

A Performance Study on Independent-owned International Tourist Hotels in Taiwan

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ABSTRACT

The data envelopment analysis methods used in this research include CCR , BCC and CEM modes, and input orientation is also used to discuss the operating performance of 28 international tourist hotels in Taiwan and to compare the difference in performance of different operating style of international tourist hotels. Use Malmquist Indices to discuss the trend of their production variations in different periods.

Our research discovered: (1) the total operating performance of the sampled hotels has all reached to a certain standard. Landis Resort has the best total operating performance. Most of the hotels' scale and performance are increasing. (2) The performance of chained independent-owned international tourist hotels is better than that of wholly owed international tourist hotels. (3) The average total factor productivity of 25 hotels is increasing while the average total factor productivity of 3 sampled hotels is declining.

Keywords: *International Tourist Hotels, Performance Evaluation, Data Envelopment Analysis*

INTRODUCTION

Tourism Bureau, ROC pointed out (in 2004) that the development of Taiwan tourism started in 1956. In 1959, Hotel Holiday Garden, Kaohsiung was the first independent-owned international tourist hotel in Taiwan - it was established by overseas Chinese. Hotel Kingdom was first international tourist hotels constructed by local investors in Taiwan. Among the independent-owned international tourist hotels in Taiwan, Lemidi Hotel Chitou was closed down for 5 years due to Typhoon Toraji. Due to either termination of cooperation contract or change of management, many hotels changed their names in recent years. For example, due to poor operation performance, Asianworld Hotel has been consigned and to be managed by Holiday Inn Group for about a year. Now their operation is on the track and has paid back employees' salaries they owed for the past several years due to poor hotel performance. They has formally changed their name to Holiday Inn Asianworld Hotel Taipei at the end of 2003. On September 1, 2006 the hotel changed its name to Sunworld Dynasty Hotel Taipei. From the above histories of Taiwan independent-owned international tourist hotels, we learn that hotel business continuity is difficult and management is very important to hotel industry.

Ever since 1940, the development of Taiwan international tourist hotels had experience different stages. We have compiled all the data as Table 1.

Table 1 The Development of Independent-owned International Tourist Hotels

Period	Developing Stages	Representative Hotels
1945 – 1950 - Era of Traditional Hotel	In the era at beginning of Taiwan restoration, hotel business was sluggish. Most of the hotels were actual inns, rest house, or in the form of traditional hotels. Only official hotels could provide basic standard accommodations for foreigners.	Taiwan Hotel (predecessor of The Grand Hotel) Friend of China Hotel Freedom Hotel Taiwan Railroad Hotel
1951 – 1961 - Era of Developing of Tourist Hotels	During Korean War, US army assisted us in protecting Taiwan. The social condition was more stable at the time. Taiwan Hotel changed its name to the Grand Hotel in 1952. Its architecture style made it the most well known hotel in Taiwan at that time. Taiwan Visitors Association was also established in 1956.	The Grand Hotel

1961 – 1971 - Era of Independent-owned International Tourist Hotels	The hotel industry in Taiwan was ready to develop and the government also push tourism very hard. In 1968 the government stipulate “Tourism Management for Taiwan” and ordered that hotel room numbers for international tourist hotels must exceed 80 rooms. Local small sized hotels were also established in Taiwan. Overseas Chinese returned Taiwan to invest in hotel constructions. Major factors for the tourism development at this period were the stabilities of political and economic condition, US army spent holidays in Taiwan and Japan opened up tourism visa etc.	Hotel Holiday Garden (invested by overseas Chinese from Thailand) Tong-First Hotel Hotel Kingdom (first international tourist hotels constructed by local investors in Taiwan.)
1973 – 1986 - Era of Big Independent-owned International Tourist Hotels (After 1990 Hotel management had been internationalized)	In 1980, Taipei Regent Hotel cooperated with Hong Kong Regent Hotel. In 1993 Taipei Regent ceased its cooperation contract with Regent and changed its name to Grand Formosa Regent Taipei. In 2002 Taichung Regent and Kaohsiung Regent also separated entirely with the Regent system and accordingly changed their name to “Taichung Splendor Hotel” and “Kaohsiung Splendor Hotel”, respectively.	Brother Hotel The Landis Taipei Hotel Howard Plaza Hotel Grand Formosa

