

行政院國家科學委員會專題研究計畫 成果報告

國家觀光旅遊相對經營效率之探討研究—東亞地區國家 研究成果報告(精簡版)

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國家觀光旅遊相對經營效率之探討研究—東亞地區國家

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國家觀光旅遊相對經營效率之探討研究—東亞地區國家

An Exploratory study for Relative operation efficiency of nation travel and tourism in East Asia

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摘要

觀光旅遊產業發展對國家外匯收入、增加工作機會、發展社會經濟與提高生活品質等皆佔有重要地位，但依據世界經濟論壇 TTCI(Travel and Tourism Competitiveness Index)2008 年報告指出，台灣全球排名滑落至第 52 名，亞洲排名則下滑至第 7 名，因此台灣觀光旅遊競爭力仍有加強改善之空間。每當企業欲在特定產業提升競爭優勢時，須進行產業內競爭者分析與相對經營效率分析，本研究運用資料包絡分析法來探討東亞地區國家觀光旅遊相對經營效率，據此提供台灣或其他非最佳效率國家，觀光旅遊經營與發展上之強化改善參考資訊。

世界經濟論壇 2007 年所提出的觀光旅遊競爭力指標，可點出不同國家應可強化國家觀光旅遊之所在方向。但此類稟賦要素於先前觀光旅遊研究中，並無深入引用或執行經營效率相關之探討，故本研究將觀光旅遊競爭力指標設定為資料包絡分析之投入影響變數，並將分析模式與未曾納入之模式執行比較，以了解觀光旅遊競爭力指標對觀光旅遊相對經營效率之影響。

研究結果顯示，達到最佳效率國家為中國、日本、香港及新加坡，無效率國家則為台灣、韓國、馬來西亞、泰國、印尼與菲律賓。其中，兩種模式實證結果顯示，觀光旅遊競爭力指標對於觀光旅遊相對經營效率產生正向的影響。

關鍵字：東亞國家、資料包絡分析法、國家觀光旅遊、經營效率

Abstract

The development of Nation tourism industry plays an important role in foreign exchange earnings, more job opportunities, socio-economic

development and improvement of life quality. According the 2008 Travel and Tourism Competitiveness Index (TTCI) report announced by World Economic Forum, Taiwan stands in sequence 52 of world class and in sequence 7 of Asia class. Therefore, the competitiveness of Taiwan's tourism is still need to improve. For enhancing the competitive advantage of any specific industry, doing competitor analysis and exploring the relative operating efficiency are necessary work. Hence, this study uses the Data Envelopment Analysis for exploring the relative operation efficiency of Nation Travel and Tourism for East Asian countries. Furthermore, this study provides improvement information to inefficient countries for strengthening and planning their development of Nation Travel and Tourism.

World Economic Forum firstly had announced TTCI in 2007. This index can point out the directions for improving Nation Travel and Tourism under different countries. However, former tourism research did not deeply explore this factor or include this factor into the field of operation efficiency research. This study set TTCI as the input factor of Data Envelopment Analysis. Furthermore, this study compares the difference between model with TTCI and model without TTCI to explore the impact of TTCI in the relative operation efficiency of Nation Travel and Tourism.

Research results indicate China, Japan, Hong Kong and Singapore are countries with best operational efficiency. Moreover, Taiwan, Korea, Malaysia,

Thailand, Indonesia and Philippines are countries without operational efficiency. The empirical results of model comparison present TTCI has positive impact on the relative operational efficiency of Nation Travel and Tourism.

Keywords: East Asia, Data Envelopment Analysis, Nation Travel and Tourism, Operation Efficiency

一、緒論

觀光產業持續與蓬勃發展，嚴然已成為全球最大與最快成長的經濟領域之一。另外，觀光產業在國內生產總額(Gross Domestic Product; GDP)與提供工作機會上亦扮演著極重要的角色。世界觀光旅遊理事會(World Travel and Tourism Council; WTTC)即預測 2008 年全球觀光旅遊產業將產生 5.89 兆美元價值之經濟活動，佔全球 GDP 9.9%，在就業工作機會提供上，全球觀光旅遊產業將產生 2.38 億個工作機會，佔全球就業工作機會 8.4%(World Travel and Tourism Council, 2008)。爰此，無論已開發或開發中國家皆積極地策劃與發展觀光產業，以便能藉此增加國家外匯收入、增加工作機會、發展社會經濟與提高生活品質。

2007 年全球的觀光客總人次為 9.03 億人次，而且每年以平均 4%之成長率在增加中，亞洲及太平洋地區之觀光客總人次數為 1.84 億人次，僅次於歐洲位居全球第二位。其中，東亞(東北亞與東南亞)地區之觀光客總人次數為 1.64 億人次，市佔率高達 18.1%，僅次於中南歐洲位居全球第二大觀光市場。而就平均年成長率而言，東亞地區與中美洲同列第一名，佔 8.6%之高成長率(World Tourism Organization, 2008)。故東亞地區國家擁有著比全球其他地區國家，更好的觀光產業發展前景與龐大市場需求。

全球觀光旅遊競爭力報告 (Travel and Tourism Competitiveness Report) 顯示東亞 12 國家(或地區)中，表現最佳為香港(第 14 名)，其次是新加坡(第 16 名)、日本(第 23 名)，而台灣為第 52 名，台灣之全球排名由 2007 年的第 30 名降為第 52 名，在亞洲各國的排名也由 2007 年的第 4

名降為第 7 名，名列前茅的國家皆是位於歐洲、北美洲與大洋洲之高度開發國家(World Economic Forum, 2007)，這都顯示台灣觀光旅遊競爭力還有再強化改善之空間，極需針對整體觀光旅遊發展工作或政策上做妥善規劃與雙倍強化的，著重在全球觀光旅遊於東亞地區高度成長之際，分享到其所帶來的龐大經濟利益美果，並進而提高國家外匯收入、增加工作機會、發展社會經濟與提高生活品質。

