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The Optimal Location, Price and Scale Strategies for the Hotel Industry

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This study aims to allocate the positioning strategies of international tourist hotels (ITHs) in Taiwan based on the framework of cluster analysis. Unlike previous studies which focused on the founding decisions of hoteliers in terms of geographic location and the associated strategies regarding price and scale, this study focuses on how these three product dimensions influence ITHs' operational performance. Our data consists of 37 ITHs among 68 ITHs in Taiwan from 1998 to 2008. We use land price index and wage to instrument for an endogenous price difference variable and estimate a General Two-Stage Least Square (G2SLS) model to correct for potential bias. The results differ dramatically between the G2SLS and OLS models, reflecting the importance of correction. The results from G2SLS suggest that new ITHs entering the market should differentiate themselves by expanding the price differences from their competitors, and play an agglomeration strategy by minimizing the differences in both geographic distance and scale to improve their financial performance.

***Keywords**: International tourist hotel, Cluster analysis, Agglomeration strategy, GIS, G2SLS*

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I. Introduction

Taiwan's overall tourism competitiveness is ranked 30rd out of 140 countries in the world according to the Travel & Tourism Competitiveness Report 2017, and it's a two-place rise from 32th in the 2015 report (World Economic Forum, 2017). The growth rate of Taiwan's international tourism revenue in the first quarter of 2011 was 32.6%, and was ranked second in the Asia-Pacific region, indicating great potential for the development of the tourism industry in Taiwan. Meanwhile, the hotel industry accounts for the largest proportion of tourism foreign exchange earnings. According to the tourist spending and trends survey (Tourism Bureau, Ministry of Transportation and Communications, Taiwan, 2019a), tourists spent on average $179.45 USD per person per day in 2017. The spending for hotel lodgings accounted for 38% of overall tourist spending, and the spending in international tourist hotels (ITHs) accounted for one-third of the entire hotel spending. This study targets the ITHs as its research subjects owing to their significance in relation to tourism development.

While the majority of industrial economic analyses focus on the manufacturing industry, limited studies aimed at the lodging industry, which differs from the manufacturing industry in terms of two major characteristics. First, the hotel industry is capital-intensive and, comparatively, faces higher proportions of fixed costs. Specifically, the reallocation and expansion of lodging spaces is often costly and time-consuming, which makes the supply of hotel rooms highly inflexible. Furthermore, the demand is highly sensitive to economic cycles and often subject to seasonality.

We notice that most recent studies on the lodging industry focus on issues such as human resources management, service quality, and accommodation demands. However, the selection of a hotel's site is one of critical business decisions in the lodging industry, and is given little attention from recent academic research. Hoteliers face trade-offs when selecting ideal locations for their establishments. Many cluster

analyses suggest, for example, that there are advantages to be gained from geographic agglomeration. By locating close to each other, organizations can share infrastructure and talents to significantly reduce operation costs. For example, targeting hotels in the coastal Spanish area, Marco-Lajara, Claver-Cortés, Úbeda-García and Zaragoza-Sáez (2016) find a U-shaped relationship between firm profitability and geographic clustering, in which a high-level of agglomeration leads to better financial performance. Consumers can also benefit by lowering their search costs when it comes to visiting places with multiple hotel options; these lower costs can in turn attract more tourists than the total number of visitors attracted by hotels individually (Kalnins & Chung, 2004).

Industrial agglomeration benefits individual firms in the cluster by reducing the cost of exchanging vital operation resources with each other. The Krugman (1991) model of agglomeration suggests that the co-locating of individual firms plays an important role in lowering transportation and communication costs, which may ultimately contribute to profitability. As a result, one can often see industrial agglomeration persists in the proximity of some geographic locations with natural resources vital to the operation of firms in the cluster.

However, recent technological advances have effectively made these two costs less significant in firms' cost function; Ellison and Glaeser (1997) find that only a quarter of industrial concentration results from the proximity of observable natural resources. Why does the phenomenon of industrial agglomeration persist? Overman and Puga (2010) proposed a model to illustrate that the agglomeration economy not only facilitates the exchanges of goods but also helps to lower the costs in seeking talents. They find a positive relationship between the degree of employment variation within individual plants and the extent of geographical concentration, which suggests that agglomeration enlarges the labor market base, a crucial asset for firms to survive idiosyncratic employment shock. Another facet of the literature focuses on the role of agglomeration in facilitating knowledge exchange. As an example, Kerr (2010) observes that U.S. patents are more geographically concentrated due to the reason that

ethnic inventors, who have been very active in patenting activities according to the records of the U.S. Patent and Trademark Office in the recent decades, are drawn together either by gaining access to ethnic goods and services, or for religious purposes, or simply to live close to their friends with similar background. Kerr believes that geographic proximity enables these inventors to connect intellectually, and contributes to heightened patenting activities.

Agglomeration can also be driven by the demand side issues; geographic concentration effectively reduces search costs for potential consumers. Consumers are required to exert greater effort when choosing products with a high level of heterogeneity, and agglomeration offers them the convenience of evaluating a great variety of products at the same spot. Such agglomeration economics are crucial for the lodging industry, Consumers benefit by visiting places with multiple hotel options, and such advantage draws in more visitors to these places (Kalnins & Chung, 2004). Applying a theoretical approach, Fischer and Harrington (1996) illustrate that agglomeration will emerge with product heterogeneity when visual inspection is required to distinguish among product attributes.

The co-location decision of new firms may be another reason contributing to the formation of agglomeration. Incumbent firms invest their resources to improve the infrastructure of their surroundings, and upgrade their amenities in order to attract more consumers; new firms may decide to take advantage of the established firms by locating close to incumbents' operation site and free riding on these spillovers (Chung & Kalnins, 2001). At the same time, being close to these incumbents also enables them to monitor the actions taken by these market leaders and to respond in a timely manner to competitive challenges (Canina, Enz, & Harrison, 2005).

Nevertheless, a high level of concentration also entails greater levels of competition, which may compromise firm profitability. Davies (1999) found a negative relationship between business concentration and firm profitability in relation to a panel of 36 hotels in the UK. Intensified competition will also discourage new entries.

Ingram and Inman (1996) observe that the region with greater number of existing hotels will likely to attract more entrance of new peers; however, this relationship turns negative after a certain threshold level of concentration has been reached. High-resource firm may decide not to locate in the proximity of other firms without comparable resource; a strategy keeps low-resource counterparts from freeriding the spillover of value creating resources. (Shaver & Flyer, 2000).