Per sources from Tourism Bureau, MOTC, R.O.C. (1997-2004), during the 8 years period, only 28 hotels did not cease their operation or changed its name due to poor management. In 1997-2004, the investment cost and annual operation cost of independent-owned international tourist hotels in Taiwan were decreasing. In recent years, there were many international tourist hotels in Taiwan joining international hotel management system. With assistance from foreign professional hotel management group they hope to increase more customers and increase hotel revenue. This makes independent-owned international tourist hotels in Taiwan faced more complete challenge as of limited manpower, resource and finance. We need to pay attention to how to use limited resource to achieve effective management, establish complete edges for the owners of the independent-owned international tourist hotels and to create bigger profit. In the documentation we found that only Chen Jin Fu, Huang Chiu Ming (2001) made research on operation performance of independent-owned international tourist hotels in Taipei. Only a few studies showed performance analysis of independent-owned international tourist hotels in Taiwan.

Our research is based from productivity (efficiency) point of view (*i.e.* ratio of output and input) to discuss the operating performance of independent-owned international tourist hotels in Taiwan. The purpose of our research is for the following three purposes:

1. To understand the operating performance of independent-owned international tourist hotels in Taiwan.
2. To understand the overlapping productivity variation trend of independent-owned international tourist hotels in Taiwan.
3. To provide managers of independent-owned international tourist hotels in Taiwan references for their internal control.

LITERATURE REVIEW

Hotel Operation Method

Hsieh Ming Chen (1999) pointed out that current Taiwan hotel management methods were classified in 5 categories, *i.e.* independent-owned, rented, transferred, join an alliance and contractual management. The definition and classification of the above 5 categories is listed in Table 2.

Table 2 Definition and Classification of International Tourist Hotels

Operation Category		Definition	Representative Hotels
Independent-owned	Wholly owned	The company independently manages its invested hotel without outside assistance. The company owns the hotel and makes all the operation decisions.	Gloria Hotel Brother Hotel
	Chained	The parent company (of the hotel) manages different hotels in different locations and regulates rights and obligations of these hotels.	Howard Plaza Hotel
Rented		Owner of the hotel rented land to build hotel.	The Westin Taipei (the land is rented from Cathay Group)
Transferred	Membership	Join international well-known organization and become its members. Continue to be audited by them.	Sherwood Hotel
	Join chains	Join hotel chain booking system.	Ambassador Hotel
Join an alliance		Only by joining an alliance with global hotel groups by signing cooperation contract. It subsidiary hotels pay certain amount of fixed royalty to parent company in exchanging their SOP (standard operation procedures) and management know-how.	Sheraton Taipei Hotel
Contractual management		Hotel investors assign chained international hotel to manage its invested hotel. Ownership and management are completely separated.	Far Eastern Plaza Hotel

Source : Hsieh Ming Chen (1999), Updated Hotel Management.

DEA Applied Documents

There are many DEA documents that evaluate performance for hotel management among which there are 10 important articles, which are summarized as follows:

