*Asia Pacific Journal of Marketing & Management Review*_____ ISSN 2319-2836
Vol.2 (8), August (2013)
Online available at indianresearchjournals.com

TRENDS IN TOURIST ARRIVALS AND THE IMPACT ON HOTEL ACCOMMODATION IN THANJAVUR DISTRICT

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1.1 INTRODUCTION

This paper an attempt is made to examine the seasonal, cyclical, irregular variations and the secular trend in tourist arrivals in Thanjavur district. The time series analysis would give an idea as to how more tourists can be attracted by eliminating the lean period and making tourism a round-the-year phenomenon. Further, it analyses the impact of tourism on demand and supply of hotel accommodation in this region.

1.2. THE ANALYTICAL FRAMEWORK

In order to analyse the trend, the data on tourist arrival were subjected to 12 months moving average, so as to remove seasonal effect from the time series. Further, to test the significance of the trend over time, the following linear regression equation has been formed.

$$Y = a + bt \quad \ldots\ldots. (1.1)$$

where,

Y - indicates the tourist arrivals

t – indicates time (years)

Exponential growth rates were worked out by using the following formula

$$Y = ab^t \quad \ldots\ldots.. (1.2)$$

Where

Y – indicates the arrivals

t – indicates time (years)

Compound growth rate is (Antilog b-1) x 100

Cyclical, irregular, variations are computed with the help of the residual method.

$$C = TC/T \ \ldots\ldots.. (1.3)$$

$$I = SI/S \ \ldots\ldots\ldots (1.4)$$

In order to measure the variability due to trend, cyclical, seasonal and regular fluctuations, co-efficient of variations are worked out separately for tourist arrivals in Thanjavur region.

1.3 TRENDS IN TOURIST ARRIVALS

Domestic and foreign tourist arrivals in Thanjavur region from 2001-02 to 2010-2011 are presented in Table 1.1.

TABLE 1.1
DOMESTIC AND FOREIGN TOURIST ARRIVALS IN THANJAVUR REGION AND TAMIL NADU

Year	Tamil Nadu			Thanjavur Region		
	Domestic	Foreign	Total	Domestic	Foreign	Total
2001-02	3412729	253236	3665965	426593	31655	458248
2002-03	3466484	255984	3722468	427961	31998	459959
2003-04	3533306	265179	3798485	430891	32339	463230
2004-05	3567582	293338	3860920	435071	32342	467413
2005-06	3628643	276647	3905290	437186	33331	470517
2006-07	3423086	283279	3706365	412420	34130	446550
2007-08	3723944	322994	4046938	446668	38915	485583
2008-09	3754023	366984	4121007	452292	44215	496507
2009-10	3925840	384721	4310561	467362	46352	513714
2010-11	3451048	415124	3866172	415789	50015	465804

Source: Tourist Information Centre, Thanjavur, 2012.

The above Table 1.1 reveals that while tourist arrivals, both domestic and foreign, in Thanjavur shows a relatively stable trend of growth over a period under study, tourist arrivals in Tamil Nadu have witnessed fluctuations. The projected value based on secondary data tells that tourist arrivals to Tamil Nadu shows an average annual growth rate of 6.95 per cent, 6.93 per cent and 6.95 per cent of domestic, foreign an overall respectively.

The average and the standard deviation pertaining to tourist arrivals in Tamil Nadu and Thanjavur region are presented in Table 1.2.

TABLE 1.2
THE AVERAGE OF THE DOMESTIC AND FOREIGN TOURIST ARRIVALS AND THE STABILITY OF THE LACK OF IT ABOUT THE SAME FOUND IN TAMIL NADU AND THANJAVUR REGION

Particulars	Tamil Nadu			Thanjavur		
	Mean	S.D.	C.V. (%)	Mean	S.D.	C.V. (%)
Domestic	3588669	168876	4.70	434883.30	16741.04	3.85
Foreign	311748.6	57996.72	18.60	6887.61	6887.61	18.38
Total	3880417	224240.86	5.77	20110.37	20110.31	4.25

S.D. – Standard Deviation, C.V. – Coefficient of Variation.