Previous literature argues that to avoid direct competition within a cluster, it is imperative for individual entities to differentiate themselves to the level where the economic benefit from differentiation supersedes the costs of creating it. Porter (1991) suggests that differentiation from competitors can help a firm to strengthen its uniqueness and in turn improve its competitive advantage. In the lodging industry, differentiation can start from the reservation process and continue to the moment that guests are transported to their next destination, which means each single action or amenity provided would create new attributes to an establishment. Mazzeo (2002) segments hotels by their price, quality, and variety of services offered; he suggests a high-end hotel can differentiate itself by creating a luxurious ambience and providing all kinds of high quality services at a premium price, while an economical hotel should offer a limited number of services at an affordable price. Heterogeneity created by the cluster of hotels, in which each hotel provides different services at a wide range of prices, heightens demands by all individuals; however, agglomeration benefits do not distribute equally to every individual in the cluster. The existence of high-end hotels is responsible for the majority of positive externality to the entire cluster. Luxury hotels, in order to differentiate themselves, invest in a variety of fancy features such as buildings with sleek design, fashionable interior decoration, state-of art fitness facility, Michelin-Rated Restaurants, magnificent conventional centers, etc. These features or reputations are likely to attract travelers to the cluster and lead to an increased consumer base. On the other hand, economical hotels enjoy the positive spillovers of the enlarged consumer base without incurring any additional cost (Kalnins & Chung, 2004).

Once a hotel is established, its supply chain cannot be flexibly adjusted, and the degree of environmental resources available to the hotel is fixed. Baum and Haveman (1997) point out that geographic location is the key product dimension considered when hoteliers are trying to build a new hotel. Studies on hotel founding decisions should therefore consider the geospatial distribution of established competitors in order to fully understand the competitive environment of the chosen area. By grouping hotels with their AAA rating and whether they are affiliated with certain established brand, Kalnins and Chung (2004) find that when making an entrance decision, luxury branded hotels tend to collocate with hotels with similar resources, and avoid budget hotels which are likely to capture the spillovers from their investment. In the same vein, Canina et al. (2005) study the interaction between geographic proximity and levels of differentiation within competitive clusters of hotels. Their empirical findings suggest that economical hotels could boost their own operation performance by simply locating close to upscale hotels which invest significantly to differentiate themselves. However, for upscale hotels, it is beneficial to their performance to collocate with hotels with similar investment, and to avoid areas with a high proportion of economical hotels.

The selection of location will result in a different spatial distribution of competitors, and the decision over room prices as well as the scale of the hotel should be made simultaneously to maximize profit. Although numerous actions can be taken after the establishment of a hotel, concerning service quality improvement, product diversification, cross-industrial alliances, marketing strategy adjustment, etc., these improvements are minor and can easily be altered compared to the aforementioned decisions related to location, price, and scale. Urtasun and Gutiérrez (2006) argue that the hotel positioning strategy should not only focus on geographic location, but also include the product dimensions of price, scale and service, which are simultaneously determined during the establishment of the hotel and which can affect each other. Whether a strategy of conformity across product dimensions should be taken to enjoy the economics of agglomeration, or if a differentiation strategy is appropriate in order to bypass the detrimental effect of localized competition, or even a mixed strategy should be taken is a critical decision for firms in the lodging industry. Tickell (2002)

points out that the results obtained by using cluster analysis on the service industry are controversial when it comes to the effect of agglomeration strategies or differentiation strategies on firm performance.

To the best of our knowledge, Baum and Mezias (1992) make the first attempt to study the decisions of hoteliers under multiple product dimensions. Their work find that localized competition outweighs the effect of agglomeration economics and economics of geography when the measurement of dimensional distances (including location, scale, and service) is limited to smaller competitive windows. As a result, the hotel failure rate increases with the density of concentration among all three product dimensions. On the other hand, the study of Baum and Haveman (1997) implies that a mixed strategy among the same three product dimensions is ideal for hoteliers' founding decision. In particular, they suggest that an hotelier should collocate with incumbent hotels offering the similar price to enjoy agglomeration economics, and operate at different scales to alleviate the detrimental effect from localized competition. A similar scenario is also observed by Urtasun and Gutiérrez (2006), who find that a tradeoff exists between price and geographic location.

This study is motivated to examine the relationship between profitability and agglomeration in terms of three product dimensions. The "cluster positioning decision analysis" technique is applied to measure differences in product dimensions in terms of geographic location, price, and scale between a focal hotel and its competitors, and also assesses the impact of such market relativeness on hotel performance.

Our study draws on the model developed by Baum and Haveman (1997), which treats geographic location, price, and scale as three major lodging product dimensions concerning the profitability of the lodging industry, yet differs from this vein of literature in the following three aspects. First, the majority of previous studies only focus on decisions made during the founding of new hotels, and examine agglomeration or differentiation strategies in terms of the product dimensions (see for example: Baum & Haveman, 1997; Urtasun & Gutiérrez, 2006). These analyses implicitly assume that these founding actions are the first best strategies for all firms

given the existing operational environment, and the results from generalizing these empirical evidences can be a perfect guidance for future hoteliers. To validate this assumption, our study is motivated to examine if these well-considered founding decisions made by incumbent hoteliers help their establishments to realize profitability in the long-term. To fill this gap, our study focuses on the interaction between operation profitability and product dimensions with sample hotels, which have operated continuously for more than two decades. Second, we measure profitability with profit margin rather than revenue per available room (RevPar) utilized by numerous previous studies such as Canina et al. (2005). The use of RevPar fails to consider the cost of operation which can be justified by the application of profit margin, measured by total revenue minus total cost and then divided by total revenue. Third, to better capture the relative position of a focal hotel and its competitors, we use the Geographic Information System (GIS) to accurately measure the distance between hotels; and identify the external resources surrounding each hotel, which include transportation stations and tourist attractions. Shoval, McKercher, Ng and Birenboim (2011) discovered that tourists spend the majority of their time in the immediate vicinity of their hotel, so the closeness to environmental resources can have a significant impact on the profitability of a hotel.

Our empirical results suggest that the decisions of agglomeration or differentiation are mixed across product dimensions. Based on time-series data on 37 ITHs across the entire island of Taiwan from year 1988 to 2008, we find that adopting a differentiation strategy in terms of pricing improves ITHs' profitability, while adopting an agglomeration strategy in terms of geographic location and scale benefits the operations of an ITH. That is, a hotelier should price itself differently compared to its counterparts, locate itself closer to its competitors, and at the same time establish a hotel of similar scale to its neighbors in order to maximize its profit.