Morey and Dittman (1995) used 1993 accounting data to evaluate performance of 54 hotels managers in the US. Anderson *et al.* (2000) evaluated in 1999 the total efficiency, allocative efficiency, technical efficiency, pure technical efficiency and scale efficiency of 48 hotels in the US. Tsaor (2001) evaluated the operation efficiency of 53 international tourist hotels in Taiwan from 1996 to 1998. Hwang and Chang (2003) evaluated 1998 efficiency of 45 hotels in Taiwan and efficiency variations of 45 hotels from 1994 to 1998. Chen Jin Fu, Wang Ting Yu (2003), studied on international tourist hotels in Taipei Area and to discuss the different operation efficiency in chained and non-chained operation by using Malmquist Progress Index MPI to evaluate the variation in productivity of different period. Chiang *et al.* (2004) used 2000 data from Tourism Bureau and based on three different operation styles, *i.e.* independent-owned, dealership and international management, to evaluate performance of 25 international tourist hotels. Barros and Alves (2004) evaluated the operation efficiency and total variation on factory productivity of Portugal's Enatur government run chained hotel from 1999 to 2001. Sun and Lu (2005) evaluated the performance in management, room occupation and food and beverage of 55 international tourist hotels in Taiwan in 2001 and studied the growth of productivity of 34 international tourist hotels from 1990-2001. By energy consumption data collected from questionnaires received from hotel, Ö n ü t and Soner (2006) evaluated the electricity, water and fuel efficiency of 32 five starts hotel in Turkey.

RESEARCH METHOD

Documents Researched

Our research discussed operation performance of international tourist hotels. Data are corrected from national and university libraries and database of Pro-Quest, SDOS etc.

Quantitative Analysis

Our research used CCR, BCC and CEM modes to evaluate international tourist hotels. Bilateral Model is also used to compare performance of wholly owned and chained independent-owned hotels. Färe (1994) Malmquist Index, MI is used to process analysis on Productivity Variation Trend.

The data envelopment analysis method used in our research include CCR, BCC and CEM modes, and also used input orientation to discuss the operating performance of 28 international tourist hotels in Taiwan and compared the difference in performance of different operating style of international tourist hotels. Use Malmquist Indices to discuss the trend of their production variations in different periods.

By choosing input and output items Roll *et al.* (1989) pointed out, in theory DEA can be used for administrative efficiency analysis of multi-input and multi-output. Different input and output items may affect the study result. However, by using more than enough input items would decrease the segmentation effect of DMUs.

Our research had referred to national and foreign related documentation and analysis of the reliability of data using for evaluation of the operation performance of international tourist hotels. We choose four input variables and four output variables to establish evaluation mold. The four input variables are: room numbers (x_1), employee numbers (x_2), floor area (x_3) and operating expenses (x_4). The four output variables are: operation income (y_1), room occupation ratio (y_2), average room price (y_3) and average employee productivity (y_4). To establish operation performance concept, Table 3 is the Definition of Variables of Input and Output and Table 4 is Variables Narration Statistics.

In order to further understand the relationship between input and output variables is Isotonicity or not, we further analyze all related data and achieve relative coefficient analysis table as in Table 5.

- (1) Input Relation : All input items are in positive correlation which means when the numbers of employee increased, operation expenses is increased; when room numbers increased, employee numbers are increased and when the floor area of international tourist hotels increase, employee numbers will also be increased.
- (2) Output Relation : All output items are in positive correlation which means when the operation income increased, the average employee productivity is increased; when room occupation ratio increased, average employee productivity is increased; when the average room price increased, the average employee productivity is increased and when hotel room occupation ratio increase, the operation income is also increased.
- (3) Relation between input and out items: the input and output items showed positive correlation which helps to explain the increase of employee numbers, floor area, operation expenses also increase the room occupation ratio, average room price and average employee productivities.

Table 3 Definition of Variables

Variables	Definition
Room Numbers	Room Numbers international tourist hotels provided to customers (Unit : Room)
Employee Numbers	Full time employee numbers international tourist hotels hired (Unit : Person)
Input Item : Floor Area of Food and Beverage Department	Floor Area of Food and Beverage Department (Unit : Ping)
Operating Expenses	Cost for wages related, food and beverage, laundry, other operating cost, utilities, fuels, insurance, depreciation, rental, tax, advertisement, maintenance and other expenses. (In NT\$)

	Operating Income	Income from hotel rooms, food and beverage, laundry, shop rental, additional operation business, service, nightclub and others. (In NT\$)
Output Item :	Room Occupation Ratio	Room Occupation Ratio of international tourist hotels (Unit : %)
	Average Room Price	Average Room Price (In NT\$)
	Average output value of employees	Average output value of employees of hotel rooms, food and beverage, management and administration, night club. (In NT\$)

Note : In this research, other than to replace room expense with laundry cost, the definition of input and output items are all in according to that of Tourism Bureau, MOTC, R.O.C. (1997-2004) .