It is revealed from Table 1.2 that the average tourist arrivals over a period from 2001-02 to 2010-2011 was found to be 38, 80,417 in Tamil Nadu and 20,110.37 in Thanjavur region. Among them, 35, 88,669 and 3, 11,748.60 are domestic and foreign tourists respectively in Tamil Nadu and 1, 68,876 and 57,996.72 are domestic and foreign tourists respectively in Thanjavur region.

The co-efficient of variation of foreign tourist arrivals in Thanjavur region has been found to be higher. The fluctuations in domestic and total tourist arrivals in Tamil Nadu were found to be high compared to Thanjavur region. Thus, it could be concluded from the analysis that the domestic and total tourists arrivals are more stable over a period under study compared to foreign tourist arrivals.

1.4 Seasonal Variations

Seasonal variations in climate make significant impact on tourism. It is a known fact that tourism has been recognized as a seasonal industry. Seasonal variations of tourism in the district have been studied by using monthly data regarding arrivals of domestic and foreign tourists. In order to examine seasonal variations, cyclical and irregular fluctuations and long term trend in tourist arrivals in Thanjavur, a multiplicative model was used.

Seasonal variation is a periodic movement of the variable studied which occurs within a year and it repeats itself year after year due to regular periodic changes in the underlying factors influencing the variables. In the present study, seasonal variations in the tourist arrivals are studied for 10 years by applying the moving average method. The details of seasonal indices of arrivals of tourists are given in Table 1.3

TABLE 1.3
SEASONAL INDICES OF ARRIVALS OF DOMESTIC AND FOREIGN TOURISTS IN THANJAVUR REGION FROM 2002-2011

Month	**Seasonal Indices of**	
	Domestic Tourists	**Foreign Tourists**
January	99.49	108.40
February	100.24	111.45
March	100.69	109.22
April	101.15	100.43
May	102.26	100.24
June	103.15	98.65
July	104.21	99.22
August	113.45	101.15
September	114.25	112.22
October	116.40	113.21
November	119.32	119.26
December	121.33	119.32

Source: Tourist Information Centre, Thanjavur, 2012.

The seasonal changes in the arrival of tourists are mainly caused by the climatic conditions of the seasons. The analysis has revealed that the period from January to March marks

a lean period of arrivals of domestic tourists in Thanjavur region. The peak season for arrivals has been found to be August to December. The climate using this period is quite conducive for tourists.

The seasonal indices of foreign tourist arrivals in the district has been found to be ranging from 98.65 per cent to 119.32 per cent. During the peak period from August to December, the variations in the seasonal indices of arrivals ranges from 101.15 per cent to 119.32 per cent. Similarly, during the lean period of arrivals, the seasonal indices vary from 98.65 per cent in June to 100.24 per cent in April in the study area.

1.5 Irregular Variations

Irregular variations in the arrival of tourists have been attributed to random factors such as festivals, government functions and the like. The computed data on irregular indices of tourist arrivals from 2002-2011 are presented in Table 1.4

TABLE 1.4
IRREGULAR INDICES OF ARRIVALS OF DOMESTIC AND FOREIGN TOURISTS IN THANJAVUR REGION FROM 2002-2011

Month	Irregular Indices of	
	Domestic Tourists	Foreign Tourists
January	95.32	99.21
February	96.30	98.61
March	95.14	101.65
April	103.64	112.24
May	113.31	110.21
June	102.11	107.41
July	99.24	100.26
August	95.15	99.81
September	101.60	99.49
October	105.16	101.21
November	109.24	111.45
December	112.32	113.26

Source: Tourist Information Centre, Thanjavur, 2012.

It is observed from Table 1.4 that the irregular indices of domestic tourist arrivals varied from 95.32 per cent in January to 113.31 per cent in May. Similarly, the irregular fluctuations with respect to foreign tourist arrivals ranged from 98.61 per cent in February to 113.26 per cent in December. It can be found from the analysis that the irregular fluctuations in the arrival of domestic tourists were greater than those of foreign tourists over a period of time. This may be due to the fact that social ceremonies and religious festivals cause wide irregular fluctuations in domestic tourist arrivals in Thanjavur region. The irregular indices of arrival of domestic and foreign tourists shown in Table 1.4

1.6 Cyclical Variations

Cycslical variations cover periods longer than one year. They are computed by residual method and the results are given in Table 1.5

TABLE 1.5
CYCLICAL INDICES OF ARRIVALS OF DOMESTIC AND FOREIGN TOURISTS IN THANJAVUR REGION FROM 2002-2011

Year	Cyclical Indices of	
	Domestic Tourists	Foreign Tourists
2002	100.65	101.15
2003	122.15	122.61
2004	125.66	123.15
2005	101.22	100.41
2006	99.64	97.26
2007	105.15	111.39
2008	123.61	121.64
2009	111.22	100.61
2010	112.63	110.21
2011	114.25	112.69

Source: Tourist Information Centre, Thanjavur.