對任何產業型態的公司而言，在努力達成高獲利與永續經營目標之時，是需要先有自身所處競爭態勢與相對經營效率現狀之資訊，以便所規劃出的策略與執行方案能貼合實際與產生最佳效益(Zhu, 2000)。而對國家來說，當其要在全球特定產業經濟領域內提升競爭優勢時，也是需要像企業公司一樣來進行競爭者分析與相對經營效率探討。資料包絡分析法(Data Envelopment Analysis; DEA)常被運用來分析整個產業中個別企業公司的相對經營效率(relative operation efficiency)，以便讓產業中每個企業公司知道標竿競爭者為哪家企業公司、同群組的競爭企業公司有哪些與公司之總技術效率現況，進而提供企業於訂定市場競爭策略、強化企業經營與提升品質競爭優勢時之有用資訊 (Hammond, 2003; Hwang and Chang, 2003; Borenstein et al., 2004; Chiang et al., 2004)。

回顧以上所述，運用資料包絡分析法來探討國家觀光旅遊相對經營效率應是一個值得探討研究的新議題。而未來所獲得的研究結果也將可供研究範圍的國家來加以參考，以促進其國家觀光旅遊之改善強化與發展規劃。另外，WEF 所公佈的全球觀光旅遊競爭力報告中，乃是運用觀光旅遊競爭力指標(Travel and Tourism Competitiveness Index; TTCI)來評定全球各國之觀光旅遊競爭力排名。而此項 TTCI 對國家觀光旅遊相對經營效率是否有顯著影響呢？同時，位居全球觀光旅遊高度成長之東亞地區國家中，哪些國家是與台灣同屬一個競爭群組？哪一個國家又是台灣可以執行標竿管理的對象？皆為本研究所欲探究之問題。

二、文獻探討

(一)觀光旅遊

國家觀光旅遊就是以國家地理範疇來從事觀光旅遊之活動。Artus(1972)認為國家觀光旅遊如同國際貿易一般，可視為雙方或多方國家相互輸出及輸入旅遊財貨與勞務之活動。Vellas and Lionel(1995)以利益角度解釋國家觀光旅遊是：旅遊目的地國家根據己方較優勢的要素稟賦(factor endowments)，來輸出具有優勢觀光旅遊財貨與勞務的一種活動。

(二)觀光旅遊競爭力指標

觀光旅遊競爭力指標旨在點出對不同國家可增強其觀光旅遊魅力之因素或政策。其含有三個子指標：(1)觀光旅遊法規架構；(2)觀光旅遊商業環境與基礎建設；(3)觀光旅遊人力、文化及自然資源。而各國之觀光旅遊競爭力指標就是綜合此三項子指標來呈現整體分數的。另外，三項子指標其中各別有 5、5 與 3 項之評估項目(World Economic Forum, 2007)。現今 2008 年觀光旅遊競爭力指標是一個具有三個子指標與 14 項評估項目之量測器(World Economic Forum, 2008)。

本研究用 TTCI 與其三項子指標為影響國家觀光旅遊相對經營效率之投入影響變數，以來探討 TTCI 對國家觀光旅遊相對經營效率之影響與考慮 TTCI 情況下東亞地區國家觀光旅遊相對經營效率之現況。

(三)觀光衛星帳

由聯合國世界觀光組織與世界觀光旅遊理事會合作，並獲得加拿大觀光委員會(Canadian Tourism Commission, CTC)的支持，發展出一套觀光會計系統，具有衡量和評估觀光活動之經濟影響的統計機制，稱之為觀光衛星帳(World Travel and Tourism Council, 2007)。藉此數據，可了解一個國家在觀光旅遊產業發展上，已達到何種程度之經濟效益。本研究採用觀光衛星帳中合適之科目變數項納入 DEA 分析中的投入或產出變數項，以來探討東亞地區國家觀光旅遊之相對經營效率現況。

(四)經營效率評估

效率(efficiency)一詞，原是工程學上所使用的名詞，乃指「所用力量與所獲功效的比率」(李朝

賢，1988)。對國家而言，國家資源皆為有限，所以如何善加運用有限國家資源，是每個國家政府必需注重的治國問題，而當中經營效率評估則是極為重要的管制作業。關於效率評估的方法眾多，依據相關文獻分析後，本研究認為資料包絡分析法應該是最適合運用來作為探討東亞地區國家觀光旅遊相對經營效率現況之技術方法(Chiang et al., 2004; Chiang, 2006; Wang et al., 2006)。

三、研究方法

本研究旨在運用資料包絡分析法來探討東亞地區國家觀光旅遊相對經營效率之現況。研究中，參考世界經濟論壇自 2007 年開始執行之全球觀光旅遊競爭力指標(TTCI)作為 DEA 模式的投入變數項，以探討觀光旅遊競爭力指標對國家觀光旅遊相對經營效率是否具有顯著影響。此外，世界觀光旅遊理事會之觀光衛星帳科目指標亦是 DEA 模式投入與產出變數項確認之考慮範圍。綜合緒論中之研究問題與相關文獻探討之後，提出本研究的研究架構(如圖 1 所示)。同時為驗證研究問題，本研究提出一個研究假設：

假設一：觀光旅遊競爭力指標與國家觀光旅遊相對經營效率具有顯著正向關係。

本研究是以全球觀光客總人次高度成長之東亞地區國家為研究範圍與對象。在初步檢視觀光旅遊競爭力報告與觀光衛星帳統計資料後，兩項資料皆有涵蓋的東亞國家/地區計有：中國、台灣、香港、日本、韓國、柬埔寨、印尼、馬來西亞、菲律賓及泰國等 10 個國家。越南與蒙古兩國因無完整觀光衛星帳統計資料，故不納入本研究範圍與對象。