The remainder of this paper is organized as follows. Section 2 describes the data and the application of GIS. Section 3 introduces the econometric model applied, and the issue of endogeneity. Section 4 discusses and compares the results obtained from both the exogenous and endogenous models. Section 4 concludes.

II. Data Source

This study analyzes panel data covering 37 ITHs among all 68 ITHs from year 1998 to 2008. The number is 80 from the latest statistics in June 2019, however, we only observed minor changes between the lists of ITHs in two periods (Tourism Bureau, Ministry of Transportation and Communications, Taiwan, 2019b). In particular, only five hotels ceased their operations during the period of 1998 to 2017. Eight hotels renamed after 2008, and among the renamed hotels, five dropped out the list of ITHs. There are 21 ITHs entered the market at different points of time after year 2008 (please refer to Table 1). An ITH is defined and classified by the Hotel Industry and B&B Hotel Information System of Taiwan, from which we also obtain information regarding hotel scale and address. Operational information, including revenues and costs, is obtained from Taiwan's ITHs Operational Analysis Report published by Taiwan's Tourism Bureau. Information on room rates, hotel amenities, and types of service provided are collected from hotel websites. We segregate the market of ITHs into four geographic regions (northern, southern, central, and eastern) on the assumption that the majority of any hotel's competition is from competitors in the same geographic region. The numbers of hotels by region are summarized in Table 2. The majority, 23 out of 51, of the ITHs are located in Northern Taiwan, while Central Taiwan has the fewest ITHs at seven of the 51 ITHs. We only include 37 ITHs in the study; they operated continuously from 1998 to 2008. In order to gauge whether differences in geographic distance, price, and scale determine the profitability of hotels, we pair each ITH with its counterparts within the same geographic region, and estimate the aforementioned differences between itself and each of its competitors. That is, if an ITH has three competing ITHs in its same geographic region in a year, then it will have three observations against each of its competitors in the same year; in each of these, three observations, the distance, price, and scale difference variables vary, reflecting the differences between it and each competitor. In so doing, we assume that each hotel's profitability is influenced by differences in the aforementioned three product

dimensions between it and all of its competitors in the same geographic region. At the same time, the inclusion of difference variables in our empirical model satisfies two assumptions required by strategic group research. The first is the existence of intra-industry firm heterogeneity within hotel clusters. The second is that our study aims to identify an ideal combination among three product dimensions, which implies firms in the same cluster implement similar strategies to maximize their profit (Barney & Hoskisson, 1990). Our sample size expands to 5,616 after this step.

Table 1. List of international tourist hotels. The first group dropped out business during the period of year 1998 to 2017. The second group initiated their operations after year 2008.

Termination of business	New establishments
Nanhwa Plaza Hotel	W Hotel Taipei
Summit Hotel	Le Meridien Taipei Hotel
Hotel Taipei Miramar	Grand Mayfull Hotel Taipei
Marshal Hotel	E-DA Royal Hotel
Taipei Fortuna Hotel	The Wen Wan Resort Sun Moon Lake
	Orient Resort Penbay
	Novotel Taipei Taoyuan International Airport
	South Garden Hotels & Resorts
	Monarch Skyline Hotel
	Sheraton Hsinchu Hotel
	Evergreen Resort Hotel (Jiaosi)
	Shangri-La's Far Eastern Plaza Hotel,Tainan
	Fullon Hotel Tamsui Fishermen's Wharf
	The Great Roots Resort Hotel
	Silks Place Yilan
	Dancewoods Hotels and Resorts
	Kilin Hotel
	Caesar Park Hotel Banqiao
	Crowne Plaza Tainan
	Grand Cosmos Resort Ruisui,Hualien
	Four Point by Sheraton Penghu

Source: Tourism Bureau, Ministry of Transportation and Communications, Taiwan (2019b)

Table 2. Distribution of ITHs in 2008, and the distribution of ITHs by region in continuous operation during 1998-2008

	ITHs in 2008			ITHs in 1998-2008		
Region	Number	Number of rooms	Percentage (%)	Number	Number of rooms	Percentage (%)
Northern	23	7,738	50.20%	20	7,045	59.24%
Central	7	1,668	10.82%	4	1,139	9.58%
Southern	11	3,615	23.45%	8	2,523	21.22%
Eastern	10	2,393	15.52%	5	1,185	9.96%
Total	51	15,414	100.00%	37	12,434	100.00%

Source: Tourism Bureau, Ministry of Transportation and Communications, Taiwan (2019b)

This study applies ArcGIS 9.0 and the GIS layer map of the "2011 Institute of Transportation Road Network Figure Map" published by the Transportation Bureau, Ministry of Communications, R.O.C. (Taiwan). GIS analysis first identifies the location of the ITHs, and overlays the geographic location of tourism resources, as well as the location of transportation facilities to the ITH location (Joerger, DeGloria, & Noden, 1999; Shyti & Bicaku, 2010). These steps help to access the external environment of the ITHs, and enable us to study whether proximity to these resources benefits an ITH's operations.

We segment the variables in our study into six categories: (1) a performance variable, (2) clustering strategy variables, (3) environmental attributes, (4) hotel operational characteristics, (5) regional dummies, and (6) instrumental variables. What follows is a detailed description of each variable:

2.1 Performance Variable

We treat *profit margin* as our dependent variable, which is net profit (total revenue minus total expenses) divided by total revenue. Profit margin is commonly applied in measuring a firm's profitability (for example: Kimes & Fitzsimmons, 1990).

2.2 Clustering Strategy Variables

There are three strategy variables included in this study:

(1) *Price differences*: price is a major consideration related to the selection of a hotel; moreover, price can sometimes signal better quality (Rao & Monroe, 1989). We measure price as the average price of all room types of the hotel. As shown in Table 3, *Price differences* (DP_{ij}) signifies the absolute value of room price difference between the focal hotel *i* and its regional competitor, hotel *j*.

(2) *Geographic differences*: by locating a hotel, we are able to determine the relative adjacency of the hotel to its competitors. According to the viewpoint of agglomeration theory, a hotel located near similar counterparts can enjoy the benefit of sharing public infrastructure, and can alleviate some of the burden of attracting customers. However, clustering may also increase competition between the focal hotel and its competitors, and thereby undermine its profitability. This paper measures *Geographic differences* (DG_{ij}) by estimating the distance between the geographic coordinates (x, y) of hotel *i* and its competitor hotel *j* ($i \neq j$) via Euclidean Distance obtained from the GIS method.

