEST OF THE STRATEGIC DECOMMODITIZATION HYPOTHESIS

Nelson Granados

Pepperdine University
nelson.granados@pepperdine.edu

Robert J. Kauffman

Arizona State University
rkauffman@asu.edu

Hsiangchu Lai

National Sun Yat-Sen University
hclai@nssysu.edu.tw

Huangchi Lin

National Sun Yat-Sen University
wikey.lin@gmail.com

Abstract. We evaluate the *theory of strategic decommo-ditization*. The theory suggests that firms can strategically utilize Internet technologies to “decommoditize” the products that are being sold. This prompts the consumer to make a purchase decision that is less focused on price. This is an important new direction in the use of Internet technology to sell perishable products, which are subject to revenue yield management and for which numerous variations of a basic bundled offer are possible. We use data from a large international airline firm that offers tickets and tie-in services via its online portal. The latter includes frequent flyer mileage accrual, seat assignment, and itinerary change, among others. The airline offers a set of standard branded product bundles that can be modified by adding or removing services. This design is commonly referred to as an *à la carte* offering. We examine sales under this *à la carte* pricing mechanism and compare it to sales via channels that sell tickets in the more traditional manner, where bundled offers are less transparent and cannot be modified. We develop hypotheses about the value that consumers place on the *à la carte* channel and on the consequent differences in booking patterns across channels. We find that roughly one of six standard bundles is customized in the *à la carte* channel, and these customizations occur mainly for the low-feature standard bundles. We also find that the airline’s frequent flyer members and business travelers purchase high-feature bundles more often in the *à la carte* channel than in the traditional channel. These findings support the theory of strategic decommo-ditization in the air travel context.

Keywords: *À la carte* pricing, air travel, information transparency, mechanism design, strategic decommo-ditization.

Historically, all passengers paid for checking bags even when they did not bring luggage because a charge for transporting them was built into the ticket price ... those who want the infrastructure to check bags will check bags; those that don't won't pay for them.

J. Scott Kirby, President, US Airways, June 19, 2008

... an à la carte business model is a necessary way to generate revenue during a time when capacity exceeds demand.

Valerie Wunder, Spokesperson, US Airways, June 26, 2009

1. INTRODUCTION

The Internet has dramatically increased the availability, accessibility and transparency of information. It has also reduced information search costs and given consumers access to multiple purchasing channels and new product options [15]. This has led to increased competition due to the ability of consumers to easily compare product offerings. On the other hand, e-commerce technologies support differentiation strategies by enabling firms to develop new ways to display and vend product

offers. The net impact will depend on the degree to which information transparency can *commoditize* or *decommoditize* a product.

Commoditization. While consumers now are able to find much more information about products, it has become increasingly difficult to distinguish among the many choices [19]. Finding ways to differentiate products so they provide value-added has become hard for sellers, since online intermediaries such as Hotels.com and Orbitz.com started aggregating competitive offerings for consumers. Due to the enhanced ability of consumers to compare offer prices across suppliers, they are more likely to focus on price. Anthony and Christensen [1] refer to this process as the *commoditization of products*. It occurs when sellers cannot differentiate their offerings in the minds of consumers.

For example, consumers are capable of booking airline tickets directly from sellers’ websites (e.g., United Airlines and Marriott Hotels), via online travel agents (OTAs) (e.g., Travelocity and Orbitz) or via meta-search agents (e.g., Kayak). Most OTAs sort search results based on ticket price, departure times, and arrival times, which diminishes the ability of suppliers to communicate their value propositions to consumers. The *price match guarantees* of Travelocity and Orbitz convey the nature of the competition that exists. Google’s recent acquisition of ITA Software, a 21st century search engine for airline tickets, is likely to exacerbate this effect.

Decommoditization. Although the Internet is having a commoditizing effect, it also offers firms the opportunity to differentiate their products in new and unique ways. The key changes involve the extent to which information – much more relevant information, in fact – can be made available to consumers, so they no longer focus so much on price. Matthyssens and Vandenbempt [19] refer to this as *decommoditization*, which is the value-adding process of restoring the differentiation of a product relative to competitive offerings. One strategy to achieve decommo-ditization in online channel is through *à la carte pricing*. The consumer is able to choose from a list of services or items that have separate prices, rather than having to purchase a fixed bundle at a fixed price. The PC industry is a well-known example of this approach. Consumers can buy commodity versions of machines that are available on the market, or they can select a value-maximizing bundle by specifying the motherboard, CPU, RAM, hard disk, and other features they need. A similar *à la carte* pricing model has also been

applied in the cable television industry. Traditionally, North American consumers only have been able to buy bundles of cable TV channels. For example, the Dish Network offers 120 channels for \$24.99, 200 channels for \$37.99, and 250 channels for \$47.99 (www.dish-network.com). Yet in Quebec, Canada, Bell Canada offers cable channels for \$2 each, while Rogers Communications in Ontario offers them for \$2.79 each [22].

In travel distribution, OTAs and offline travel agents sell airline tickets with no modification options, complex rules and conditions of usage, and little transparency about what the offers entail. Yet the Internet has unlocked opportunities for airlines to execute decommo-ditization strategies, and to retain and regain control of distribution [6]. Some airlines now use à la carte pricing to differentiate and to provide recognizable value to consumers. For example, in 2005 United Airlines introduced its *Economy Plus Access* [16], which offered an up-graded seat with additional room for a one-time annual fee of \$299. Another example is the *Business Select* fare of Southwest Airlines, which offers priority boarding, an onboard drink, rapid rewards credit, and priority security lane access for a fee. Jeff Katz, ex-CEO of Orbitz.com, SwissAir, and Sabre Holdings, has stated that the “marketplace is there and the tools are there on everybody's Web sites” to do à la carte pricing [16].