As it could be seen from Table 1.5 cyclical variations ranged from 99.64 per cent in 2006 to 125.66 per cent in 2004 in the case of domestic tourist arrivals. The cyclical indices of foreign tourist arrivals were ranging from 97.26 per cent in 2006 to 123.15 per cent in 2004. Again it supports the earlier views that greater variations occur in domestic tourist arrivals when compared to foreign tourist arrivals.

1.7 Secular Trend and Growth Rate

In order to understand the secular trend of domestic and foreign tourist arrivals, equations (4.1) and (4.2) have been worked out. The computed results are presented in Table 1.6

TABLE 1.6
SECULAR TREND AND GROWTH RATE OF ARRIVALS OF DOMESTIC AND FOREIGN TOURISTS IN THANJAVUR

Tourist	Regression Coefficient		R^2	Growth Rate in Percentage
	a	b		
Domestic	12.959	0.044* (3.971)	0.5286	4.001
Foreign	10.221	0.053* (6.946)	0.4448	5.441

Figures in brackets are the t-values.
* Indicates that the coefficients are significant at 5 per cent level.

The results shown in Table 1.6 indicate that the trend co-efficient of domestic tourist arrivals is positive and statistically significant at 5 per cent level. It indicates that the arrival of domestic tourists has gone up at the rate 36.79 cent per annum. The growth rates for domestic and foreign tourist arrivals are 4.001 per cent and 5.441 per cent respectively. But the trend co-efficient of foreign tourist arrivals is not statistically significant. It shows that foreign tourist arrivals in Thanjavur region are not very significant during the period under study.

Thus, it may be concluded from the time series analysis that the growth trend with regard to tourist arrivals has been more miserable in Thanjavur region than elsewhere in the state. Lean period in the arrival of domestic tourists was observed during the months from 'January to March. In the case of foreign tourists, lean period occurs from April to June. The irregular and cyclical variations have been found to be more among domestic tourist arrivals. A significant positive trend has been observed in the case of domestic tourist arrivals in Thanjavur region.

2.1 IMPACT ON DEMAND AND SUPPLY OF HOTEL ACCOMMODATION

The hotel industry constitutes a very important sector of the tourist infrastructure and is considered to be the king pin of the tourist industry. Among the numerous types of facilities sought by the tourists, accommodation forms an important item. It is rightly said that "the accommodation facilities" means the places where tourists stop (cease to be travelers) and become guests. The level of guest satisfaction achieved in an area with regard to its accommodation facilities will, in a large measure, determine the total success of any tourism development programme. Hence, in this section, an attempt has been made to study the trends in development of boarding and lodging and to examine the demand and supply for accommodation.

The number of hotels available in Thanjavur region during 2001-2007 is presented in Table 1.7.

TABLE 1.7
NUMBER OF HOTELS AVAILABLE IN THANJAVUR REGION DURING 2001-2009

Sl. No.	Year	First Class (Rs.1000-2000)	Second Class (Rs.550-1000)	Third Class (Rs.250-500)	Total No. of Hotels
1.	2002	18	22	139	179
2.	2003	19	26	139	184
3.	2004	22	26	141	189
4.	2005	24	29	143	196
5.	2006	26	31	145	202
6.	2007	27	33	157	217
7.	2008	31	43	171	239
8.	2009	34	41	168	243
9	2010	35	45	172	252
10.	2011	35	45	172	252

Source: Hotel Owners, Thanjavur.