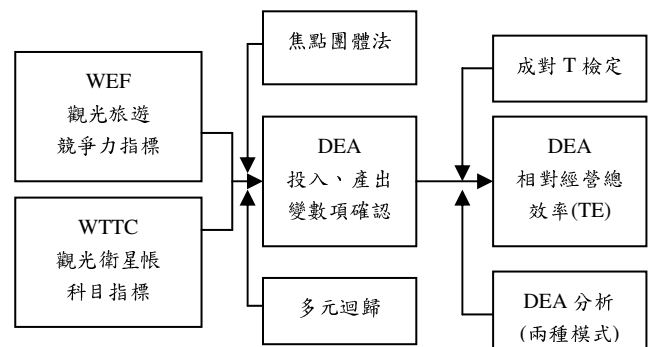


圖 1. 研究架構

文獻探討法、焦點團體法、資料包絡分析法、敘述統計分析與成對 T 檢定為本研究所使用之研究方法。透過文獻分析與焦點團體研擬決定所欲納入之 DEA 模式之投入與產出變數項。本研究兩種模式所設定之投入產出項目與定義，模式一將消費者物價變動率、觀光產業就業數設定為投入項，觀光消費與國家來客數為產出項，藉此執行 DEA 分析以獲得各國家之相對效率值；模式二則將投入項部分加入觀光旅遊競爭力總指標。而當將觀光旅遊競爭力總指標列為投入項時，須先執行(7+1-原始值)之倒數處理，以符合 DEA 分析之最少投入最多產出之導論原則。公式中使用 7 的原因，乃因觀光旅遊競爭力指標所採用之量尺為七等尺度。

資料分析部份，首先係運用 Frontier Analyst 軟體分別針對模式一與模式二進行 DEA 分析，其中，DEA 分析將會執行三項分析：(1)效率分析—瞭解造成相對無效率 DMUs 的原因；(2)參考集合分析—確認出無效率 DMUs 之參考競爭群組，以作為改善強化時之參考。另外藉由參考總次數可確認出標竿 DMU，以供全體 DMUs 作為標竿管理之對象；(3)目標改善分析—提供無效率 DMUs 有關各變項可改善之水準調整方向。DEA 分析所得之結果將進行成對 T 檢定，藉此與模式一做差異檢定，以檢測出觀光旅遊競爭力總指標之加入，是否對觀光旅遊相對經營效率有所影響。

四、資料分析與結果

由於收集資料至今，雖然在觀光衛星帳與觀光旅遊競爭力報告資料分別收集到 2006 年與 2007 年數據，但在觀光旅遊統計年鑑所提供之數據資料僅到 2006 年，因此產出項之國家來客數部分無法收集到 2007 年數據，故本研究僅針對 2006 年之數據資料做為觀光旅遊競爭力指標對相對經營效率之影響的探討。

表 1 為模式一(投入項為消費者物價指數與觀光旅遊就業數)與模式二(投入項包含消費者物價指數、觀光旅遊就業數及觀光旅遊競爭力指標)相對經營效率分析比較結果。

表 1.東亞國家模式一與模式二相對經營效率表

DMU	模式一效率值	模式二效率值	兩模式效率差異
	(TE3)	(TE4)	
中國	100.00%	100.00%	0.00%
日本	100.00%	100.00%	0.00%
香港	100.00%	100.00%	0.00%
新加坡	100.00%	100.00%	0.00%
台灣	77.78%	88.03%	10.25%
韓國	73.24%	74.11%	0.87%
馬來西亞	32.86%	36.06%	3.20%
泰國	22.52%	28.33%	5.81%
印尼	8.23%	11.61%	3.38%
菲律賓	5.74%	5.99%	0.25%
總效率值	62.04%	64.41%	2.38%

比較後發現，模式二之總效率值比模式一高出 2.38%，且除了相對有效率國家外，東亞各國在相對經營效率皆有增加之趨勢，其中又以台灣之相對經營效率增加為最高(增加 10.25%)，其次為泰國(增加 5.81%)、印尼(增加 3.38%)。本研究初步證實觀光旅遊競爭力指標對相對經營效率有正向之影響。

進一步將模式一與模式二之效率值執行成對樣本 T 檢定後發現(如表 2)，模式一與模式二之相對經營效率達到顯著差異(P-value 值=0.05)且 t 值為 2.20，這也意味著觀光旅遊競爭力指標對相對經營效率產生正向顯著影響，故本研究假設一成立。

表 2.模式一與模式二相對經營效率比較表

成對變數	成對變數差異		t	自由度	顯著性
	平均數	標準差			
TE4-TE3	2.38	3.41	2.20	9	0.05*

註：* 表示 P<0.1

根據上述結果，本研究進行模式二之參考集合分析結果如表 3，有效率之國家被參考次數越多，代表其擁有較佳的經營效率表現；而無效率之國家則可從參考群體中，選擇可參考之國家經營模式來效法，以利改善國家觀光旅遊經營現況。

模式二主要被參考國家為日本(7 次)、香港(5

次)與新加坡(5次)及中國(3次)，與模式一所分析之參考集合分析結果一致。其中可發現，無論使用何種模式計算國家觀光旅遊經營效率，日本皆為被參考次數最多次之國家，亦是本研究其他國家之國家觀光旅遊標竿競爭者。

表 3.東亞國家地區相對經營效率參考集合分析表

代碼	國家	效率值	參考群體	參考次數
N1	中國	100.00%	N1	3
N2	日本	100.00%	N2	7
N3	香港	100.00%	N3	5
N4	新加坡	100.00%	N4	5
N5	台灣	77.80%	N2、N4	
N6	韓國	73.20%	N2、N4	
N7	馬來西亞	32.90%	N1、N2、N3	
N8	泰國	22.50%	N1、N2、N3	
N9	印尼	8.20%	N2、N3、N4	
10	菲律賓	5.70%	N2、N3、N4	