We will examine the impact of à la carte strategies on the decommo-ditization of air travel services, using data from an airline that sells tickets in à la carte mode via its web portal. We compare à la carte and traditional book-ings to examine the value that consumers place on à la carte offerings. In §2, we present the theoretical back-ground for strategic decommo-ditization. In §3, we formulate our hypotheses. In §4 we describe the research context, data, and methodology. In §5 we present the results of the analysis. We discuss the implications of our results in §6 and §7 concludes.

2. THEORY

We next briefly describe the theory of commoditiza-tion, and then seller strategies for decommo-ditization, including branded variants, hyperdifferentiation, infor-mation transparency, and bundling.

2.1. Commodity Goods and Commoditization

Commodity goods are products that are not clearly distinguishable from one another in the public eye, al-though they may carry different brand names. *Commodi-tization* occurs when products are either very similar or undifferentiated across different manufacturers or pro-viders [20]. Based on the product and technology life cycle, Sarkar [23] argues that commoditization occurs when a product or a technology reaches maturity. Mat-thyssens and Vandembemt [19] state that commoditiza-tion is driven by market forces that include standardiza-tion, customers' experience with existing market offer-

ings, and imitation of successful business practices by rivals. The Internet is also a factor that causes commo-ditization. Reduced search costs in Internet-based e-marketplaces can lead to more efficient markets and in-creased commoditization [2].

2.2. À la Carte Selling and Decommotization

Decommotization involves different ways to intro-duce differentiation: from the physical or functional to the barely noticeable and emotional, and from less dis-tinguishable to more distinguishable but irrelevant fea-tures [12]. Though differentiation may increase manufac-turing costs, it prevents all-out price competition [3]. Lynch and Ariely [18] note that lower search costs with Internet technologies reduce price sensitivity, especially for differentiated products.

Matthysens and Vandembemt [19] identify three categories of decommotization: (1) product innovation and quality improvement, (2) service innovation and customer bonding, and (3) operational excellence and fair value solutions through cost leadership. À la carte selling mechanisms may lead to differentiation along these three categories. First, it enables product innova-tion strategies through branded variants and hyperdiffe-entiation. Second, it enables transparency strategies as a service innovation. Third, it allows firms to offer fair value solutions through bundle modifications.

Product Innovation: Branded Variants. Offering variations of branded products allows sellers to differen-tiate themselves from competitors. *Branded variants* often exhibit differences in color, design, features, and options [24]. The reason that sellers produce branded variants is because consumers with heterogeneous tastes and needs often seek variety. Branded variants and prod-uct assortments help sellers to cover different market segments and to increase market shares [4]. Branded variants enable firms to compete with discounters that carry a limited product assortment and face low margins. A larger product assortment also makes it more difficult for consumers to purchase from discounters, and thus reduces their price sensitivity.

The fundamental idea behind à la carte pricing is to offer flexibility to consumers. They want to buy products that are meaningful to them, while avoiding features that add no value. However, the effort to construct a bundle from scratch can be difficult for consumers. Thus, the concept of branded variants fits well with the practice of à la carte pricing. An à la carte menu can include a set of branded standard offers or bundles that can then be cus-tomized by adding or removing features.

Product Innovation: Hyperdifferentiation. Cle-mons et al. [9] defined *hyperdifferentiation* as delivering products that are uniquely suited to individual consum-ers, matching their heterogeneous needs with accuracy. So it involves more than just line extensions, or varying

the quality of their goods. Hyperdifferentiation is enabled by the availability of information [8]. It involves the differentiation of products from different sellers and makes consumers less likely to be able to find perfect substitutes. As a result, willingness-to-pay can be enhanced as the product better fits each consumer's needs. The products affected range from physical products to services, including lending networks, hotel chains, and airline reservations.

À la carte pricing is a good fit for the more knowledgeable consumers who purchase online. It helps decrease the uncertainty a consumer may have about product value or fit by providing multiple tailored offers. Also, sellers may be better able to ascertain consumer needs with more precision. To design and practice à la carte pricing, it is necessary for sellers to understand consumer demand. Since IT reduces information acquisition costs, sellers are able to observe consumer behavior in great detail. Thus, à la carte pricing offers the potential to enable hyperdifferentiation.

Service Innovation: Information Transparency.

Information transparency is the extent to which information is visible and accessible in a marketplace [27]. The Internet has increased information transparency in several ways. First, the Internet reduces search costs for information. Second, the online trading environment and new technologies such as XML have made it easier for firms to make information available online. So information about price, product, seller identity, and transaction history are no longer opaque in many markets [27].

Information transparency is a double-edged sword though [15]. Price transparency in the form of price comparison creates price pressures, increasing consumers' sensitivity to prices. On the other hand, product transparency decreases the focus on price comparison, leading to a lower price elasticity of demand. With more information, a consumer is capable of distinguishing among different product characteristics, resulting in more accurate product valuation. Also, a consumer can search for a product closer to her ideal preferences.

Sellers of bundled products may provide information about the items in a bundle, but not about items that are not bundled. For example, Acer (www.acer.com), a PC bundle seller, only provides consumers information about the technical specifications of the components in the bundle. Dell (www.dell.com), in contrast, uses an à la carte pricing, listing standard options for a branded variant, but offering upgrade possibilities with a description of the enhanced feature, together with the additional price the consumer has to pay. Thus, à la carte techniques can be developed to emphasize product transparency over search purely based on price.

Fair Value Solutions: Bundling. *Bundling* is the sale of two or more separate products in a package [25]. It is a pervasive strategy and has received growing attention

in marketing. Internet services that bundle Web access, e-mail, and data security protection, as well as "combo meals" involving an appetizer, an entrée, and a desert at a restaurant are good examples. We also see this in the travel services industry for airline ticket, hotel, and rental car vacation packages.

From a business perspective, the rationale for bundling is to enhance profits through increased customer benefits, greater efficiencies in production and marketing, protection of customer goodwill, and better strategic positioning [11]. Stremersch and Tellis [25] propose that bundling strategies can result in higher profitability than other alternatives.