(3) *Scale differences:* large-scale hotels can enjoy economies of scale while small-scale hotels have lower total operating costs. We use the number of hotel rooms obtained from ITHs' websites to represent hotel scale, and *Scale Differences* (DS_{ij}) signifies the absolute value of difference in the number of rooms between the focal hotel *i* and its competitor *j*.

2.3 Environmental Attributes

We include several operational resources that are suggested to influence a hotel's operation as determinants of our empirical model, as follows:

Table 3. Variable Definitions

Attribute		Variable Name	Descriptions
Dependent Variable	Performance Variable	*Profit margin*	$profit = \frac{Total\ revenue - total\ operational\ cost}{Total\ revenue} \times 100\%$
Independent Variable	Clustering Strategy Variables	*Price differences*	$DP_{ij} = \lvert Room\ price_i - Room\ price_j \rvert$
		Geographic differences	$DG_{ij} = \sqrt{(x_i - x_j)^2 + (y_i - y_j)^2}$
		Scale differences	$DS_{ij} = \lvert S_i - S_j \rvert$
	Resource Attributes	*Tourist attractions*	Number of tourist attractions within one km radius of the hotel
		Bus stops	Number of bus stops within one km radius of the hotel
		MRT and train stations	Number of MRT and train stations within one km radius of the hotel
		High-speed rail	The availability of Taiwan high-speed rail service
		Regional HHI	$HHI = \sum_{i=1}^{n} (market\ share)^2 = \sum_{i=1}^{n} \left(\frac{Sale\ of\ the\ i-th\ hotel}{Total\ sale} \right)^2$
	Operational Characteristics	*Occupancy rate*	From "ITHs Operational Analysis Report"
		Number of employees	From "ITHs Operational Analysis Report"
		Chain Management	$\begin{cases} 1, & \text{The ITH is a chain hotel} \\ 0, & \text{The ITH is an independent hotel} \end{cases}$
		Founding year	Founding year obtained from the hotel websites

Table 3. Variable Definitions (Continued)

Attribute		Variable Name	Descriptions
	Regional Dummies	*Northern region*	$\begin{cases}1, & \text{The ITH is located in northern Taiwan} \\ 0, & \text{The ITH is located in other regions}\end{cases}$
		Central region	$\begin{cases}1, & \text{The ITH is located in central Taiwan} \\ 0, & \text{The ITH is located in other regions}\end{cases}$
		Southern region	$\begin{cases}1, & \text{The ITH is located in southern Taiwan} \\ 0, & \text{The ITH is located in other regions}\end{cases}$
		Eastern region	$\begin{cases}1, & \text{The ITH is located in eastern Taiwan} \\ 0, & \text{The ITH is located in other regions}\end{cases}$
	Instrumental Variable	*Land index*	Average of commercial land price in a hotel's administrative district (1,000 New Taiwan Dollars, NT$)
		Wage	Salary and wages paid to employees in a year (one million NT$)

Source: Created by this study.

(1) *Regional HHI*: we apply a sales-based Herfindahl-Hirschman Index (HHI) in order to measure the industrial concentration of the market in the area where the focal hotel operates (Donsimoni, Geroski, & Jacquemin, 1984). The value of HHI is within the range of zero to one. If the value approaches zero, then the market is close to perfect competition. If the value approaches one, then the market is very close to a monopoly.

(2) *Tourist attractions*: hoteliers can benefit from nearby tourist attractions (Huang & Chen, 2011). This study takes the following attractions into consideration: national scenic areas, national parks, regional scenic areas, forest amusement areas, leisure agriculture and fishery (recreational farms), historical sites, springs, wetlands, beaches, business circles, night markets, scenic landmarks, department stores, and city landmarks. GIS is used to identify each attraction after which we total the quantity of tourist attractions within a one km radius of the hotel to obtain the tourist attraction variable.

(3) *Transportation resources*: convenient transportation systems lower tourists' travel costs and minimize concerns about reaching a destination (Lee & Huang, 2009). Therefore, this study would not be complete without considering these facilities. This study treats bus stops, mass rapid transit (MRT), and train stations as transportation resources. We locate these transportation resources using a GIS system. Two dummy variables are included to gauge the convenience of transportation. We create a variable for rail transport systems, which measures the number of both *MRT and train stations* in a one km radius of the hotel. The same practice applies in constructing the variable for *Bus stops*. On top of the conventional mass transportation systems, Taiwan's high-speed rail system made its debut in 2007; it significantly reduces the amount of time it takes to travel long distances in Taiwan. We therefore include *High-speed rail service*s as a variable, which is equal to one if it is available during that specific year, and zero otherwise.

2.4 Operational Characteristics

Several operational characteristics which potentially influence the profitability of hotels are included. Variables of occupancy rate, number of employees, hotel chain, and number of hotel rooms, are obtained from ITHs Operational Analysis Reports. The hotel's founding year is obtained from the ITH's website. The definition of each variable as well as the rationale behind including them as controls are provided below:

(1) *Occupancy Rate*: the majority of a hotel's profits come from the provision of accommodation, and high fixed costs occur during the building of a hotel site. Therefore, occupancy rate is an important indicator to gauge whether hoteliers manage their resources efficiently.

(2) *Number of employees*: maintaining desirable service quality requires a sufficient number of employees. On the other hand, redundant employees may increase operational costs without generating comparable profit. We therefore control for employee numbers in this study.

(3) *Chain management*: as a member of a renowned brand chain, a hotel enjoys the benefit of an established reputation and effective management. The studies of Yeh, Chen and Hu (2012) validates that branded chain hotels are more profitable compared to their unbranded counterparts.

(4) *Founding year*: older hotels are able to capitalize on their reputation, which are considered more reliable by loyal customers; on the other hand, new establishments attract tourists with their modern designs and up-to-date facilities. Hence, it is speculated that the founding year of a hotel has an impact on its performance, although the direction of this impact is uncertain.

2.5 Regional Dummies

An ITH's geographic region is taken into consideration when reviewing its impact on hotel profit. This study uses the dummy variable approach to capture regional

differences in the northern, central, southern, and eastern geographic areas of Taiwan.