As it could be seen from Table 1.8 the total number of hotels has gone up from 179 in 2002 to 252 in 2011. It could be inferred from the analysis that an increasing trend has been found in the development of hotel industry in the district. It could also be observed that there are three different types of hotel accommodation available. The classifications are first class (with room tariff ranging from Rs.1000 to 2000), second class (with tariff ranging from Rs.550 to 1000) and third class with tariff ranging from Rs.250 to 550).

The trend about the growth of different types of hotels in this district has been estimated by using equation (4.2) and the results are given in Table 1.8

TABLE 1.8
TREND AND COMPOUND GROWTH RATE ESTIMATES OF BOARDING AND LODGING UNITS (2001-2009)

Tourist	Trend Coefficient		R^2	Growth Rate in Percentage
	a	b		
First Class	2.8314	0.0803 * (16.668)	0.9720	8.36
Second Class	3.0392	0.0836 * (12.224)	0.9491	8.72
Third Class	4.8740	0.0298* (8.287)	0.8956	3.02
Overall	5.1237	0.0437* (14.593)	0.9638	4.47

Figures in brackets are the t-values.
* Indicates that the coefficients are significant at 5 per cent level.

Table 1.8 shows that the trend co-efficients are statistically significant at 5 per cent level. The value of trend co-efficient is higher for first class hotels when compared to second class and third class. The trend values for first class, second class and third class are 0.0803, 0.0836 and 0.0298 respectively. Regarding the growth rate of boarding and lodging units during the period from 2002 to 2011, the growth rate is higher among the first class hotels, followed by second class and third class hotels respectively. The growth rates are 8.36, 8.72 and 3.02 for first class, second class and third class respectively. The overall compound growth rate during the period is 4.47 per cent.

TABLE 1.9
CLASSIFICATION AND AVAILABILITY OF HOTEL ACCOMMODATION AT THANJAVUR REGION IN 2009

Sl. No.	Classification	Tariff Rates (in Rs.)	No. of Hotels	No. of Double Rooms (2 beds)	No. of Family Rooms (4 beds)	Total No. of Rooms	Total No. of Beds
1.	First Class (Luxury Class)	Rs.1250-3000 Rs.1000-1250	31	429 615	30 115	459 730	978 1690
2.	Second Class (Medium Class)	Rs.750-1000 Rs.550-650	43	330 950	48 112	378 1062	852 2348
3.	Third Class (Economy Class)	Rs.350-450 Rs.200-350	171	610 3422	288 216	898 3638	2372 7708

Source: Computed on the Basis of Information of the Tourists Information Centre, Thanjavur.

In order to find out the total bed capacity available per day in all the three classes of hotels, the number of beds from all the hotels were found out and given in Table 1.9. The tariff rates as found in the table represents the rates which prevail during the study period. It is observed from the table that the total number of rooms available during the study period is 7165 with 15948 beds. Out of 7165 rooms, 6356 (88.71 per cent) are double bedrooms and remaining 809 rooms are four-bedrooms. The tariff rates vary from Rs. 100 to Rs.550 for third class hotels called economy class, Rs.550 to Rs.1000 for second class hotels and Rs.1000 to Rs.3000 for first class or luxury class.

Table 1.10 clearly depicts the total number of beds available in hotels in Thanjavur region.

TABLE 1.10
NUMBER OF BEDS AVAILABLE IN THANJAVUR REGION DURING 2002-2011

Sl. No.	Year	First Class	Second Class	Third Class	Total Bed Capacity
1.	2002	672	2421	6649	9742
2.	2003	948	2467	7350	10765
3.	2004	1847	2712	7513	12072
4.	2005	1978	2914	9580	14472
5.	2006	2347	3164	11166	16677
6.	2007	2525	3198	12099	17822
7.	2008	2668	3200	13080	18948
8.	2009	2714	3396	13154	19264
9	2010	2798	3412	13322	19532
10.	2011	2801	3498	13465	19764

Source: Hotel Owners, Thanjavur, 2011.

Table 1.10 presents the total bed capacity available in all the three classes of hotels per day during the period from 2002 to 2011. It now becomes necessary to calculate the total bed capacity available in all the three classes of hotels for the period from 2002 to 2011. It is also necessary to spell out the average number of days each bed is let out. As per the Tourist Information Centre, a tourist on an average stays for 3 days continuously. Hence, the beds available could be let out 120 times in a year as pointed out at the front of the Table 1.12.