Stremersch and Tellis [25] define several types of bundling based on the bundling elements and the selling conditions. *Price bundling* involves selling two or more separate products together at a discount price, without any integration of the products. Price bundling is usually adopted as a pricing and promotional tool for a short duration, and does not create added value for consumers. *Product bundling*, in contrast, is selling two or more separate products at any price, with some integration of the products. It adds value and can be a long-term differentiation strategy.

Pure bundling is a strategy whereby a firm sells products only in packages and never sells the same products separately. OTAs and offline travel agencies often sell fixed bundles, with features that cannot be added or removed, so this is a form of pure bundling. *Pure unbundling* calls for the firm to only sell products separately, never in a bundle. *Pure à la carte* is different. Rather than bundling features or products, a menu is offered from which the consumer builds a customized bundle from scratch. Through their web portals, some airlines price in à la carte mode, but often it is not really pure à la carte. Travelers typically first select a set of standard branded bundles (like the featured offers of a lunch menu that include appetizer, entry, and dessert). The traveler can then drop services like seat assignment or add ancillary services like lounge access. This is a form of *mixed bundling*, whereby a firm sells certain products not only in bundles but also separately. For example, seat assignment may be included in the featured business class bundle, but it may also be positioned as a separate ancillary service that can be added to discounted bundles.

3. HYPOTHESES

Stremersch and Tellis [25] stated that pure bundling strategies are vulnerable in competitive markets. Competitors can easily imitate the bundle, which puts downward pressure on prices. Also, consumers who wish to mix and match features or services may not be served under pure bundle offerings. Consumers seek variety in what they consume due to what they believe will satisfy them, their curiosity to try out new things, and their

changing requirements over time [4, 13].

In contrast, the à la carte pricing mechanism in our study allows for customization. Standard branded bundles are offered up front, but consumers can modify them by adding or removing services. By mixing and matching the services they desire, travelers are able to satisfy their own needs. We argue that it will be more attractive to consumers to be able to customize their bundles. With larger available product assortments, this will increase the probability of a match between traveler preferences and the alternatives available in the seller's choice set. Meanwhile, travelers' choices are limited with fixed bundles offered in the traditional channels like OTAs or offline agents: they either will buy what is offered, or they won't buy at all. So we expect to see different consumer valuation and consumer behavior across the traditional and à la carte channels. This leads us to assert:

- **Hypothesis 1 (Consumer Valuation of Booking Channel Choices).** *Consumers will value booking channels that offer à la carte bundles over traditional channels that offer fixed bundles, as exhibited by their purchase patterns.*
- **Hypothesis 2 (Consumer Valuation of Customized Bundles).** *Consumers will value customization capabilities offered in à la carte pricing, as exhibited by their purchase patterns.*

If a booking channel offers a lot of information and high information transparency to support consumer decisions, the choices they make about what to buy may be different, because consumers can better value products and ascertain their own needs [14]. They also are able to evaluate multiple alternatives and choose products that better fit their needs. If an à la carte channel with customization flexibility provides higher information transparency, it will influence consumer choices of ticket bundles. We propose:

- **Hypothesis 3 (The Effect of Booking Channel Choice on Bundle Choices).** *Consumers will exhibit different patterns of purchases for airline ticket bundles, depending on whether they purchase via the traditional or à la carte channel.*

There are three motives for airlines to operate frequent flyer programs. The first is to achieve a higher degree of brand loyalty and to lock in their customers over time. The second is to enable profiling of demographics and travel patterns of their members [26]. The third is to achieve product differentiation by offering extra services to the frequent flyer. For example, frequent flyers can redeem miles for upgrades or free tickets, and transfer miles to family members.

Toh and Hu [26] reported that 67% of frequent flyer members agree that membership influences their choice of airline. Prousaloglou and Koppelman [21] found that passengers are even willing to pay a price premium to

travel with the carrier of their respective frequent flyer program. Thus, frequent flyer members and non-members will value differently their ability to accrue miles. This leads us to assert:

- **Hypothesis 4 (Frequent Flyer and Non-Frequent Flyer Bundle Choices).** *Consumers will value the ability to select bundles that allow mileage accrual, depending on whether they are members of the carrier's frequent flyer program, which will impact the observed patterns of purchases across the traditional and à la carte channels.*

There are a number of differences between leisure and business travelers. Chen [7] and Lo et al. [17] found that leisure and business travelers exhibit different information search behavior. Brons et al. [5] concluded that leisure travelers aim to maximize the utility derived from air travel and from the associated consumption of holiday experiences, subject to a given income and budget constraint. In contrast, business travelers usually use air travel as an input to a production function and are interested in minimizing costs for a given level of output. Business travelers generally do not pay for their own travel while leisure travelers usually do. This leads them to place different levels of value on different bundled products and pricing strategies that airline firms provide. We propose:

- **Hypothesis 5 (Business and Leisure Traveler Bundle Choices).** *Business and leisure travelers will value the ability to use à la carte pricing mechanisms differently, and will exhibit different purchase patterns in the traditional and à la carte channels.*

Advance seat assignments and the flexibility to change travel plans are prevalent value-added services for travelers. Leisure and business passengers place different weights on the value of their time, and the differences are reflected in their respective price and income elasticities [10]. Business travelers place a higher value on time and prefer more frequent flights, less transit time, and shorter waits between connecting flights. Brons et al. [5] proposed two reasons why the absolute elasticity of demand is likely to be lower for business travelers than leisure travelers. First, airfares seem to form a smaller part of a business traveler's total costs because they generally value their time more highly. As a result, an increase in airfare will only lead to a smaller rise in total travel costs for business travelers. Second, business travelers also want to maximize their own productivity while they are traveling. Thus, business passengers are likely to pay for options that save time and provide higher flexibility and comfort. Therefore, they will more often purchase bundles that enable them to select seat in advance and change itinerary at any time.