2.6 Instrumental Variables

The use of price difference as a determinant of an ITH's profitability may result in a biased inference due to endogeneity. We therefore mitigate it with both labor cost and urban land price index as instrumental variables. *Wage* variable is defined as annual salary and wages paid to employees, and is collected from the Executive Information System maintained by Taiwanese Tourism Bureau. The *Land index* variable reflects the average commercial land price in the district where a hotel is located, and is obtained from the Urban Land Price Index published by Directorate-General of Budget, Accounting and Statistics, Executive Yuan, R.O.C. (Taiwan). The following section presents a more detailed discussion of the endogenous issue.

Operational definitions of the above variables are tabulated in Table 3; summary statistics for the same variables are provided in Table 4.

III. Research Methods

We posit that hoteliers pursue profit by deciding on the optimal combination of agglomeration and differentiation strategies in terms of price, geographic location, and scale distances. The relationship function is shown below:

$$\begin{aligned} Profit_{ijkt} = {} & a_0 + a_1 DP_{ijkt} + a_2 DG_{ijkt} + a_3 DS_{ijkt} \\ & + a_4 Operate_{it} + a_5 Envmt_i + a_6 Area_k + \nu_t + \varepsilon_{ijkt} \end{aligned} \tag{1}$$

where $Profit_{ijkt}$ is the market performance (*Profit margin*) of hotel i when facing competition from hotel j in the market area of k in year t. For the clustering strategy variables, *DP*, *DG*, and *DS* represent *Price differences, Geographic differences, and Scale differences*, respectively. $Operate_{it}$ refers to operational characteristics, $Envmt_i$ refers to environmental attributes, $Area_k$ refers to regional dummies, ν_t denotes year dummies, and ε_{ijkt} denotes the error term.

Table 4. Summary Statistics

Variable	Average	Standard Deviation	Minimum Value	Maximum Value
Performance Variable				
Profit margin	9.6430	15.2220	-56.6517	45.2540
Clustering Strategy Variables				
Price differences	1224.6370	917.6999	1	4583
Geographic differences	10.2718	28.2977	0.2381	158.8584
Scale differences	210.6609	168.1736	2	823
Environmental Attributes				
Tourist attractions	2.4566	3.1575	0	13
Bus stops	1.1871	1.3827	0	6
MRT and train stations	7.5880	6.7347	0	25
High-speed rail	0.0385	0.1923	0	1
Regional HHI	0.0863	0.0381	0.0653	0.2377
Operational Characteristics				
Occupancy rate	67.2564	11.5921	10.63	87.99
Number of employees	417.5910	295.6367	25	1230
Founding year	1976.9530	11.5309	1952	1998
Chain management	0.6080	0.4882	0	1
Regional Dummies				
Northern region	0.8120	0.3908	0	1
Central region	0.0267	0.1613	0	1
Southern region	0.1247	0.3304	0	1
Eastern region	0.0445	0.2063	0	1
Instrumental Variable				
Land price	334484.3	187631.4	10544.67	899155.8
Wage	252	210	3.724611	919

Note: N=5,616

Source: Estimated and organized by this study.

We speculate that there may be a bi-directional relationship between market performance and price. Price setting can deliver a signal to customers regarding the hotel's market status among its peers. The setting of an ideal price can attract potential tourists and balance operation costs, thereby leading to good performance. Meanwhile, hotel executives may decide to charge a different price, judging by the market

performance of the company compared to its peers. This bi-directional link suggests an endogenous problem on the regressor *DP* within our empirical model. In order to gauge whether the endogenous concern potentially biases our inference statistically, a Hausman endogenous test is performed:

$$H = (\hat{\beta}_{IV} - \hat{\beta}_{OLS})' \left[\text{var}(\hat{\beta}_{IV}) - \text{var}(\hat{\beta}_{OLS}) \right]^{-1} (\hat{\beta}_{IV} - \hat{\beta}_{OLS}) \sim \chi^2(1) \quad (2)$$

where $\hat{\beta}_{IV}$ is the coefficient estimated from the instrumental variable approach, and $\hat{\beta}_{OLS}$ is the coefficient estimated from the OLS model. If the results fail to reject the null hypothesis, then we may have an endogenous issue, and a generalized two-stage least square (G2SLS) estimation is ideal for unbiased estimation.

Wage and *land index* are two of the major expenses for hotel industries, and they are important determinants in setting room price. Annual salary/wages (*Wage*) is adopted as an instrument for price difference (*DP*), as it is a good proxy for labor cost; commercial land price proxies (*Land index*) reflects land cost, and is utilized as another instrument for *DP* (Yeh et al., 2011). By so doing, we assume that these two proposed instruments are correlated with *DP*; however, no direct relationship is found between them and profit. The first step of the G2SLS model is to regress the endogenous price difference (DP_{ijkt}) with the exogenous instrument variables as shown in Equation (3). The second step is to plug in the fitted value of $\widehat{DP}_{ijkt}$ obtained from the first step in Equation (1) and estimates an unbiased result:

$$\begin{aligned} DP_{ijkt} = {} & b_0 + b_1 Landindex_{ijkt} + b_2 Wage_{ijkt} + b_3 DG_{ijkt} + b_4 DS_{ijkt} + b_5 Operate_{it} \\ & + b_6 Envmt_i + b_7 Area_k + \upsilon_t + u_{ijkt} \end{aligned} \quad (3)$$

IV. Empirical Results

Estimation results of the exogenous (OLS) and endogenous (G2SLS) models are tabulated in Tables 5 and 6, respectively. The result of the Hausman Test is 76.45, and the P-value is zero (0.000), suggesting that the price difference has a significant

endogenous effect that may bias the results. Therefore, in addition to using a conventional OLS model, where price difference is assumed to be exogenous, the G2SLS estimation should be performed to obtain an unbiased inference (please refer to Table 6). Hansen J statistics has a P-value of 0.18, which cannot reject the exogeneity of our instrument variables; meanwhile, the coefficients for *Land index* and *Wage* in model 1 of Table 6 are statistically significant, suggesting that both instruments are valid for our estimation. We report cluster-robust standard errors for the reason that the same ITH have multiple observations in our data set after pairing it one by one with its competitors. Year dummies are included to control for macroeconomic fluctuations to hotel operation.