綜合上述結果，本研究進一步針對台灣進行目標改善分析，藉此提供台灣瞭解目前觀光資源現況，並作為爾後改善依據。表 4 顯示台灣在投入資源上，消費物價變動率必須下降 12.00%、觀光產業就業數減少 12.00%及觀光旅遊競爭力指標之得分數需減少 35.20%(DEA 分析處理時，指標得分越低表示越優異)，才能達到相對有效率之目標值。換句話說，消費者物價變動率必須改善至 0.53%，觀光就業數必須減少至 148,760 位，而觀光旅遊競爭力指標原始值須增加至 6.51 分(8-原始值=1.49)。在台灣的產出表現部份，觀光消費已到達目標值，故無需再改善，但在國家來客數部分，則需增加 49.10%(約 5,247,875 人)才能達到整體有效率。

表 4.台灣改善目標表

DMU	投入產出項	目標值	改善比率
台灣	消費者物價變動率	0.53%	-12.00%
	投入項		
	觀光產業就業數	148,760 人	-12.00%
	觀光旅遊競爭力指標	1.49	-35.20%
產出項	觀光消費	236 億美元	0.00%
	國家來客數	5,247,874,600 人	49.10%

五、結論與建議

本研究旨在運用資料包絡分析法來探討東亞地區國家之觀光相對經營效率現況。研究中，將觀光旅遊競爭力指標設定為 DEA 分析的投入項，藉此來觀察其對相對效率之影響關係。經由本研究執行成對樣本 T 檢定之結果顯示，觀光旅遊競爭力指標確實對相對經營效率產生正向顯著的影響。東亞國家在模式一與模式二之相對經營效率比較結果皆以中國、日本、香港與新加坡為最佳總效率(TE=1)，其餘之國家效率排名依次為台灣、韓國、馬來西亞、泰國、印尼，並以菲律賓為最低。在參考群體分析結果顯示，對於相對無效率之國家，皆可將日本視為國家觀光旅遊之標竿競爭者並進行標竿管理，以提昇自身的觀光旅遊發展。

透過本研究結果顯示，台灣的國家來客數未達目標值(5,247,875 人)，由此可知台灣在觀光旅遊經營方面確實還需在加強與改善，故本研究提出些許建議如下：

1. 首先可以在消費者物價指數上著手，策定相關之經濟政策來維持國家相關經濟指數上的穩定。
2. 雖然由分析數據上顯示，須減少觀光就業數以改善效率，但與觀光產業發展目的不符，換角度而言之，可提升國家觀光旅遊產業服務人員之服務品質及工作效率，使得來台觀光之旅客有別以往感受，藉此提升國家來客數。
3. 在觀光資源與建設方面，除了新建觀光旅遊相關建設之外，原有觀光旅遊設備及資源維護亦是重要環節，故政府須注意原有設備及資源的修復與維護，以提升遊客來目的地觀光之吸引力。

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行政院國家科學委員會補助國內專家學者出席國際學術會議報告

99 年 6 月 22 日

附件三

報告人姓名	鄧維兆	服務機構 及職稱	中華大學 休閒遊憩規劃與管理學系 教授
會議 時間 地點	99 年 6 月 10 日至 6 月 14 日 美國夏威夷 Hilton Hawaiian Village	本會核定 補助文號	NSC98-2410-H-216-015
會議 名稱	(中文)國際企業與管理研究研討會 (英文) The International Business & Management Research Conference		
發表 論文 題目	(中文)品質管理文化、品質意識與服務行為對經營效率之影響 (英文) The Influence of Quality Management Culture, Quality Consciousness, and Service Behavior for Operating Efficiency		

報告內容應包括下列各項：

一、參加會議經過

- 本人於美國當地時間 6 月 10 日 0830 到達夏威夷後，便直接進入住宿旅館休息。
- 6 月 10 日 1400 參加大會辦理之 Independent Research Meeting- I。由 Dr. Turan Senguder 主持，會中主要是作參與者之相互認識，並做個人研究領域之介紹。
- 6 月 11 日
 - 1015~1200 參加第一場 Session，聆聽七篇論文之發表。
 - 1200~1230 聆聽了第一場 Keynote speech-Entrepreneurial Managers in Health Care Organizations，由 Dr. Kristina Guo 演講。
 - 1230~1400 享用午餐。
 - 1400~1430 聆聽了第二場 Keynote speech-Applying Cost-Benefit Techniques in the Evaluation of Public School Instructional Effectiveness，由 Dr. Larson Ng 演講。
 - 1430~1730 參加第二場 Session，聆聽七篇論文發表並上台發表自己的論文。
- 6 月 12 日 1400 參加大會辦理之 Independent Research Meeting- II。由 Dr. Jean Gordon 主持，共同研討當今國際企業與管理研究之議題及相關重要成果。
- 6 月 13 日 1000 參加大會辦理之 Independent Research Meeting- III。由 Dr. Turan Senguder 主持，共同研討 11 日發表論文之相關問題，並交換研究心得。
- 6 月 14 日 0900 前往夏威夷國際機場，並於 1205 搭日本航空返回台灣。

二、與會心得

參加此次國際企業與管理研究研討會，讓個人除了在服務品質專業領域之外，亦吸收到國際企業與管理相關研究的最新研究課題，對於本人爾後在於企業經營相關服務品質研究上，可朝更多元面向來發展研究。會議中與各國學者(美國、加拿大、澳洲、越南、韓國、泰國、紐西蘭等)共同學習研討與交換研究心得。可謂是非常有收獲的一次學習之旅。

三、考察參觀活動(無是項活動者省略)

無考察參觀活動。

四、建議

無。

五、攜回資料名稱及內容

1. conference proceeding

六、其他

The influence of quality management culture, quality consciousness, and service behavior for operating efficiency

Wei-jaw Deng, Chung Hua University, Hsinchu, Taiwan, R.O.C.
Ming-lu Sung, Chung Hua University, Hsinchu, Taiwan, R.O.C.
Hsiu-li Huang, Yuan Ze University, Chungli, Taiwan, R.O.C.