Leisure travelers also prefer advance seat selection [5], but due to their budget constraints, they may be will-

ing to forgo seat assignment if the right discount is offered. Leisure travelers may also prefer the ability to change the itinerary, but they may be less inclined to do so due to the advance planning necessary to take a vacation or to visit family and friends. So given the option and for the right price, they may choose to forgo seat assignment or the ability to change the itinerary. This leads us to assert:

- **Hypothesis 5a (Business Traveler Choice of Seat Assignment and Itinerary Change Option).** *Business travelers who purchase via the à la carte channel will more often select ticket bundles that include a seat assignment and the option to change the travel itinerary, resulting in observably different purchase patterns across channels.*
- **Hypothesis 5b (Leisure Traveler Choice of Seat Assignment and Itinerary Change Option).** *Leisure travelers who purchase via the à la carte channel will more often select ticket bundles without seat assignment or without the option to change the travel itinerary, resulting in observably different purchase patterns across channels.*

4. SETTING, DATA, AND METHODOLOGY

4.1. The Industry Setting

The trend toward à la carte selling is increasingly a source of revenues for the airlines, and has come partially in reaction to rising fuel costs, diminished industry profitability, and reduced channel power. Some industry experts predict that à la carte pricing will bring renewed success to the ailing industry, in part by exerting more control of distribution to better serve consumers. Also, there is controversy regarding the viability of à la carte pricing and the benefits to consumers. Unbundling checked bag services and even restroom services during a flight are likely to antagonize travelers.

4.2. Data Collection

Our data are from a large international airline that prefers to remain anonymous. We analyzed 474,774 booking records for 39 city pairs (e.g., New York to Los Angeles), for travel in February and March of 2009. Each record contains information about tickets sold for a given origin-destination, date of travel, booking date, inventory class, agency name, the standard bundle sold, extra tie-in services added or removed, and frequent flyer member status. Tickets sold are aggregated by channel, frequent flyer member status, market segment (business and leisure), and standard bundle sold.

There are two channels represented in our data. The *à la carte channel* contains the airline's own web portal and travel agents that have access to the full content that enables à la carte pricing. The *traditional channel* includes offline travel agents that sell via the phone or face-to-face, and OTAs that sell online but don't have

access to full à la carte content. Consumers may be members of the frequent flyer program of the airline sponsor or other airlines, or not be a member at all. We classified passengers as *business* or *leisure* travelers depending on the inventory class, departure date, frequent flyer status, length-of-stay, and whether the stay includes a Saturday night. The data include four *standard bundles* that can be sold in both channels: *Deeply-Discounted*, *Discounted*, *Flexible*, and *Business*. But only in the à la carte channel are travelers explicitly informed about services included in a bundle. Also, only in the à la carte channel may the bundle be modified by adding or removing services.

4.3. Methodology

We have begun to conduct exploratory research using a simple analysis approach to understand the information that the data have to offer. When performing exploratory analysis, it is appropriate to spend time up front to ascertain what an appropriate theoretical model might be like, and to use the knowledge that is gained to formulate an empirical model that will support more sophisticated statistical analysis. Our approach, as we often see in the research of macroeconomists and pricing researchers in marketing who work with very large data sets, is to let the data speak for themselves as much as possible.

One way to identify the appropriate model is to break down the data set based on readily identifiable stratifying variables, and then do simple analysis using descriptive statistics. We will examine the variables in the data set to identify those that exhibit variation and appear relevant to support our analysis of the research questions. To understand the value of à la carte pricing to consumers, we will examine different cuts of the data. We also will give attention to those variables that are related to our primary theoretical perspective, via the individual hypotheses. In particular, we will compare the sales of airline tickets across the à la carte and traditional channels to examine similarities and differences in booking patterns. As we proceed with the development of this research in the coming months, we expect to develop increasingly sophisticated models to refine our results.

5. EMPIRICAL RESULTS

This section describes the results of our hypothesis tests. We will first present the results on sales by booking channel. We then will examine airline ticket bookings by frequent flyer member status and market segment.

5.1. Channel Effect Results

The results by booking channel choice show that over 60% of consumers chose to purchase from the à la carte channel. (See Table 1.) Based on a χ^2 test, the difference in sales volume between the two booking channels is significant. So à la carte selling strategies appear to be valued by consumers: the channel is used for more than

one half of the bookings in our data set. This supports the Consumer Valuation of Booking Channel Choices Hypothesis (H1).

Table 1. Booking Channel Choice

CHANNEL BOOKINGS		
	Traditional	À La Carte
Number of Bookings	176,337	298,437
% of Total	37.1%	62.9%
χ^2	D.F.	SIGNIF.
31401.7	1	.000 ***
Note: The χ^2 test is for the difference in bookings across channels. *** = $p < 0.01$		

Travelers who purchased ticket bundles via the à la carte channel were able to customize their purchases. One of every six bundles purchased via the à la carte channel was modified. (See Table 2.) These modified or customized bundles represent 11.6% of total bookings. Travelers who purchased via the traditional channels were not able to adjust their bundles.

Table 2. Standard and Customized Bookings

BUNDLE SOLD	CHANNEL BOOKINGS (% OF TOTAL)	
	Traditional	À La Carte
Standard	176,337 (37.1%)	243,482 (51.3%)
Customized	N.A.	54,955 (11.6%)
Total	176,337 (37.1%)	298,437 (62.9%)

Table 3. Customization by Standard Bundle

CUSTOMIZATION DESCRIPTION	CUSTOMIZED BUNDLES (% OF TOTAL)
Deeply-Discounted	
Dropped service	43,654 (79.4%)
Added extra service	3,541 (6.4%)
Discounted	
Dropped service	4,269 (7.8%)
Added extra service	2,479 (4.5%)
Flexible	
Dropped service	306 (0.6%)
Added extra service	115 (0.2%)
Business	
Dropped service	493 (0.9%)
Added extra service	98 (0.2%)
Total	54,955 (100%)

Next, consider customized bookings in Table 3. We observe that the most customizations via the à la carte channel were for the *Deeply-Discounted* standard bundle, almost 85.8% of the customized bundles. Most of the *Deeply-Discounted* customizations were to drop services. *Discounted* bundles had a good amount of customizations too, accounting for 12.3% of customizations. *Flexible* and *Business* bundles were seldom customized, accounting for just 1.9% of customized bundles. The results suggest that as bundle features increase, there is less customization. We find support for the Consumer Valuation of Customized Bundles Hypothesis (H2). Travelers value the capability offered by the à la carte channel to

customize the bundled offerings, and the level of customization varies across standard bundles.