Table 4 Variables Narration Statistics

Variable	Average Number	Standard deviation	The minimum	The maximum
<u>Input Items</u>				
Room Numbers (x_1)	275.05	129.24	50	606
Employees Numbers (x_2)	301.02	241.44	25	1254
Floor Area (ping)(x_3)	1092.02	1480.75	48	12037
Operating Expenses (\$)(x_4)	410016126	408272445	24091643	1904537476
<u>Output Items</u>				
Operating Uncome (\$)(y_1)	457035208	542800918	15379118	2610968204
Room Occupation Ratio (%) (y_2)	58.40	13.82	10.63	89.90
Average Room Price (\$)(y_3)	2492.71	862.11	1250	5917
Average output value of employees (\$)(y_4)	1310915.33	435179.04	62899	2936684

Sources : Tourism Bureau, MOTC, R.O.C. (1997-2004)

Table 5 Relative Coefficient Analysis Table

	x_1	x_2	x_3	x_4	y_1	y_2	y_3	y_4
x_1	1.000							
x_2	0.805**	1.000						
x_3	0.543**	0.625**	1.000					
x_4	0.780**	0.970**	0.679**	1.000				
y_1	0.770**	0.943**	0.666**	0.964**	1.000			
y_2	0.338*	0.522**	0.356**	0.508**	0.540**	1.000		
y_3	0.210*	0.494**	0.325*	0.557**	0.563**	0.274**	1.000	
y_4	0.497**	0.596**	0.485**	0.689**	0.745**	0.636**	0.593**	1.000

Note : ** showed that statistically when significance level is 0.01 (two-tailed test) , correlation is significant.

Evaluation of Sample Hotels Chosen

The research is a study of 28 independent-owned international tourist hotels in Taiwan from 1997-2004. Sample Hotels chosen are as Table 6. Methods of independent-owned: 10 local-chained hotels, 18 wholly owned hotels. 22 hotels located in cities and 6 located in suburbs.

Table 6 List of Research Targets

DMU	Names of the Hotel	Type	Location	Customers	Room number Scale
H1	The Grand Hotel	2	MA	F	3
H2	The Mandarina Crown Hotel	1	MA	F	5
H3	Emperor Hotel	1	MA	F	8
H4	Hotel Riverview Taipei	1	MA	F	6
H5	Golden China Hotel	1	MA	F	6
H6	Brother Hotel	1	MA	F	6
H7	Santos Hotel	1	MA	F	5
H8	The Landis Taipei Hotel	2	MA	F	6
H9	United Hotel	1	MA	F	6
H10	Taipei Fortuna Hotel	1	MA	F	5
H11	Grand Formosa	2	MA	F	2
H12	Howard Plaza Hotel	2	MA	F	2
H13	Hotel Kingdom	1	MA	F	5
H14	Hotel Holiday Garden	1	MA	F	6
H15	Howard Plaza Hotel Kaoshiung	2	MA	D	6
H16	Hotel National Plaza International	1	MA	D	4
H17	Hotel	1	MA	F	6
H18	Evergreen Laurel Hotel (Taichung)	2	MA	F	5
H19	Howard Plaza Hotel Taichung	2	MA	D	7
H20	Astar Hotel	1	RA	D	7
H21	Marshal Hotel	1	RA	D	6
H22	Parkview Hotel	1	RA	D	5
H23	Landis Resort	2	RA	D	8
H24	Grand Formosa Taroko	2	RA	D	5
H25	The Grand Hotel Kaohsiung	2	RA	F	7
H26	Taoyuan Holiday Hotel	1	MA	D	5
H27	Hotel Tainan	1	MA	F	7
H28	Ta Shee Resort	1	MA	F	6