Table 5. OLS Regression Results

Variable	Coefficient	Standard error	P-value
Intercept	-457.4471***	32.3050	0.000
Clustering Strategy Variables			
Price differences	0.0003	0.0002	0.143
Geographic differences	-0.0063	0.0076	0.406
Scale differences	-0.0011	0.0011	0.288
Environmental Attributes			
Tourist attractions	0.5700***	0.0305	0.000
Bus stops	-3.2632***	0.1675	0.000
MRT and train stations	-0.0168	0.0403	0.676
High-speed rail	3.2986***	0.8461	0.000
Regional HHI	-12.4687	23.9593	0.603
Operational Characteristics			
Occupancy rate	0.6102***	0.0193	0.000
Number of employees	-0.0071***	0.0007	0.000
Founding year	0.2141***	0.0166	0.000
Chain management	5.7602***	0.3578	0.000
Regional Dummies			
Central region	2.5995	3.1019	0.402
Southern region	-7.1835***	1.8700	0.000
Eastern region	2.0732	2.9870	0.488
N = 5,616			
R-squared = 0.4316			
Year dummies are included in the estimation, and can be provided upon request.			

Note: * P<0.1 **P<0.05 ***P<0.01

Source: Estimated and organized by this study.

Table 6. G2SLS Regression Results of the Endogenous Model

	(1) Price differences			(2) Profit margin		
Variable	Coefficient	Standard error	P-value	Coefficient	Standard error	P-value
Clustering Strategy Variables						
Price differences				0.0134***	0.0030	0.000
Geographic differences	9.4776***	0.4123	0.000	-0.1235***	0.0286	0.000
Scale differences	1.3063***	0.0878	0.000	-0.0185***	0.0043	0.000
Environmental Attributes						
Tourist attractions	3.8662	4.7592	0.417	0.4063***	0.0907	0.000
Bus stops	-37.8492	11.4941	0.001	-2.9577***	0.1839	0.000
MRT and train stations	-13.9135***	2.4968	0.000	0.7875***	0.0671	0.000
High-speed rail	121.1578**	77.1141	0.116	0.8030	1.6978	0.636
Regional HHI	7345.087***	1141.805	0.000	-69.4374**	32.2834	0.031
Operational Characteristics						
Occupancy rate	1.5661	1.5051	0.298	0.7157***	0.0282	0.000
Number of employees	0.1988	0.1607	0.216	-0.0078*	0.0011	0.000
Founding year	13.3686***	1.2686	0.000	0.0224	0.0522	0.667
Chain management	-64.7061**	26.5986	0.015	6.0817***	0.5114	0.000
Instruments						
Land Index	0.0006***	0.0001	0.000			
Wage	-6.23e-07***	2.31e-07	0.000			
Regional Dummies						
Central region	-1619.927***	153.2848	0.000	20.3294***	6.2230	0.001
Southern region	-1128.458***	91.6698	0.000	4.1034***	4.2022	0.329
Eastern region	-1311.963***	144.8666	0.000	17.2229***	5.3570	0.001
Intercept	-26243.11***	2450.296	0.000	-91.9853	101.0403	0.363
Wald $\chi^2(26)=64.00(0.000)$				Wald $\chi^2(25)=96.60(0.000)$		

N = 4932

Hausman Test=76.453(0.000)
Hansen J statistics=1.767(0.184)

1.Year Dummies are included in both stages, and are available upon request.
2.All standard errors reported are cluster-robust standard errors

Note: * P<0.1 **P<0.05 ***P<0.01

Source: Estimated and organized by this study.

By observing the coefficients obtained from the OLS model, eight out of 15 variables are significant and exceed the 1% significant level (please refers to Table 5). However, none of the clustering strategy variables is significant, which contradicts the results from previous agglomeration studies (see for example: Baum & Haveman, 1997). We therefore posit that this unexpected outcome may arise due to the endogeneity of the price differences variable; a more credible result would be delivered by applying G2SLS estimation.

The OLS results shows the variables of *Tourist attractions, Bus stops, High-speed rail, Occupancy rate, Number of employees, Founding year, Chain management,* and *Southern region* are significant at the 1% level. Meanwhile, the coefficients of *MRT* and *Train stations*, *Regional HHI*, and the *Central regions* and *Eastern regions* are not significant. By observing the coefficients for hotel resource attributes, we find evidence on the spillover of positive externality from public or natural resources related to the operations of neighboring hotels. Location within one km of tourist attractions increases a hotel's profit margin, while access to MRT or train stations reduces travel time, and results in significant improvement to a hotel's financial performance. However, more bus stops in the neighborhood of the hotel can be detrimental its profit margin.

Concerning hotel operational characteristics, higher room occupancy rates have a positive impact on profit margin, as expected. Conversely, higher numbers of employees have a negative impact; it may seem dubious at first sight, however, it is consistent with economic theory according to which diminishing marginal returns makes investments in human resources less effective, and even harmful to a hotel's performance. The significant and positive coefficient of *Founding year* suggests that newer hotels, which are more likely to have modern design and be equipped with state-of-art facilities, perform better financially than their older counterparts. The significant and positive coefficient confirms that the value created by *Chain management* could successfully attract both domestic and international tourists and increase ITHs' profit margins. As for geographic location, the negative sign on the *Southern region* shows

that locating in the southern area puts ITHs in a less competitive position compared to others.

Due to the endogeneity of the price difference variable, we perform a G2SLS estimation and compare the results with those obtained from the OLS model. The estimated coefficients are presented in Table 6. The results of the endogenous model differ dramatically from those of the exogenous model; which suggests that a correction for endogeneity is imperative for unbiased inferences.

First, referring to the G2SLS results, the three proposed variables (for clustering strategies) all become significant at 1% level. The coefficient of *Price differences* is in the positive direction, implying that expanding the price differences between a hotel and its competitors will lead to increased profit margins; that is, a differentiation strategy will be effective in improving performance. Such observation is consistent with the findings of Baum and Mezias (1992) on organizational failure, in which they suggested that hotels locating their prices to the densely populated region of the distribution suffer the greater failure rate. The result suggests that hoteliers can lower their room rates compared to their peers in order to improve their rates of occupancy, and in turn boost their performance. Or alternatively, they can signal themselves as upscale establishments by charging higher rates to attract high-end customers for possibly better accommodation, which benefits hotels by increasing their average revenue per stay (Enz, Canina, & Lomanno, 2009).

The variable of *Geographic differences* has a significant and negative relationship, which is consistent with the argument that geographic agglomeration helps to reduce search costs for potential customers and also lowers hotels' operation costs by resource sharing (Barney, 1991; Peteraf, 1993; Porter, 1991). A hotelier may also benefit from clustering with its competitors, and take advantage on freeriding marketing campaign of others (Baum & Mezias, 1992). All of the above advantages lead to an increased profit margin by minimizing the geographic differences among ITHs.