To understand the effect of the booking channel on consumer bundle choices, we examined the standard bundles sold by channel. (See Table 4.) Going forward we exclude the *Deeply-Discounted* bundle because consumers had some restrictions in access to these fares during the period of our study, which may artificially bias the comparison across channels for this bundle. We find that bundle choices are different across channels. *Discounted* bundles were the most popular in both channels, although the amount of bookings is lower in the à la carte channel. On the other hand, the à la carte channel had a larger proportion of *Business* bundle bookings relative to the traditional channel. The booking channels seem to affect consumer purchase patterns, either because consumers behave differently across channels, or because they self-select into a channel depending on their needs. Thus, we find support for the Effect of Booking Channel Choice on Bundle Choices Hypothesis (H3).

Table 4. Standard Bundle Choices by Channel

STANDARD BUNDLE	CHANNEL BOOKINGS (% OF TOTAL)	
	Traditional	À La Carte
<i>Discounted</i>	103,417(40.1%)	68,591 (26.6%)
<i>Flexible</i>	46,345 (18.0%)	7,276 (2.8%)
<i>Business</i>	11,746 (4.6%)	20,252(7.9%)
Total	161,508 (62.7%)	96,119 (37.3%)
Note: We conducted χ^2 tests for differences in bookings across channels. All differences across channels by standard bundle are significant at the .001 level.		

5.2. Results by Consumer Type

Frequent flyer members only earn a portion of the miles they fly if they purchase a *Deeply-Discounted* standard bundle. Alternatively, they can obtain a price discount if they choose not to accumulate miles. The *Discounted* and *Flexible* bundle purchases accrue all miles flown, and *Business* purchases accrue extra miles beyond the miles flown. So we wonder if these mileage accrual options are purchased differently across channels.

Airline frequent flyer members and non-members exhibit statistically significant χ^2 differences in standard bundle choices across channels. (See Table 5.) *Discounted* bundles were the most popular among frequent flyer members and non-members in both channels. For the traditional channel, in second place was the *Flexible* bundle. In contrast, in the à la carte channel the *Business* bundle was second, while there were only a few *Flexible* bundle bookings. More generally, frequent flyer member status appears to play a role in the decision to accrue miles and purchase patterns differ across channels.

The evidence supports our idea that IT-supported à la carte pricing helps airlines to decommo- ditize their products. Frequent flyers in the à la carte channel bought considerably more *Flexible* and *Business* bundles than those

Table 5. Frequent Flyer Member and Non-Member Bundle Choices by Channel

STANDARD BUNDLE	CHANNEL BOOKINGS (% OF TOTAL)	
	Traditional	À La Carte
Airline Frequent Flyer Members		
<i>Discounted</i>	59,727 (23.2%)	61,272 (23.8%)
<i>Flexible</i>	2,981 (1.2%)	6,279 (2.4%)
<i>Business</i>	5,710 (2.2%)	18,926 (7.3%)
Sub-Total	68,418 (26.6%)	86,477 (33.6%)
Non-Members		
<i>Discounted</i>	43,690 (17.0%)	7,319 (2.8%)
<i>Flexible</i>	43,364 (16.8%)	997 (0.4%)
<i>Business</i>	6,036 (2.3%)	1,326 (0.5%)
Sub-Total	93,090 (36.1%)	9,642 (3.7%)
Total	161,508 (62.7%)	96,119 (37.3%)

Note: Non-members include travelers with no frequent flyer affiliation or members of other airline frequent flyer programs. We conducted χ^2 tests for differences in bookings across channels. All differences in this table are significant at the .001 level.

in the traditional channel. *Flexible* bundle bookings are more than double, and more than triple for *Business* bundles in the à la carte channel. These results suggest that the à la carte channel enables frequent flyers to find high-feature alternatives with the best fit. This is not necessarily the case for non-members. Thus, we find support for the Frequent Flyer and Non-Frequent Flyer Bundle Choices Hypothesis (H4).

Table 6 shows bookings by market segment. In the traditional channel, the preferred bundle for business and leisure travelers was the *Discounted* bundle, although the *Flexible* and *Business* bundles had higher sales for business than for leisure. In the à la carte channel, the *Discounted* bundle was the preferred one for both business and leisure travelers. Similar to the traditional channel, business travelers booked a higher proportion of *Flexible* and *Business* bundles. In sum, we observe differences in bundle choices across channels for business and leisure travelers. Evidence of decommodification is apparent for business travelers but not for leisure travelers. For the business segment, for example, *Business* bundle bookings in the à la carte channel are almost double those in the traditional channel. This supports the Business and Leisure Traveler Bundle Choices Hypotheses (H5).

Table 7 summarizes bookings by bundle features. With regard to advance seat assignments and itinerary changes, *Deeply-Discounted* bundles are the only ones requiring extra fees for both services. With *Discounted* tickets, travelers pay an extra fee for itinerary changes, while in the *Flexible* and *Business* bundles they are standard features. Business travelers more often selected bundles that included seat assignments and itinerary changes in the traditional channel, but more often purchased bundles with only one or none of these features in the à la carte channel. This provides evidence to reject the Business Traveler Choice of Seat Assignment and Itinerary Change Option Hypothesis (H5a).