ABSTRACT

This research discusses the influence of quality management culture, quality consciousness, and service behavior for relative operating efficiency. The research method includes descriptive statistics, reliability analysis, factor analysis, paired-t Test, data envelopment analysis (DEA). The respondents of questionnaire survey are the front-line employees of international tourist hotel in Taiwan. Total numbers of valid questionnaires are 261. The research result shows quality management culture, quality consciousness, and service behavior three factors have significant positive influence for relative operating efficiency.

Keywords: Quality management culture, quality consciousness, service behavior, relative operating efficiency, international tourist hotel

INTRODUCTION

Within globalization and higher consumer conscious market, the excellent quality and higher customer satisfaction are important factors for achieving firms' competitive advantage in today higher competitive industry. Because the indivisible character of production and consumption and the unfeasibility of final quality control before delivering service product in service industry, the competitive advantages of excellence quality and higher customer satisfaction are more important to service industry than other industries. Hence, the manager of service organization needs to manage organization culture and front-line employees for pursuing excellent service quality and higher customer satisfaction and furthermore constructing firm's competitive advantage.

Numerous studies indicated that organization culture has influence on operating performance of business (Denison, 1990; Kotter and Heskett, 1992; Gordon and DiTomaso, 1992). Pettigrew (1979) has defined organization culture as the collective system that a group commonly has in a certain period of time. The implied concept of collective system may include symbols, languages, consciousness patterns, beliefs etc. Schein (1992) also has defined organization culture as the behavioral model or behavioral norm that all organization members obey. Thus, organizational culture affects organization members' internal thinking, consciousness formation, and working behavior. In service encounter, both service product and the delivery process are elements of customer consumption. Therefore, the performance of front-line employees' service behavior significantly affects service quality, consumption value and customer loyalty (Gould-Williams, 1999; Hartline and Jones, 1996). Hartline and Ferrell (1996) indicated that front line employees' service attitude and behavioral performance play a very important role in the customer perception of service. Parasuraman et al. (1985) has showed that the service behavior of employee is particularly important in the service process because the service behavior of front-line employee is the precondition for delivering excellent service quality. However, consciousness deeply affects people's attitude and behavior. Tanner (2001) has defined quality consciousness (QCON) as the employees' concept that will emphasize the higher quality of their work performance or will make effort

in higher quality service delivering. Hence, quality management culture, quality consciousness and service behavior certainly have highly relationship. The influence of quality management culture, quality consciousness and service behavior for operating efficiency in business definitely is a valuable and novel research topic for academic and practice.

The level of operating efficiency is a major concerning index of business performance in each firm. Data envelopment analysis (DEA) is an excellent tool for assessing the relative efficiency of decision-making units (DMU) and can provide useful information to firm manager for constructing operating strategies and improving competitive advantage (Borenstein et al., 2004; Chiang et al., 2004; Chiang, 2006; Hammond, 2002; Hwang and Chang, 2003). Furthermore, DEA can identify the benchmark for all analyzed DMU and the specific reference group for each analyzed DMU. Under the overview of previous DEA application researches in hotel industry, most of input variables has been selected and put into DEA model are number of employee, area of hotel, number of room, total cost, employee salary and operating cost etc. (Barros, 2005; Chiang et al., 2004; Hwang and Chang, 2003; Tsaur, 2001; Wang et al., 2006). However, until now no researcher intend to include some soft data variables into DEA analysis and explore the influence of DMU's relative operating efficiency. This research intends to put quality management culture, quality consciousness and service behavior three soft data variables into DEA analysis and to explore the influence of these three important soft data variables for relative operating efficiency. The Taiwanese international tourist hotels are this research objects and the DMUs in DEA analysis. The research practical results can provide valuable and novel information to Taiwan international tourist hotel managers for improving competitive advantage and pursuing the sustainable operation goal.

This research first reviews many references of quality management culture, quality consciousness and service behavior. Subsequently, this research constructs primary questionnaire with assessment of three research variables by literature review and focus group method. Finally, this research makes a pilot run of primary questionnaire to get final formal questionnaire. The average questionnaire value of each research variable for certain DMU then is put into DEA analysis as input variable data. The 2007 Annual Operation Report of the ITHs in Taiwan (Taiwan Tourism Bureau, 2008) is the database for obtaining the secondary data of other input or output variables. The Frontier Analyst software is used to do DEA analysis and measure the relative operating efficiency of each DMU. The paired t-Test is used to judge whether quality management culture, quality consciousness and service behavior have influences for relative operating efficiency. Conclusions are finally drawn in last section.

LITERATURE REVIEW

Quality management culture

Numerous researches explored organization culture within quality management related research (Ahmed et al., 1999; Dellana and Hauser, 1999; Shortell et al., 1995; Zeitz et al., 1997). These studies indicated that organization culture has strong relationship with total quality management (TQM). Detert et al. (2003) firstly proposed the concept of quality management culture and indicated it is the behavioral norm and value concept of firm after TQM was implemented. Furthermore, they constructed the quality management culture instrument for K-12 education and called it as School Quality Management Culture Survey (SQMCS). This SQMCS includes eight dimensions. This research refers this SQMCS for K-12 education and fundamental elements of TQM to design primary questionnaire items of quality management culture.

Quality consciousness

Taner (2001) proposed quality consciousness and indicated that employees' quality consciousness deeply affect their working attitude and behavior. Zeithaml et al. (1990) showed that who with high QCON will be a person has three

characteristics: 1. accuracy and dependability; 2. responsibility, courtesy, knowledge and empathy; 3. willingness of help customer to produce pleasant impression of service. Employees' positive quality consciousness can make employee produces high performance of service behavior to improve customer satisfaction. However, does it finally affect operating efficiency? This is a valuable research question. Deng and Pei (2009) proposed a hospitality quality consciousness scale that includes two dimensions (TQM and service quality). This research refers above references to design primary questionnaire items of QCON.

