



Market structure and demand-side substitutability of chained urban hotel segments

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ABSTRACT

This study analyzes how the demand in hotel markets is divided amongst chained hotel segments. Hypotheses regarding consumers' switching behavior due to changes in income levels and relative prices are tested using data from 25 major urban markets in the United States, encompassing segments ranging from luxury to economy over 43 quarters. The effects of differentiation and market concentration are also investigated in this context. The results suggest that leisure and individual consumers of the low-scale segments may be trading "up" to higher scales when their income increase, but that upscale segments' corporate consumers are not necessarily trading "down" when Corporate Income fall. In addition, only low-scale segments appear to be substitutes to upscale segments, but the inverse seems not to be true. Also, properties in mid-range segments are found to be the only ones benefiting from a high market concentration, while low-scale properties turn out to be the ones gaining from differentiation through price.

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1. Introduction

Understanding the drivers of demand is important for any business, but especially for the ones in highly cyclical industries. Historically, the hotel sector has been extremely sensitive to economic cycles and is perceived as a fairly risky industry by lenders and equity investors alike. Asset disposals, vertical brand extensions and loyalty programs have been common strategies espoused by major hotel chains with the objective to reduce their exposure to changes in lodging demand. The expansion of brand families across price ranges has been viewed as complementary to loyalty reward programs as it is believed to facilitate the retention of loyal customers within the corporation when consumers decide to switch to other products or price ranges (Jiang et al., 2002). The switching behavior of lodging customers has also often been termed trading "up" or "down", and is said to be driven essentially by income levels and willingness to spend (Yeoman and McMahon-Beattie, 2006).

Income measures have repeatedly been found to be significant demand drivers in the hotel industry, as has price sensitivity. Canina and Carvell (2005) showed that demand for hotels from various segments were influenced differently by various income measures and that some were cross-price elastic, suggesting hotels in one segment could be substitute to hotels in other segments. The dis-

similar, yet significant effects of income measures on hotel demand across segments have been attributed to structural factors of the market, such as its degree of differentiation or its concentration (Canina et al., 2005).

Despite the many notable efforts to understand demand curves for the whole industry, individual segments or properties, the literature on hotel demand suffers from two significant limitations. First, previous research has mainly focused on absolute demand, or changes in absolute demand, and has established factors affecting growth or decline rates. In contrast, the present study investigates how demand shifts from one segment to another and concentrates on relative market shares while controlling for supply changes. Secondly, most prior efforts have concentrated on macro- or micro-factors, but rarely on the two together. The present study includes both and looks at the effect of income, market structure and relative prices jointly. It contributes to the research stream on hotel demand drivers by overcoming the aforementioned limitations and by answering the following questions:

1. Are hotel segments substitute to each other?
2. Is the demand switching from one segment to another due to income levels?
3. Is the demand cross-price elastic across segments?
4. Do the levels of differentiation and concentration of the market affect the degree of substitutability between segments?

For the industry professionals, this research aims to assist them in better understanding why consumers trade "up" or "down", or

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under which circumstances, and why certain markets may be more or less sensitive to such switching behavior.

2. Literature and hypotheses

2.1. The effects of income and price on the demand for hotel rooms

Prior research on the demand for hotel rooms has mostly concentrated on the development of forecasting models (e.g. [Uysal and El Roubi, 1999](#); [Li et al., 2005, 2006](#); [Vogt, 2008](#)) and the study of the effects of economic variables, such as income, prices and taxes ([Arbel and Ravid, 1983](#); [Canina et al., 2003](#); [Choi et al., 1999](#); [Choi, 2003](#); [Hiemstra and Ismail, 1992](#)). Hotel demand, in absolute terms, has been regularly tested to be highly dependent upon the economic well-being of its customers – both leisure and business – and highly sensitive to changes in room prices. Indeed, income levels have consistently been tested to be significant predictors of hotel demand and the elasticity of demand to its own-price and competitors' prices have also been found to be significant.