Note: 1. Per sources from Tourism Bureau, MOTC, R.O.C. (1997-2004)

2. Location : MA : Cities ; RA : Resorts

3. Customers : D : Local customer ratio > 50% of total customers
F : Overseas customer ratio > 50% of total customers

4. Scale of room numbers (R) :

- (1) : $R \geq 700$ rooms ; (2) : $600 \text{ rooms} \leq R < 700 \text{ rooms}$;
(3) : $500 \text{ rooms} \leq R < 600 \text{ rooms}$; (4) : $400 \text{ rooms} \leq R < 500 \text{ rooms}$;
(5) : $300 \text{ rooms} \leq R < 400 \text{ rooms}$; (6) : $200 \text{ rooms} \leq R < 300 \text{ rooms}$;
(7) : $100 \text{ rooms} \leq R < 200 \text{ rooms}$; (8) : $R < 100 \text{ rooms}$

5. Types: 1 means wholly owned; 2 means in chained

BUSINESS VALUATION: CASE STUDIES ANALYSIS

Our research used DEA Solver Professional software to make total and individual performance analysis and analysis of Productivity Variation. Trend Frontier Analyst Professional software is also used for CEM analysis.

I. Total Operation Performance Analysis

Our research used CCR, BCC and CEM molds for computation in order to obtain efficiency of international tourist hotels and RTS. Table 7 is the Average Annual Total Performance for the 8 years. From Table 7 we can find the following research results:

- (1) The average technical efficiency of international tourist hotels is 0.820, which shows that average technical efficiency of hotels reached to a normal level. The Pure Technical Efficiency of Emperor Hotel, Grand Formosa and Landis Resort have reached 1. The poorest is The Mandarin Crown Hotel of 0.675 average technical efficiency.
- (2) The average pure technical efficiency of international tourist hotels is 0.876, which shows that pure technical efficiency of hotels reached to a normal level. The pure technical efficiency of Emperor Hotel, Grand Formosa, Howard Plaza Hotel and Landis Resort have reached 1. The poorest is Grand Hotel of 0.675 pure technical efficiency.
- (3) The scale efficiency of international tourist hotels is 0.937 which means hotel efficiency has reached a certain scale. The technical efficiency of Emperor Hotel, Grand Formosa and Landis Resort has reached 1. Even the poorest Taichung Howard Plaza Hotel has reached 0.816.
- (4) Hotel average CEM value is 0.695. The best four hotels are Landis Resort 0.962, Grand Formosa 0.929, Howard Plaza Hotel 0.815 and Emperor Hotel 0.812.
- (5) For 6 years Grand Formosa and for 5 years Astar Hotel have reached CRS, which shows that they are in the best MPSS. For 5 years Landis Resort is in DRS. There are 152 hotels in IRS, 25 hotels in CRS and 47 hotels in DRS.