Service behavior

Parasuraman et al. (1985) indicated that service behavior is the explicit service motion, voices and attitude of front-line employee in service encounter. Lance and Stephen (1997) defined service behavior of front-line employee as a prosocial behavior that make customer feel pleasure about delivering service. Prosocial behavior is a voluntary behavior that employee provide to benefit organization and exceed his work duty (Brief and Motowidlo, 1986 ; Mackenzie et al., 1993). Zeithaml et al. (1988) showed that cooperation behavior among front-line employees can affect the service quality assessment of delivering service. Hsieh and Hsieh (2001) demonstrated that effective management of front-line employees' service behavior will improve the quality of delivering service.

Operating efficiency

DEA has been widely used to evaluate operating efficiency for a set of DMUs in ITHs field. Chiang et al. (2004) used DEA-CCR and BCC models to evaluate operating efficiency of 25 Twain ITHs. The results showed that 14 ITHs have an overall efficiency score of 1.0 and the lowest one is 0.65. Wang (2006) applied CCR, BCC, input/output slacks, and Tobit regression to calculate the pure managerial efficiency of 54 ITHs. Previous studies that used DEA to evaluate the efficiency of ITHs always chose operational or financial related variables such as number of employee, area of hotel, number of room, total cost, employee salary and operating cost etc. (Barros, 2005; Chiang et al., 2004; Hwang and Chang, 2003; Tsaur, 2001; Wang et al., 2006). Quality management culture, quality consciousness, and service behavior are never been considered as input variables to evaluate relative operating efficiency of ITHs. Therefore, this research proposes a research hypothesis as following after previous literature reviews:

H1: the relative operating efficiency of international tourist hotels has significant difference after considering quality management culture, quality consciousness, and service behavior.

METHODS

Research framework

According related literatures and the research purpose of this study, we propose the research framework as showed in figure 1. The model 1 has input variables that are full time employees, cost of labor, rooms, surface area of F&B, and operational costs. Furthermore, we add quality management culture, quality consciousness, and service behavior into model 1 which had five operational cost variables and call it model 2. The output variables are room revenue, food and beverage revenue, others revenue, and total number of sold room. Consequently, we use paired t-Test to test the total efficiency (TE) difference between model 1 and model 2 for proofing research hypothesis.

Questionnaires

This research uses questionnaire survey to collect data of three input variables. The questionnaire instrument contains four parts: first part is quality management culture questionnaire, the second part is quality consciousness questionnaire, third part is service behavior questionnaire, and final part is demographic questionnaire.

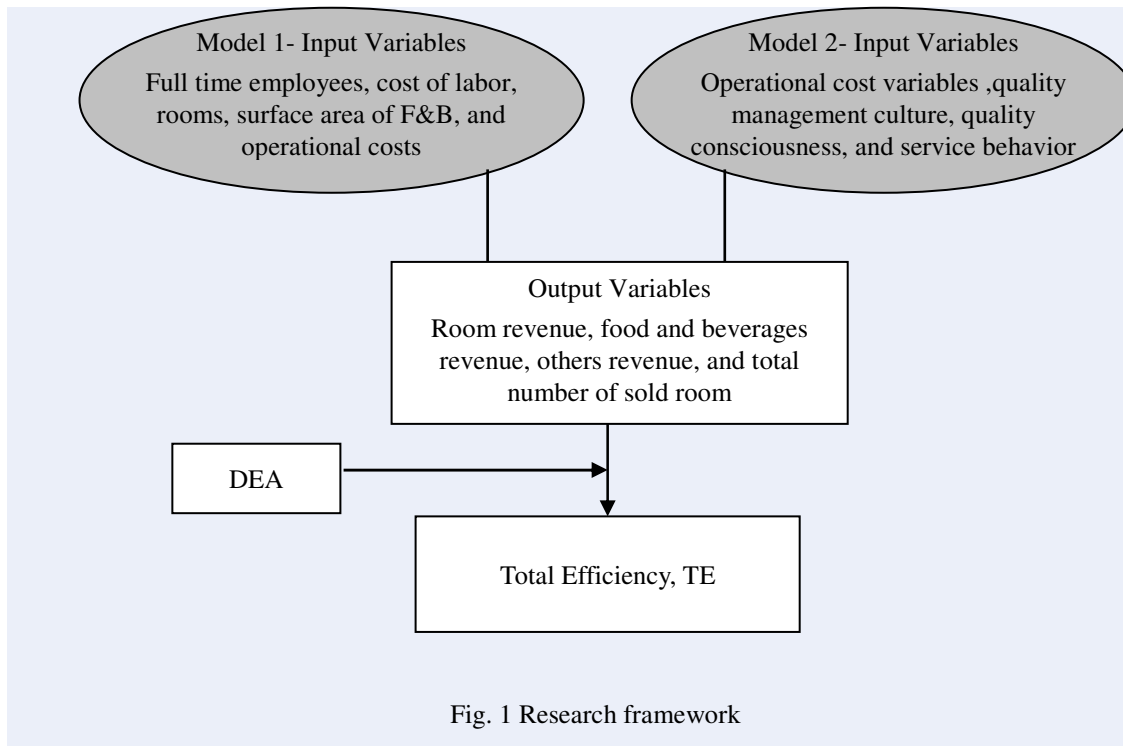


Fig. 1 Research framework

This research principally refers School Quality Management Culture Survey (SQMCS) (Detert et al., 2003) and fundamental elements of TQM to design primary questionnaire items of quality management culture. Furthermore, research results of Detert et al. (2000), Deming 14 management principles and characteristics of hotel industry are also considered in design process. Finally, by focus group confirmation, the primary questionnaire items of quality management culture are total 28 items. Hospitality quality consciousness scale that is developed by Deng and Pei (2009) is directly used as the quality consciousness questionnaire of this research. This quality consciousness questionnaire has 19 question items. For service behavior questionnaire, this research directly uses 15 question items that is proposed by Lance and Stephen (1997). The wordings of these 15 items are partly changed to fit the characteristics of hotel industry.