For instance, [Canina and Carvell \(2005\)](#) studied the demand for U.S. urban hotels by testing the significance of various income measures as well as own-price and cross-price elasticities (i.e. sensitivity of demand to changes in the focal hotel's price and competitors' prices). Specifically, the authors hypothesized that price levels in a given market, as well as expectations about future income – estimated by the Consumer Confidence Index (CCI) and actual income, measured by GDP in one model, and Corporate Income (CI) and Personal Income (PI) in a second model – would be key drivers of rooms sold at the property level. Their results supported their ideas as they found that the demand for hotel rooms was relatively inelastic to own-price changes and competitors' price changes, yet both coefficients were significant. The significant cross-price elasticity of the demand suggests that when competitors' prices increase more than one's own price, the demand responds by switching to the lower priced hotels. This relationship refers to the demand-side substitutability of hotels within market segments, but also across market segments as the authors used the average market price for their measurement of cross-price elasticity, which included all market segments in the geographical area. As expected, the authors also found that higher income levels, or expectations of higher future incomes, were significant predictors of greater hotel demand in absolute terms.

What remains unclear at this juncture is whether the demand for hotel rooms within geographic markets shifts from one segment to another due to changes in economic well-being or due to relative price changes. The sensitivity of the demand to economic variables and price changes has been shown to vary across market segments in absolute terms ([Canina and Carvell, 2005](#); [Canina et al., 2005](#)), however it is not known whether one segment gains in *relative terms* from others due to changes in price or economic conditions.

Despite the lack of empirical work on whether one segment is more or less sensitive to economic growth or decline than other segments, industry professionals routinely use the notion of customers "trading up" or "trading down" when the economic environment changes. The following quote from Arne Sorenson, Marriott International President and Chief Operating Officer, is an example of how the notion is typically used:

"Before getting into the details of our 2008 results, let me pause to reflect a bit on the environment we face and how Marriott's management is responding to that environment. Obviously, economic conditions in the US and now around the globe are difficult
[...]

Interestingly, we are not seeing trade down from full service to limited service brands at this time. With our broad brand portfolio, we will be able to retain guests' loyalty should that occur." (Marriott International, Inc., Fourth Quarter 2008 Earnings Conference Call Transcript, February 12, 2009)

The effect of income on price sensitivity, which is viewed as the main reason for "trading up" or "trading down", has been found to be significant in other settings than the hotel industry. [Mulhern et al. \(1998\)](#) for instance showed that Personal Income was a highly significant determinant to the magnitude to brand price elasticity in retail shops. Customers were found to be more likely to switch to lower-priced brands when their Personal Income was low (or decreased) than when it was high (or increased).

If such relationship exists in the hotel industry, one would thus expect, as Marriott executive suggests, that properties in the low-scale segments (and lower-priced segments) would benefit in relative terms from a downturn in the economy at the expense of hotels in higher-scale segments. Given these arguments, it is expected that the following hypothesis holds true:

Hypothesis 1. The market share of hotels in low-scale segments will increase (decrease) when income levels decrease (increase). The less income customers have, the more they will be willing to trade-down and stay at less expensive hotels. The inverse will be true for hotels in upper-scale segments

In addition to the effect of changes in income levels, it is also expected that relative prices of various segments will affect demand ([Canina and Carvell, 2005](#)). Because the demand for hotel rooms has been found to be elastic to its own-price and to competitors' prices, it is expected that hotels that see their price levels increase (or decrease) more than the average market price to lose (or gain) a share of the demand to other hotels. As such, it is expected that:

Hypothesis 2. The market share of hotels in any given segment will increase (decrease) as a result of a decrease (increase) in its price relative to the price of the market

2.2. Competition and market structure

Despite the interest of both industry practitioners and researchers in predicting the demand for travel and lodging, only a limited amount of studies have attempted to uncover the roles played by competition and market structure in the making of demand for individual properties or locations. Traditional economic theories suggest that the demand for a firm or industry's products and services is not only dependent on factors external to the market, but also affected by some features of the competitive market itself. The features commonly expected to be influential on the demand are those that affect the degree of rivalry within a market, such as entry and mobility barriers, industry or market concentration, degree of differentiation, and excess capacity (e.g. [Caves and Porter, 1977](#); [Caves, 1972](#); [Plambeck and Taylor, 2005](#)). Each of these structural and state factors have been theorized and often tested to be significant drivers of industry profitability ([Capon et al., 1990](#)).

From a demand perspective, industries, markets or strategic clusters that are characterized as having high entry barriers due to high levels of concentration and degrees of differentiation, have been viewed as being able to maintain higher demand or market shares than substitutes or competitors ([Porter, 1980](#)). Out of the various determinants of entry barriers, the degree of concentration of firms within an industry has been the most widely researched and used in the study of industry structure. Industry concentration is defined by the number of firms in the industry, and their relative market shares. Highly concentrated industries are dominated

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