Table 7 Average Annual Total Performance

Names of the Hotel	CCR	BCC	SCALE	CEM	RTS		
					IRS	CRS	DRS
The Grand Hotel	0.658	0.675	0.975	0.525	6	1	1
The Mandarin Crown Hotel	0.654	0.751	0.870	0.559	6	1	1
Emperor Hotel	1	1	1	0.813	5	1	2
Hotel Riverview Taipei	0.821	0.854	0.962	0.664	6	2	
Golden China Hotel	0.874	0.952	0.918	0.737	6	2	
Brother Hotel	0.856	0.975	0.878	0.743	6	1	1
Santos Hotel	0.794	0.874	0.909	0.651	6	1	1
The Landis Taipei Hotel	0.879	0.987	0.890	0.725	6	1	1
United Hotel	0.924	0.956	0.967	0.770	5	2	1
Taipei Fortuna Hotel	0.744	0.773	0.962	0.586	6	1	1
Grand Formosa	1	1	1	0.930		6	2
Howard Plaza Hotel	0.996	1	0.996	0.816	6	1	1
Hotel Kingdom	0.701	0.715	0.980	0.555	6		2
Hotel Holiday Garden	0.760	0.782	0.972	0.630	6		2
Howard Plaza Hotel Kaoshiung	0.709	0.820	0.865	0.598	6		2
Hotel National	0.700	0.707	0.990	0.559	6		2
Plaza International Hotel	0.812	0.834	0.973	0.654	6		2
Evergreen Laurel Hotel (Taichung)	0.839	0.925	0.907	0.679	6		2
Howard Plaza Hotel Taichung	0.812	0.995	0.816	0.683	6		2
Astar Hotel	0.933	0.982	0.951	0.592	1	5	2
Marshal Hotel	0.730	0.779	0.937	0.588	6		2
Parkview Hotel	0.824	0.907	0.908	0.687	6		2
Landis Resort	1	1	1	0.962	3		5
Grand Formosa Taroko	0.763	0.884	0.863	0.572	6		2
The Grand Hotel Kaohsiung	0.665	0.701	0.948	0.523	6		2
Taoyuan Holiday Hotel	0.805	0.816	0.986	0.616	6		2
Hotel Tainan	0.867	0.978	0.886	0.715	6		2
Ta Shee Resort	0.831	0.907	0.916	0.679	6		2
Average	0.820	0.876	0.937	0.695	152	25	47

II. Bilateral Model Analysis

Our research has studied the total performance, hotel room performance and food and beverage performance for the 8 years' Rank-Sum-Test of wholly owned independent-owned international tourist hotels and chained independent-owned international tourist hotels, shown as Table 8.

When $\alpha=10\%$ below significance level, the statistic t value of 8 years is -3.8831 , smaller than $-t_{0.05}$. When under $\alpha=5\%$, there is a significant difference between wholly owned independent-owned international tourist hotels and chained independent-owned international tourist hotels, *i.e.* the performance of chained independent-owned international tourist hotels is better than that of wholly owned independent-owned international tourist hotels.

Table 8 Statistics Test Table

Category	Rank-Sum-Test	Result
Total Performance	$-3.88 < -t_{0.05} = -2.326$	With significant difference

III. Analysis of Malmquist Variation Trend

- (1) As a whole the productivity variation index of Taiwan area is increasing. It is only decreasing from 2002-2003.
- (2) The productivity variation index of 25 hotels is increasing. Only the productivity variation index of Taipei Fortuna Hotel, Howard Plaza Hotel and Taoyuan Holiday Hotel are decreasing.
- (3) As far as period is concerned, 1999 to 2000 has the biggest growth rate.
- (4) As far as hotels are concerned, the Variation of Astar Hotel from 1999 to 2000 of 3.55 is the highest while variation of Brother Hotel from 2001 to 2002 of 0.354 is the lowest. Analysis of Malmquist Productivity Variation Trend is as Table 9.