The statements of quality management culture and quality consciousness are scored on a seven-point Likert scale, ranging from “Strongly disagree (7)” to “Strongly agree (1)”. We arranges low value for strongly agree and high value for strongly disagree to fit the smaller-the-better characteristic of input variables for DEA. The statements of service behavior are also scored on a seven-point Likert scale, ranging from “Strongly not conform (7)” to “Strongly conform (1)”. A pilot test is conducted to ensure the reliability and wording fitness of three questionnaires. The pilot test is conducted with 50 front-line employees from 5 ITHs in north Taiwan. The final valid questionnaire data are 40 and are used to confirm formal three questionnaires. We employ item-to-total analysis that was applied in SERVQUAL scale development (Parasuraman et al., 1988) to refine three questionnaires’ statement. According item-to-total analysis results of pilot test, we delete there statements of quality management culture questionnaire and none statements of rest two questionnaires. The Cronbach’s α value for three questionnaires are 0.9301, 0.9917, and 0.9275. This means three questionnaires have high level of internal consistency or reliability. The final formal statement number of quality management culture, quality consciousness, and service behavior is 25, 19, and 15, respectively.

Collect data

58 ITHs in the 2007 Annual Operation Report of the ITHs in Taiwan (Taiwan Tourism Bureau, 2008) is the scope of this study. The respondents of questionnaire are front-line employees of ITHs. We conduct survey by using mail approach. Thirty-eight ITHs joint this survey participant. Total 731 questionnaires are sent out. Finally, only 29 ITHs give their questionnaires back. The collected number of questionnaire is 276. The number of valid questionnaire is 261.

The valid return rate is 35.7%. We employ Cronbach's α reliability analysis and factor analysis to confirm the reliability and construct validity of three questionnaires. In factor analysis of this study, the principal component analysis with varimax rotation, eigenvalue exceeding 1 and factor loadings exceeding 0.5 are used and set. The cumulative explained variances of dimensions in three questionnaires are 62.975%, 75.366%, and 76.983%, respectively. Therefore, these three questionnaires all have good construct validity (Kaiser, 1974). Moreover, Cronbach's α values of three questionnaires are greater than 0.93. This demonstrates that three questionnaires have considerable reliability (Cronbach's α value for each dimension greater than 0.7) (Nunnally, 1978).

DEA analysis and data analysis

This research first set 29 ITHs that had participated in this survey as DMU of DEA. However, Asta hotel did not have relevant data of F&B in 2008 Taiwanese Annual Operation Report of the ITHs. Therefore, there are total 28 DMUs in DEA process. This research principally refers the research of Barros (2005) to set the input and output variables of this research. The input variables and output variables can be found in research framework section. The DEA analysis model used in this research is CCR model. The Frontier Analyst software is used to do DEA analysis and measure the relative operating efficiency of each DMU. Furthermore, the data analysis method employed in this research is descriptive statistic, reliability analysis, factor analysis, and paired t-Test by using SPSS statistic software.

RESEARCH RESULTS

This research uses 28 ITHs as the DMUs of DEA to assessment relative operating efficiency of model 1 (input variables are full time employees, cost of labor, rooms, surface area of F&B, and operational costs) and model 2 (input variables are five operational cost variables in model 1, quality management culture, quality consciousness and service behavior). Sequentially, we use paired t-Test to test the total efficiency (TE) difference between model 1 and model 2 for proofing research hypothesis H1.

Related statistics

Firstly, we calculate the average value of quality management culture, quality consciousness and service behavior for each DMU by using 261 questionnaire data (column 3~5 of Table 1). Secondly, we put these three variable data into DEA model. Moreover, we set the other input/output variables data into DEA model according the data attained from 2007 Annual Operation Report of the ITHs in Taiwan. Finally, we run Frontier Analyst software to obtain relative operating efficiency of each DMU under model 1 or 2 (column 6~7 of Table 1).

Table 1 Related statistics of each DMU

No*	Name of ITH	Quality management culture AVG	Quality consciousness AVG	Service behavior AVG	Model 1 TE	Model 2 TE
H1	Santos Hotel	2.19	2.60	2.79	95.70%	98.40%
H2	Ta Shee Resort	2.61	1.50	1.90	80.90%	80.90%
H3	Tayih Landis Hotel	2.40	1.87	2.55	95.80%	95.80%
H4	Chinatrust Hotel Hualien	3.78	2.70	2.50	88.00%	88.00%
H5	Westin Taipei	2.91	2.76	2.51	100.00%	100.00%
H6	Grand Formosa Taroko	2.23	1.47	2.11	74.10%	75.00%
H7	Splendor Hotel	3.96	2.62	3.11	90.70%	90.70%
H14	Sheraton Hotel Taipei	2.69	1.97	2.25	90.50%	100.00%