The variable of *Scale differences* is significant and negative, which suggests that agglomeration in size is conducive to profitability. This finding is contrary to Kalnins and Chung's (2004) observation that smaller hotels could capture the positive externality generated by large establishment, while large entrants fare worse by agglomerate with establishment with similar size. Conversely for the hotel business, by establishing hotels with similar scale around a neighborhood creates a synergy that benefits all. On the other hand, the results imply that building a hotel far different in scale from neighboring hotels makes it potentially less attractive to tourists and compromises its financial performance.

Our empirical results for G2SLS model generally support that a mixed strategy among the three clustering dimensions should be applied to maximize a ITH's profit. Such findings are in line with previous literature on hotel founding decisions, which suggests a balanced strategy help hotels to capture positive spillovers from established hotel clusters, and at the same time avoid localized competition with its incumbent hotels (Baum & Haveman, 1997; Kalnins & Chung, 2004; Urtasun & Gutiérrez, 2006). However, differences exist on the application of the mixed strategy on three clustering variables. Our findings imply a trade-off exists between geographic and price differences. It is consistent with the findings of Kalnins and Chung (2004) and Urtasun and Gutiérrez (2006), which argue that hoteliers with conformity in price should keep sufficient physical distances with their competing counterparts, while it contrasts with the results from Baum and Haveman (1997), which find an agglomeration strategy should be undertaken by hotels within the same price level. As for the relationship between geographic and scale difference, our empirical findings suggest hoteliers with similar sizes should adopt the agglomeration strategy in term of geographical distance to boost their financial performance. This observation is in conformity with previous findings by Urtasun and Gutiérrez (2006), which, in their geographic competition model, argued that geographic distance is augmented by scale difference. Nevertheless, the findings of Baum and Haveman (1997) and Kalnins and Chung (2004) show that new entrants should avoid to collocate with similar sized establishments due to the effect of localized competition.

Results on the environmental attribute variables are consistent with those of the OLS model. The *Tourist attractions* variable remains positive in terms of its impact on profit margins. The significantly positive estimate of the *MRT and train stations* variable denotes that the mass transportation systems and railway stations bring positive externality to ITHs. *High-speed rail* is still statistically insignificant, perhaps high speed transportation considerably shortens the long distance travel time within the island of Taiwan, which may enhance the accessibility of the touring destinations and attract more tourists. However, it may also lower overnight lodging demands at the same time. The *Bus stops* variable remains negative and significant.

We also find comparable results from both the OLS and G2SLS models in terms of operational characteristic variables. *Occupancy rate* reflects the ability of ITHs to fully utilize their space, and is positively related to profit margins. *Number of employees* is a negative determinant of performance, which suggests that diminishing return on human capital takes place in ITHs in Taiwan. Chain hotels (*Chain management*) capitalize on their brand names, which is consistent with many related studies (e.g., O'Neill & Carlbäck, 2011). However, in the G2SLS model, the founding year of the hotel becomes insignificant.

The *Regional HHI* variable denoting industrial concentration changes its sign to negative and significant in the G2SLS model. The negative impact on the hotel's profit margins suggests that great amount of hotels or hotel clusters in the same region may intensify competition intensity, the result is a smaller consumer base for each hotel or cluster. In an effort to attract more customers, greater promotion activities should be undertaken, which heightens the operation cost and in turn leads to lower profitability for hotels.

By summing up the results for the geographic region dummies, we conclude that ITHs in the northern region lack competitive advantage over ITHs located in the rest of the island. The central, southern, and eastern region dummies all become positive and statistically significant in the endogenous model. The southern dummy is the only significant regional variable in the OLS model.

Under the framework of cluster positioning decision analysis, this paper aims to examine whether the adoption of an agglomeration strategy or a differentiation strategy in the directions of price, geographic distance, and scale can successfully facilitate ITHs achieving better financial performance. We apply GIS in order to assess the distribution of competitors for a focal ITH, and surveys its operational resources including tourist attractions and mass transportation systems. Due to the potential endogenous problem in relation to the price differences variable, we take a further step and estimates a G2SLS model using a sample of 37 ITHs; the sample reaches 5,616 firm-year observations after pairing each ITH with its competitors operating in the same geographic region. We obtain different results from the endogenous model compared to the exogenous model, suggesting the importance of controlling for endogeneity. The two-stage results reveal that a balancing strategy between agglomeration and differentiation should be employed in order to improve ITHs' performance. Based on the estimated coefficients, ITHs competing in the same region should differentiate themselves from the majority of their competitors by price in order to maximize their profit. However, the results for geographic distance and scale difference suggest the opposite; that is, new entrants to hotel industry could improve their performance by offering products of a similar scale to their customers, and locate close to their competitors in order to share the advantages of agglomeration.

The availability of MRT and train stations has a positive impact on profitability. However, bus transportation designed for local commuting is not helpful, and can even be harmful to ITHs. The effect of tourist attractions is positive, as expected. The data also show that ITHs are rewarded with higher profit margins when located in any of the three regions other than the northern region.

Previous literature considers service quality as the fourth dimension in the clustering study (Urtasun & Gutiérrez, 2006). This study didn't include service dimension for two reasons: (1) our original data do not include the service information and (2) we argue that service is closely related to the price, and price is an important indicator to reveal a hotel's diversity and quality of the service it provides. However,

we do believe that future research effort could include service dimension to obtain further managerial implication for hotel industry.

References

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120.

Barney, J. B., & Hoskisson, R. E. (1990). Strategic groups untested assertions and research proposals. *Managerial and Decisions Economics, 11*(3), 187-198.

Baum, J. A. C., & Haveman, H. A. (1997). Love thy neighbor? Differentiation and agglomeration in the Manhattan hotel industry, 1898-1990. *Administrative Science Quarterly, 42*(2), 304-338.

Baum, J. A. C., & Mezias, S. J. (1992). Localized competition and organizational failure in the Manhattan hotel industry, 1898-1990. *Administrative Science Quarterly, 37*(4), 580-604.

Canina, L., Enz, C. A., & Harrison, J. S. (2005). Agglomeration effects and strategic orientations: Evidence from the U.S. lodging industry. *Academy of Management Journal, 48*(4), 565-581.

Chung, W., & Kalnins, A. (2001). Agglomeration effects and performance: A test of the Texas lodging industry. *Strategic Management Journal, 22*(10), 969-988.

Davies, B. (1999). Industrial organization: The UK hotel sector. *Annals of Tourism Research, 26*(2), 294-311.

Donsimoni, M. P., Geroski, P., & Jacquemin, A. (1984). Concentration indices and market power: Two views. *Journal of Industrial Economics, 32*(4), 419-434.