Table 6. Business-Leisure Bundle Choices by Channel

STANDARD BUNDLE	CHANNEL BOOKINGS (% OF TOTAL)	
	Traditional	À La Carte
Business		
<i>Discounted</i>	47,299 (18.4%)	39,506 (15.3%)
<i>Flexible</i>	41,455 (16.1%)	6,796 (2.6%)
<i>Business</i>	10,860 (4.2%)	18,987 (7.4%)
Sub-Total	99,614 (38.7%)	65,289 (25.3%)
Leisure		
<i>Discounted</i>	56,118 (21.8%)	29,085 (11.3%)
<i>Flexible</i>	4,890 (1.9%)	480 (0.2%)
<i>Business</i>	886 (0.3%)	1,265 (0.5%)
Sub-Total	61,894 (24.0%)	30,830 (12.0%)
Total	161,508 (62.7%)	96,119 (37.3%)

Note: We conducted χ^2 tests for differences in bookings across channels. All differences here are significant at the .001 level.

Table 7. Business/Leisure Bookings by Bundle Features

BOOKING INCLUDES SEAT ASSIGNMENT AND ITINERARY CHANGE?	CHANNEL BOOKINGS (% OF TOTAL)	
	Traditional	À La Carte
Business		
No – <i>Discounted</i>	47,299 (18.4%)	39,533 (15.3%)
Yes – <i>Flexible, Business</i>	52,315 (20.3%)	25,756 (10.0%)
Sub-Total	99,614 (38.7%)	65,289 (25.3%)
Leisure		
No – <i>Discounted</i>	56,118 (21.8%)	29,089 (11.3%)
Yes – <i>Flexible, Business</i>	5,776 (2.2%)	1,741 (0.7%)
Subtotal	61,894 (24.0%)	30,830 (12.0%)
Total	161,508 (62.7%)	96,119 (37.3%)

Note. We conducted χ^2 tests for differences in bookings across channels. All differences in this table are significant at the .001 level. *Discounted* includes two types of bookings: standard bundles that do not permit itinerary changes, and bundles that do but for which the traveler removed the itinerary change feature. *Flexible, Business* contains two types of bookings: standard bundles that allow seat assignments and itinerary changes, and bundles that do not include these services, but that were added to the bundle by the traveler.

Leisure travelers' purchases without seat assignment or itinerary change options were significantly higher in both channels, and the *Discounted* bundle was preferred in both channels. Thus, we find support for the Leisure Traveler Choice of Seat Assignment and Itinerary Change Option (H5b).

6. DISCUSSION

We next discuss our findings on consumer valuation of booking channel choice and of à la carte pricing mechanisms, and the implications of our findings.

The Value of à la Carte Pricing. The results confirm most of our hypotheses. The findings suggest that travelers value à la carte booking sites to purchase airline tickets. More than 60% of them purchased from these channels. Travelers also utilized the choices offered in the à la carte channel. They modified about one of six bundles when they purchased via the à la carte channel. We also find that the most customization occurs for *Deeply-Discounted* and *Discounted* low-feature bundles. These findings have two implications. First, some consumers

may value the à la carte channel because of the transparency that the selling mechanism provides. They may prefer to shop via the à la carte pricing channel because it gives them a more transparent view of the options. Second, other consumers may value the à la carte channel because of the ability to customize a bundle to meet their specific needs. They may be able to purchase high-feature bundles without changing them, or pick low-feature bundles and tailor them to their needs. These implications are in line with the theoretical perspective that suggests à la carte pricing can lead to decommodification because of the transparency it brings, and because of a firm's ability to provide a fair value.

Bundle Choices and Decommodification. There is a significant difference in standard bundle choices across channels. *Discounted* bundles were the most popular in both channels, although the amount of bookings is lower in the à la carte channel. Also, the à la carte channel had a larger proportion of *Business* bookings relative to the traditional channel. One possibility is that there is a decommodification effect such that when booking in the à la carte channel, travelers tend to upgrade to a higher feature bundle. On the other hand, there may be a *self-selection effect* such that certain traveler types gravitate to the online channel. Granados et al. [15] found that self-selection accounted for a portion of the difference in price elasticity across traditional OTAs and offline channels. This may be occurring in the online à la carte context too. The remaining difference is likely due to channel-specific characteristics such as their relative transparency levels. That is, with higher transparency in the à la carte channel, there may be a decommodification effect even after accounting for self-selection.

Bundle Choices by Frequent Flyer Status. Frequent flyer members are more inclined to purchase high-feature bundles in the à la carte channel. The high-feature *Flexible* and *Business* bundles accounted for a higher share of à la carte bookings compared to the traditional channel. So, although the expected effect of self-selection in the online channel may be occurring, the higher transparency of the branded bundle offers, together with the ability of travelers to customize the standard bundles, may be increasing the willingness-to-pay of some frequent flyer members that book online. We think that this leads to decommodification. This is consistent with the notion that à la carte pricing leads to hyperdifferentiation, which increases the probability that the traveler will find a product that best fits her needs. Frequent flyers typically build loyalty to the airline as a member, so when the airline can upgrade the value of their purchase, it will likely lead to higher revenues.

Bundle Choices by Market Segment. Passengers in different market segments also exhibited dissimilar choices. Overall, business passengers booking in the traditional channel prefer bundles that contain advance

seat assignment and an option to change the itinerary, but not to the same extent in the à la carte channel. On the other hand, business travelers booked *Business* bundles more in the à la carte channel.

Leisure travelers showed consistent preferences for bundles without extra services or only with seat assignment. *Discounted* bundles were preferred in both channels, although proportionally more leisure travelers that booked in the à la carte channel purchased a *Discounted* bundle compared to the traditional channel. For leisure consumers who are price-sensitive, the à la carte channel makes it easier for them to pick a low feature bundle that they can then customize to their own needs.