H21	Royal Chihpen	2.58	1.81	2.67	100.00%	100.00%
H23	Parkview Hotel	2.93	1.67	2.27	90.70%	93.70%
H25	Taoyuan Hotel	2.35	1.84	2.42	100.00%	100.00%
H28	Ambassador Hotel Kaohsiung	2.05	1.42	2.60	86.10%	90.40%
H29	Grand Hotel Kaohsiung	2.14	1.47	2.04	84.70%	84.70%
H30	Howard Hotel Kaohsiung	2.86	1.81	2.40	95.60%	95.60%
H32	Ambassador Hotel Taipei	2.12	1.00	2.07	100.00%	100.00%
H33	United Hotel	3.93	2.09	2.97	100.00%	100.00%
H34	Golden China Hotel	2.40	1.78	2.09	94.10%	94.10%
H36	Marshal Hotel	2.61	1.49	2.38	94.90%	94.90%
H38	Caesar Park	2.48	1.90	2.53	100.00%	100.00%
H41	Grand Formosa Taipei	2.30	1.50	1.74	100.00%	100.00%
H42	Hibiscus Resort	2.20	2.01	2.36	64.60%	64.60%
H43	King Dom Hotel	3.43	2.60	3.03	100.00%	100.00%
H44	Gloria Prince Hotel	2.00	1.93	2.19	100.00%	100.00%
H45	Holiday Garden	3.22	1.57	2.56	100.00%	100.00%
H48	Royal Hsinchu	2.58	2.28	2.08	90.10%	90.10%
H54	Farglory Hotel	2.99	2.47	2.78	92.10%	100.00%
H56	Royal Chiaohsi	2.76	1.83	2.34	100.00%	100.00%
H57	Lees Hotel	2.19	1.49	2.04	91.10%	91.10%
Total Average		2.67	1.91	2.40	92.85%	93.86%

*: The sequence number of ITH is directly quoted from 2007 Annual Operation Report of the ITHs in Taiwan.

According total average value in last row of Table 1, we can conclude that front-line employees of Taiwanese ITH have positive quality management culture, quality consciousness, and service behavior which are between little strong conform and conform situation. In quality management culture part, Gloria Prince Hotel (H44) has highest positive quality management culture of front-line employees. In quality consciousness part, Ambassador Hotel Taipei (H32) has highest positive quality consciousness of front-line employees. In service behavior part, Grand Formosa Taipei (H41) has highest positive service behavior of front-line employees.

The total average of TE for 28 ITHs in model 1 and 2 are 92.85%, and 93.86%, respectively. There are 11 ITHs that have best relative operating efficiency (TE = 1) in model 1. However, when considering quality management culture, quality consciousness, and service behavior three soft data variables, there are 13 ITHs that have best relative operating efficiency (TE = 1) in model 2. Sheraton Hotel Taipei (H14) and Farglory Hotel (H54) have become to best relative operating efficiency DMU. Therefore, this result primarily shows that three soft data variables can affect the performance of relative operating efficiency. Furthermore, this research uses reference group analysis to confirm the benchmarking ITH in model 2. Grand Formosa Taipei is the highest referred ITH by other hotels (15 times). It also has excellent performance of quality management culture, quality consciousness, and service behavior (the average is 2.3, 1.5, and 1.74, respectively). Therefore, Grand Formosa Taipei is a benchmarking ITH for remaining 27 ITHS undoubtedly.

Paired-t Test

Paired-t Test is used to test the statistical significant difference between model 1 and 2. This research uses SPSS software to do Paired-t Test and the paired variable is equal to TE1 subtract TE2. The Paired-t Test results (as showed in Table 2) indicate that there have statistical significant differences between model 1 and 2 ($t=-2.199$, $p=0.037$). Hence, research hypothesis H1 is supported. In another word, the variable of quality management culture, quality consciousness, and service behavior have positive influence on relative operating efficiency.

Table 2 Paired-t Test of relative operating efficiency

Paired variables	Average	S. D.	T Value	d.f.	P Value
TE1-TE2	-0.0101	0.0243	-2.199	27	0.037*

Note: * $P < 0.05$; TE1 is the total efficiency of model 1; TE2 is the total efficiency of model 2.

CONCLUSIONS

Within globalization and higher consumer conscious market, the excellent quality and higher customer satisfaction are important factors for achieving firms' competitive advantage in today higher competitive industry. Excellent service quality is relying on the good interaction between front-line employees and customer. The good employee service behavior is affected by quality consciousness inside his/her mind and organization quality management culture.

This research firstly proposes three assessment instruments that can be applied for evaluating the front-line employees' concept of positive quality management culture, quality consciousness and service behavior. Secondly, this research explores and indicates the positive influence of quality management culture, quality consciousness and service behavior for relative operating efficiency. Finally, this research shows the practical relative operating efficiency of 28 ITHs in Taiwan and the benchmarking hotel. According above research results, this research enlarges the research concept about relative operating efficiency in academic and provides useful assessment instruments and information of quality management culture, quality consciousness, and service behavior in practice.

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無研發成果推廣資料

98 年度專題研究計畫研究成果彙整表

計畫主持人：鄧維兆		計畫編號：98-2410-H-216-015-				計畫名稱：國家觀光旅遊相對經營效率之探討研究—東亞地區國家	
成果項目		量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）	
		實際已達成數（被接受或已發表）	預期總達成數（含實際已達成數）	本計畫實際貢獻百分比			
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力 （本國籍）	碩士生	1	1	45%	人次	
		博士生	1	1	55%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
國外	論文著作	期刊論文	0	1	100%	篇	
		研究報告/技術報告	0	1	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力 （外國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

<p>其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)</p>	<p>無</p>
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	成果項目	量化	名稱或內容性質簡述
科 教 處 計 畫 加 填 項 目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與(閱聽)人數	0	

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

達成目標

未達成目標（請說明，以 100 字為限）

實驗失敗

因故實驗中斷

其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文： 已發表 未發表之文稿 撰寫中 無

專利： 已獲得 申請中 無

技轉： 已技轉 洽談中 無

其他：（以 100 字為限）

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限）

本計畫研究結果顯示觀光旅遊競爭力指標確實對相對經營效率產生正向顯著的影響，故台灣觀光管理當局應該注意台灣觀光旅遊競爭力指標之表現結果並持續改善強化。另外，研究結果也點出台灣國家觀光旅遊相對經營效率未達比最佳總效率，在東亞國家內排名第五，同時也確認標竿管理學習對象為日本。綜合上述，本研究所討論研究議題具創新性，因此學術價值具備；研究結果資訊可提供台灣觀光管理當局作為提升國家觀光旅遊經營效率之參考，因此實務應用價值具備。