Ellison, G., & Glaeser, E. L. (1997). Geographic concentration in US manufacturing industries: A dartboard approach. *Journal of Political Economy, 105*(5), 889-927.

Enz, C. A., Canina, L., & Lomanno, M. (2009). Competitive pricing decision in uncertain times. *Cornell Hospitality Quarterly, 50*(3), 325-341.

Fischer J. H., & Harrington, J. E. (1996). Product variety and firm agglomeration. *RAND Journal of Economics, 27*(2), 281-309.

Huang, Y. L., & Chen, K. L. (2011). The effect of multiple destination trips on recreation benefits－An example of leisure agriculture in Yilan county, Taiwan. *Taiwanese Agricultural Economic Review, 16*(2), 41-76. (In Chinese)

Ingram, P., & Inman, C. (1996). Institutions, intergroup competition, and the evolution of hotel populations around Niagara Falls. *Administrative Science Quarterly, 41*(4), 629-658.

Joerger, A., DeGloria, S. D., & Noden, M. A. (1999). Applying geographic information systems: Sitting of coastal hotels in Costa Rica. *Cornell Hotel and Restaurant Administration Quarterly, 40*(4), 48-59.

Kalnins, A., & Chung, W. (2004). Resource-seeking agglomeration: A study of market entry in the lodging industry. *Strategic Management Journal, 25*(7), 689-699.

Kerr, W. R. (2010). The agglomeration of US ethnic inventors. . In E. L. Glaeser (Eds.), *Agglomeration economics* (pp. 237-276). Chicago: University of Chicago Press.

Kimes, S. E., & Fitzsimmons, J. A. (1990). Selecting profitable hotel sites at La Quinta Motor Inns. *Interfaces, 20*(2), 12-20.

Krugman, P. (1991). History and industry location: The case of the manufacturing belt. *The American Economic Review, 81*(2), 80-83.

Lee, C. H., & Huang, C. H. (2009). Measuring economic benefits from festival visitor's crowding perceived reduction. *Taiwanese Agricultural Economic Review, 15*(1), 81-113. (In Chinese)

Marco-Lajara, B., Claver-Cortés, E., Úbeda-García, M., & Zaragoza-Sáez, P. D. C. (2016). Hotel performance and agglomeration of tourist districts. *Regional Studies, 50*(6), 1016-1035.

Mazzeo, M. J. (2002). Product choice and oligopoly market structure. *RAND Journal of Economics, 33*(2), 221-242.

O'Neill, J. W., & Carlbäck, M. (2011). Do brands matter? A comparison of branded and independent hotels' performance during a full economic cycle. *International Journal of Hospitality Management, 30*(3), 515-521.

Overman, H. G., & Puga, D. (2010). Labor pooling as a source of agglomeration: An empirical investigation. In E. L. Glaeser (Eds.), *Agglomeration economics* (pp. 133-150). Chicago: University of Chicago Press.

Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal, 14*(3), 179-191.

Porter, M. E. (1991). Towards a dynamic theory of strategy. *Strategic Management Journal, 12*(S2), 95-117.

Rao, A. R., & Monroe, K. B. (1989). The effect of price, brand name, and store name on buyers' perceptions of product quality: An integrative review. *Journal of Marketing Research, 26*(3), 351-357.

Shaver, J. M., & Flyer, F. (2000). Agglomeration economies, firm heterogeneity, and foreign direct investment in the United States. *Strategic Management Journal, 21*(12), 1175-1193.

Shoval, N., McKercher, B., Ng, E., & Birenboim, A. (2011). Hotel location and tourist activity in cities. *Annals of Tourism Research, 38*(4), 1594-1612.

Shyti, B., & Bicaku, A. (2010). GIS technique for tourism activities. *Journal of Studies in Economics and Society, 2*(1), 66-75.

Tickell, A. (2002). Geography of services: Progress in the geography of services III—Time to move on? *Progress in Human Geography, 26*(6), 791-801.

Tourism Bureau, Ministry of Transportation and Communications, Taiwan (2019a). *2017 annual survey report on visitors expenditure and trends in Taiwan.* Taipei: Taiwan Tourism Bureau.

Tourism Bureau, Ministry of Transportation and Communications, Taiwan. (2019b). *201906 monthly report on tourist hotel operations in Taiwan*. Taipei: Taiwan Tourism Bureau.

Urtasun, A., & Gutiérrez, I. (2006). Hotel location in tourism cities: Madrid 1936-1998. *Annals of Tourism Research, 33*(2), 382-402.

World Economic Forum (2017). *The Travel & Tourism Competitiveness Report 2017.* Retrieved from http://www3.weforum.org/docs/WEF_TTCR_2017_web_0401.pdf

Yeh, C. Y., Chen, C. M., & Hu, J. L. (2012). Business diversification in hotel industry: A comparative-advantage analysis. *Tourism Economics, 18*(5), 941-952.

以群聚分析推估旅宿業選址之最佳策略

葉家瑜*、張景行**

本研究在群聚分析（cluster analysis）的架構下研究國際觀光旅館的選址策略。有別於前人的研究多著重於分析地理位置、價格、以及規模大小如何影響飯店的選址決策，本研究的目標為了解在飯店在選址興建之後，上述三個變數如何影響國際觀光旅館的營運獲利表現。此研究以台灣本島 68 家國際觀光旅館中在 1998 年至 2008 年間連續營運的 37 家飯店為研究對象。考慮到研究中價格變數可能產生的內生性問題（endogeneity），我們以土地價格指數，以及員工薪資作為工具變數（instrumental variables），並應用二階段最小平方法（G2SLS）來修正內生性所造成的誤差。研究結果顯示，在不考慮內生性問題的前提下以最小平方法估計（OLS）所得的結果，與二階段最小平方法（G2SLS）的分析結果呈現相當大的差異。此比較結果顯示了修正內生性問題的重要性。二階段最小平方法（G2SLS）的估計結果顯示，新加入市場之國際級觀光旅館應在定價上採差異化策略，拉開與區域競爭者的價格區間，同時縮短與競爭者間，地理位置以及飯店規模差異，來追求獲利的極大化。

關鍵詞：國際觀光旅館、集群分析、群聚競爭策略、地理定位系統、二階段最小平方法

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本文承蒙兩位匿名評審以及主編所提供的寶貴建議以及協助，特此致謝。本文為科技部計畫（計畫編號：101-2410-H-260-054）之研究成果。文中如有疏漏，悉由作者負全部責任。

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