We further investigated the interaction between market segment and travelers' frequent flyer status. Table 8 shows the bookings by frequent flyers traveling for business. The results reveal two patterns. First, bookings for *Discounted* bundles were roughly the same. Second, high-feature *Flexible* and *Business* bundle bookings are higher in the à la carte channel. Therefore, the decommodification effect is magnified when combining frequent flyer membership and business travel purpose.

Table 8. Frequent Flyer Bookings for Business Travel

STANDARD BUNDLE	CHANNEL BOOKINGS (% OF TOTAL)	
	Traditional	À La Carte
<i>Discounted</i>	37,295 (35.1%)	37,195 (35.0%)
<i>Flexible</i>	2,805 (2.6%)	5,896 (5.5%)
<i>Business</i>	5,296 (5.0%)	17,784 (16.7%)
Total	45,396 (42.7%)	60,875 (57.3%)

Overall, we find some support for decommodification, particular for high-value customers like business travelers and frequent flyers. But the net result of the à la carte channel on revenues will depend on what explains our observation that à la carte bookings gravitate towards the low-feature *Discounted* bundle. There are two possible explanations. The first explanation is that price-sensitive leisure travelers and budget-conscious business travelers gravitate to the à la carte channel. This is analogous to the self-selection effect that is expected in the presence of higher transparency in the online channel [15].

The second explanation is that the average traveler may start with a low-feature bundle when buying à la carte (relative to the one she would purchase in the traditional channel), and then customize it by adding or removing services. This explanation is in itself an argument for decommodification, but the impact on revenues is unclear, and it will depend on the features added or dropped from standard bundle.

7. CONCLUSIONS

Understanding the impact of decommodification strategies is critical for firms in industry contexts where information can be used strategically to influence purchase behavior. As a consequence, this research is help-

ful for managers who seek to differentiate their products and services from the competition to understand the ways in which à la carte selling mechanisms can support strategic decommo-ditization.

7.1. Main Findings and Contributions

In contrast to the traditional shopping environment, Internet technologies have made it inexpensive for buyers to switch online sellers and find product substitutes. Electronic intermediaries have further obtained enormous power in distribution channels [6]. This new competitive environment threatens the viability of inflexible service offerings. À la carte mechanisms thus have become an opportunity for sellers, and particularly for airlines to gain back control of distribution to better serve consumers. The mechanism can empower buyers to tailor products that they value most without paying for features they do not need, shifting the attention from price to value.

Our simple analysis of the rich data set has enabled us to present new insights into the value of à la carte pricing to consumers, and has laid out the groundwork to formulate more sophisticated empirical models. Our results provide preliminary support for the proposition that à la carte selling leads to decommo-ditization. First, à la carte selling mechanisms produce service innovation through information transparency. Ticket bundles with fixed features sold from traditional booking agents only reveal limited information to consumers. An à la carte selling strategy, however, can potentially increase market transparency by listing bundle offers and their attributes in a simple and clear manner. Our comparison of bookings across the traditional and à la carte channels provides indirect support for the possible impact of this higher transparency of the à la carte channel.

Second, consumers seem to value travel service offers differently based on their characteristics and the purpose of their travel. As a result, à la carte selling allows firms to implement effective selling strategies through hyper-differentiation and branded variants. By providing capabilities to modify offerings based on consumer demand, the product mix of à la carte sellers will be well-suited to match individual and diverse consumer needs with greater accuracy. A combinatorial mix of product options also increases the product assortment, which allows sellers to cater to more market segments. This enables companies to serve consumers who demand bundles that were not available before, and creates niche markets with potential to yield new revenues. Finally, à la carte strategies with mixed bundling provide flexibility for passengers. Our results based on frequent flyer member status and market segment are relevant. Travelers no longer must pay for services they do not need, yet they are able to buy ancillary services not sold separately in the past.

Though Internet technologies have radically altered traditional transaction systems and caused greater price

competition in numerous industries, no efforts have been made to study the strategic commoditization and decommo-ditization of products and services sold on the Internet. This work represents one of the first empirical studies on strategic decommo-ditization. The time period of data collection of this research is a year representative of a broader period since the early 2000s, where some airlines increasingly used à la carte pricing as a tool to enhance the performance of their online presence. The results provide some early guidelines for firms to develop à la carte strategies that can help them to regain differentiation and to add value in increasingly commoditized industries.

7.2. Limitations and Future Research

We note several limitations. First, since there were no direct measurements available, we adopted a classification of business versus leisure tickets based on the travel itinerary and the fare paid. Our classification is based on the available data, but we recognize this is only an approximation and it may be imperfect, which may bias our results.

Second, we only have data for one airline, while having data for several would be preferable, so it would be possible to make some comparisons to see if the results we have reported are consistent across carriers. Our analysis is still mostly based on a simple and straightforward evaluation of the descriptive statistics. We have chosen not to introduce a regression or consumer choice model at this time, since we are in the early stage of exploring the information contents of our data set.

Third, we have just started to uncover information that our data set will bring to our understanding of the impact of à la carte on decommo-ditization. Our results will become much stronger once we have been able to make some decisions about the specification of econometric models with appropriate information structures for the applied setting. This will permit us to gauge the relative strength of the main effects and enable us to gain a more refined understanding of the efficacy of our theory of strategic decommo-ditization for the context to which we have applied it. Our panel data offer numerous additional possibilities to model, analyze, and interpret the data. We are currently contemplating a number of different modeling directions. These include: (a) using discrete choice models to understand the impact of à la carte selling features on channel and bundle choices; (b) applying fixed-effects and random-effects generalized least squares and hierarchical linear modeling methods to explore the nature of the variances in the outcomes that occur at different nesting levels (e.g., for channels, for frequent flyers, etc.); and (c) combining the development of an analytical model of consumer bundle across channels with representative econometric models to test the primary theorized relationships.

Finally, we were not able to examine the full dataset due to a risk of bias in the booking count of the *Deeply-Discounted* bundles reported by the data provider. Nevertheless, we were able to identify significant differences in bookings for the other standard bundles. In future studies we hope to correct for this limitation by using data that does not have this problem.