Table 1.11 shows the percentage of tourists staying in different types of accommodation in Thanjavur region.

TABLE 1.11
PERCENTAGE OF TOURISTS STAYING IN RELATIVES AND FRIENDS HOUSES, UNAUTHORISED RESIDENTIAL ACCOMMODATION AND PERCENTAGE OF TOURISTS SEEKING HOTEL ACCOMMODATION AT THANJAVUR DURING 2002-2011

Sl. No.	Year	Percentage of Tourists Staying in Houses of Relatives and Friends	Percentage of Tourists Staying in the Unauthorized Residential Accommodation	Percentage of Tourists Seeking Hotel Accommodation
1.	2002	15.0	0.0	85
2.	2003	14.5	0.5	85
3.	2004	14.0	1.0	85
4.	2005	12.5	2.5	85
5.	2006	12.0	3.0	85
6.	2007	11.5	3.5	85
7.	2008	11.0	4.0	85
8.	2009	11.3	3.7	85
9	2010	11.5	3.5	85
10.	2011	12.0	3.0	85

Source: Tourist Information Centre, Thanjavur.

Table 1.11 shows the percentage of tourists seeking accommodation at hotels during 2002-2011 after subtracting the percentage of tourists staying with their relatives and friends and in unauthorized places of residence.

The demand and supply of beds in Thanjavur region are given in Table 1.12

TABLE 1.12
A COMPARISON OF DEMAND FOR AND SUPPLY OF HOTEL ACCOMMODATION IN THANJAVUR DURING 2001-2009

Sl. No.	Year	Demand for Beds (85% of the Total Arrival)	Supply of Beds (Rate of letting 120 days)	Excess Demand for beds	Excess Supply of beds
1.	2002	8280	9742	--	1462
2.	2003	9150	10765	--	1615
3.	2004	10261	12072	--	1811
4.	2005	12301	14472	--	2171
5.	2006	14175	16677	--	2502
6.	2007	14175	17822	--	3647
7.	2008	16105	18948	--	2843
8.	2009	18471	21413	--	2942
9.	2010	19621	22737	--	3116
10.	2011	19847	22987	--	3140

Source: Tourist Information Centre, Thanjavur.
Note : Beds are let out 120 times in 360 days since the tourists an average stay for three days.

The number of tourists seeking hotel accommodation (Demand) and the availability of hotel accommodation (Supply) during the study period are given in Table 1.12. Before launching out to study the demand for and supply of beds for both domestic and foreign tourists, it becomes imperative for researcher to assume that all foreign tourists excepting just a few tourists prefer first class accommodation. Moreover, those foreign tourists who generally prepare their tour programmes well in advance book their hotel accommodation also well in advance. Hence, it is natural that first class hotels are booked by such tourists well in advance. However, as it could be seen from Table 1.12, demand for beds is less than the supply of beds during the period under study in Thanjavur region. It indicates that there is excess supply of beds which varies from 1462 in 2002 to 3140 in 2011.

In order to find out the trend and growth of the demand for and supply of beds, the equation (1.2) was fitted. The estimated results are given in Table 1.13

TABLE 1.13
TREND AND GROWTH OF DEMAND FOR AND SUPPLY OF BEDS DURING (2001-2009)

Particulars	Trend Coefficient		R^2	Growth Rate in Percentage
	a	b		
Demand	8.9554	0.1028 * (16.884)	0.9727	10.82
Supply	9.1285	0.1012* (15.309)	0.9669	10.65

Figures in brackets are the t-values.
* Indicates that the coefficients are significant at 5 per cent level.

It could be understood from Table 1.13 that the trend co-efficients of demand for and supply of beds are statistically significant at 5 per cent level and they are positive. It indicates that the demand for and supply of beds steadily increases at the rate of 0.1028 per cent and 0.1012 per cent respectively per annum. The compound growth rates of demand for and supply of beds are 10.82 per cent and 10.65 per cent respectively.

Thus, it may be concluded from the analysis that supply of beds has registered a steady increase over the years in Thanjavur.

SUMMARY

In this paper an attempt is made to examine the trends in tourist arrivals, seasonal variations, irregular variations, cyclical variations, secular trend and growth rate, demand and supply of hotel accommodation.