Table 9 Analysis of Malmquist Productivity Variation Trend

	97=>98	98=>99	99=>00	00=>01	01=>02	02=>03	03=>04	Average
H1	1.241	1.127	1.132	0.959	1.062	0.898	1.077	1.071
H2	1.182	0.916	1.045	1.227	1.192	0.788	1.090	1.063
H3	0.934	0.983	1.064	0.862	1.195	0.664	1.494	1.028
H4	0.740	1.446	1.121	1.082	1.102	0.749	1.318	1.080
H5	1.020	1.011	1.188	0.915	1.029	0.784	1.262	1.030
H6	1.030	1.070	1.030	2.654	0.354	0.904	1.071	1.159
H7	1.153	1.009	1.066	0.867	0.991	0.777	1.233	1.014
H8	0.952	1.128	1.022	0.905	0.975	0.887	1.218	1.012
H9	0.524	1.312	1.788	0.749	0.928	1.018	1.018	1.048
H10	0.808	1.134	1.037	1.017	0.974	0.756	1.236	0.995
H11	0.994	1.018	1.237	0.983	1.049	0.965	1.118	1.052
H12	0.961	0.960	0.887	0.904	0.916	0.832	1.037	0.928
H13	1.057	0.912	0.962	0.896	1.052	1.156	1.174	1.030
H14	0.886	1.102	0.847	0.898	1.109	1.019	1.237	1.014
H15	1.123	1.047	0.899	1.024	1.093	1.040	1.009	1.034
H16	1.098	1.066	0.907	0.991	1.001	1.033	1.092	1.027
H17	1.770	0.721	0.900	0.944	0.945	1.114	1.208	1.086
H18	1.097	1.040	1.005	1.003	1.070	0.997	1.157	1.053
H19	1.074	0.892	1.038	0.964	1.071	1.071	1.097	1.030
H20	0.778	0.988	3.550	0.795	1.760	1.314	0.820	1.429
H21	0.963	0.946	0.957	0.934	1.154	1.208	0.990	1.022
H22	1.106	0.803	1.025	1.335	0.964	1.021	0.962	1.031
H23	0.960	1.035	1.217	0.895	1.474	0.964	1.317	1.123
H24	1.417	0.918	0.728	1.338	1.730	1.079	0.652	1.123
H25	0.974	1.077	1.045	0.960	1.070	0.920	1.055	1.014
H26	0.529	0.884	1.050	0.966	0.949	0.989	1.162	0.933

H27	1.329	0.923	1.021	0.871	0.963	1.044	1.100	1.036
H28	0.713	1.160	1.239	0.871	0.946	1.010	1.097	1.005
Average	1.015	1.022	1.143	1.029	1.076	0.964	1.118	1.052
Max	1.770	1.446	3.550	2.654	1.760	1.314	1.494	1.429
Min	0.524	0.721	0.728	0.749	0.354	0.664	0.652	0.928
SD	0.254	0.145	0.507	0.347	0.256	0.150	0.160	0.089

CONCLUSION AND RECOMMENDATION

- I. The total operating performance of sampled hotels are poor - average technical efficiency is 0.820, average pure technical efficiency is 0.876 and average Scale Efficiency is 0.937 -. Amongst which Landis Resort is the highest with CEM value of 0.962, next is Grand Formosa, with CEM value of 0.929. In 8 years, there are 152 hotels in IRS, 25 hotels in CRS and 47 hotels in DRS.
- II. The total productivity of independent-owned international tourist hotels is low, with average CEM value of 0.695. This could be the result of saturation in market supply. By RTS analysis, hotel management can adjust its operation scale to achieve best operation performance.
- III. Most of independent-owned international tourist hotels are between IRS or DRS. Merely a few hotels are in CRS. The performance of chained independent-owned international tourist hotels is better than that of wholly-owned international tourist hotels.
- IV. The annual average efficient variation of international tourist hotels from 1997 to 2004 is 1.052. The average total factor productivity of 25 hotels is increasing while the average total factor productivity of 3 hotels is declining.
- V. Ministry of Foreign Affairs and Tourism Bureau, MOTC, R.O.C. should aggressively promote “Project of Double Increase of Visitors”. Ministry of Foreign Affairs should open up more no visa required and visa upon arrival countries to allow global visitors to come to Taiwan for business, travel, etc. Information Bureau and Tourism Bureau, MOTC, R.O.C. should also seek popular famous people or idol groups to aggressively advertising Taiwan in order to attract visitors’ desire to visit Taiwan and increase Taiwan tourism revenue.
- VI. Aggressively open up for visitors from Mainland China to travel to Taiwan. Also design special tourist spots or hotels for Chinese visitors in order to create Taiwan tourism sources. The consuming capacities of maintain Chinese cannot be overlooked.
- VII. Hotels should provide more comfortable facilities to satisfy customers’ demand for higher quality. Therefore it is important to hotels to maintenance or remodel periodically to make the hotels more luxurious and splendid.
- VIII. In the hotel industry, quality control of human resources is very important. It is therefore important to have a plan for on the job training, overseas training for supervisors, etc. in order to achieve regular training for services personnel.

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