A promising avenue for future research is to investigate the net impact of the à la carte channel on revenues. Our analysis suggests that, although decommo- ditization may be achieved when firms adopt à la carte selling mechanisms, there may be positive and negative effects on revenues. In the traditional channel, when fixed bundles are sold in an opaque environment, consumers end up purchasing services that they don't really need. By introducing à la carte pricing, there may be a strategic de- commoditization effect which is positive for revenues. Revenues will be forgone related to the services that were unnecessary but previously purchased by consumers, however. Our finding that travelers gravitate to low feature standard bundles in the à la carte channel – yet often customize them by adding services – is supporting evidence of these countervailing effects. More research is necessary to determine the net effect.

REFERENCES

- [1] Anthony, S. D. and Christensen, C. M. Performance, convenience, price: what's your brand about? *Strat. & Innov.*, 1, 4, 2003, 1-8.
- [2] Bakos, J. Y. The emerging role of electronic marketplaces on the Internet, *Comm. ACM*, 41, 8, 1998, 35-42.
- [3] Bakos, J. Y. A strategic analysis of electronic marketplaces. *MIS Qtrly.*, 15, 3, 1991, 295-310.
- [4] Bergen, M., Dutta, S., and Shugan, S. M. Branded variants: a retail perspective. *J. Mktg. Res.*, 33, 1, 1996, 9-19.
- [5] Brons, M., Pels, E., Nijkamp, P. and Rietveld, P. Price elasticity of demand for passenger air travel: a meta-analysis. *J. Air Transport Mgmt.*, 8, 3, 2002, 165-175.
- [6] Brunger, B., Clemons, E., and Young, D. Fighting back with the long tail: linking product and distribution strategies in the travel industry. *Cutter IT Journal*, 20, 4, 2007.
- [7] Chen, J. S. A comparison of information usage between business and leisure travelers. *J. Hosp. Leis. Mktg.*, 7, 2, 2000, 65-76.
- [8] Clemons, E. K. How information changes consumer behavior and how consumer behavior determines corporate strategy. *J. Mgmt. Info. Sys.* 25, 2, 2008, 13-40.
- [9] Clemons, E. K., Gao, G., and Hitt, L. M. When online reviews meet hyperdifferentiation: a study of the craft beer industry. *J. Mgmt. Info. Sys.*, 23, 2, 2006, 147-171.
- [10] Dresner, M. Leisure versus business passengers: similarities, differences, and implications. *J. Air Transp. Mgmt.*, 12, 1, 2006, 28-32.
- [11] Eakin, K., and Faruqui, A. Bundling value-added and commodity services in retail electricity markets. *Elec. J.*, 13, 10, 2000, 60-68.
- [12] Ehrenberg, A., Barnard, N., and Scriven, J. Differentiation of salience. *J. Advertising Res.*, 37, 6, 1997, 7-14.
- [13] Gourville, J. T. and Soman, D. Overchoice and assortment type: when and why variety backfires. *Mktg. Sci.*, 24, 3, 2005, 382-395.
- [14] Granados, N.F., Gupta, A., and Kauffman, R. J. The impact of IT on market information and transparency: a unified theoretical framework. *J. Assoc. Info. Sys.*, 7, 3, 2006, 148-178.
- [15] Granados, N.F., Gupta, A., and Kauffman, R. J. Online and offline demand and price elasticities: evidence from the air travel industry. *Info. Sys. Res.*, 21, 2, 2010, 207-226.
- [16] Grossman, D. À la carte: the future of airline pricing. *USA Today*, August 28, 2005. Available at www.usatoday.com/travel/columnist/grossman/2005-08-26-grossman_x.htm.
- [17] Lo, A., Cheung, C., and Law, R. Information search behavior of Hong Kong's inbound travelers- a comparison of business and leisure travelers. *J. Trav. Tourism Mktg.*, 13, 3, 2002, 61-81.
- [18] Lynch, J. G., Jr. and Ariely, D. Wine online: search costs affect competition on price, quality, and distribution. *Mktg. Sci.*, 19, 1, 2000, 83-103.
- [19] Matthysens, P. and Vandenbempt, K. Moving from basic offerings to value-added solutions: strategies, barriers and alignment. *Industrial Mktg. Mgmt.*, 37, 2008, 316-328.
- [20] Ostrow, R. and Smith, S. R. *The Dictionary of Marketing*. Fairchild, New York, NY, 1988.
- [21] Proussaloglou, K. and Koppelman, F. S. The choice of air carrier, flights, and fare class. *J. Air Transport Mgmt.*, 5, 4, 1999, 193-201.
- [22] Robuck, M. Bell Canada dishes up à la carte TV in Quebec. *CED Magazine*, February 16, 2010. Available at www.cedmagazine.com/News-Bell-Canada-a-la-carte-TV-Quebec-021610.aspx.
- [23] Sarkar, S. *Innovation, Market Archetypes and Outcomes: An Integrated Framework*. Physica-Verlag, Heidelberg, Germany, 2007.
- [24] Shugan, S. T. Branded variants. In *Proc. Amer. Mktg. Assoc. Meetings*, Chicago, IL, 1989.
- [25] Stremersch, S. and Tellis, G. J. Strategic bundling of products and prices: a new synthesis for marketing. *J. Mktg.*, 66, 1, 2002, 55-72.
- [26] Toh, R.S. and Hu, M.Y. Frequent-flier programs: passenger attributes and attitude. *Transp. J.*, 28, 2, 1988, 11-22.
- [27] Zhu, K. Information transparency in electronic marketplaces: why data transparency may hinder the adoption of B2B exchanges, *Elec. Mkts.*, 12, 2, 2002, 92-99.

Acknowledgments. We thank Hugh Watson and Eric Clemons for helpful comments. We benefited from ongoing discussions with Alok Gupta, Ting Li and John Mooney. All factual errors and misinterpretations are the sole responsibility of the authors.