CHAPTER - 4

EMPIRICAL ANALYSIS OF DETERMINANTS OF TOURISM

The following fourth chapter of the thesis is bifurcated into two sections VIZ. Section (A) which discusses about the determinants of tourism in India and Section (B) which discusses about the determinants of tourism in Jammu and Kashmir. Both the sections are discussing about the Determinants of tourism. This chapter under these two sections will explain the factors responsible for the determinism of tourist arrival. Therefore, this chapter is explained into two sections as follows:
SECTION (A)

DETERMINANTS

OF

TOURISM IN INDIA
4.1. INTRODUCTION:

Tourism has been pivotal in social progress as well as an important vehicle of widening socioeconomic and cultural contacts throughout human history. A wide array of interests - entertainment, sports, religion, culture, adventure, education, health and business – drives tourism. With the advancement of transport, communication and improvement in general economic well being the demand for tourism has increased concomitantly.

Tourism facilitates business contacts, widens markets and helps diffusion of growth impulses across territories to promote broad based employment and income generation. Investment in tourist infrastructure adds to economic growth, catalyses generation of income and employment, which in turn, leads to further growth in demand for tourism and stimulates subsequent rounds of investment in a virtuous circle. Tourist expenditure generates multiple effects with extensive outreach along its value chain. Adding to the demand for a variety of goods and services, tourism offers potential to exploit synergies across a large number of sectors such as agriculture, horticulture, poultry, handicrafts, transport, construction - the sectors, where growth of income has favorable impact on poverty alleviation.

The distinctive features of this industry are: It is an industry without smoke; education without classrooms, integration without legislation; entertainment without constraints and diplomacy without formality. Another important feature is that this industry is a peace elastic phenomenon and promoter of International understanding.

Tourism emerged as an industry in recent past. This new industry is developing as the biggest industry of the world. And now the technical boom helps tourism to be in the main driving seat of any countries economy. Tourist movement
throughout the world can touch the 1600 million mark within 2020.¹² Tourism is one of the driving force which helps regional development and economic development.

Tourism is travel for recreational, leisure or business purposes. The World Trade Organization defines tourists as people who “travel to and stay in places outside their usual environment for more than twenty four hours and not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited”. According to the World Tourism Organization (WTO) receipts from International tourism grew to US 944 billion dollars in 2008 corresponding to an increase in real terms of 1.8% from 2007. Tourism has an important role in stimulating investment in new infrastructure, as well as in generating government revenues through various taxes and fees. Acknowledging these facts and the evidence that tourism comprises a huge portion of GNP in many developing and small countries makes clear the profound importance of tourism for development. There is also role of International tourism in promoting world peace, both by providing an incentive for peacekeeping and by building “a bridge between cultures”.

India has been a tourist attraction since long years. It is due to the elegance and overall history that it holds. It also cherishes the culture which is worshiped by many people all around the world. Tourism in India has flourished due to the scenic places that are enjoyed by the people of all age’s right from toddlers to the old aged. There are many places in India which holds to its architecture and history a great number of secrets and stories that have inspired many people. There are some places which are enjoyed by families for the sheer enjoyment and pleasure. Some places like

¹² Survey of World Tourism Organization (WTO).
the Himalayas as well the northern regions like Jammu and Kashmir are famous for
the ice-clad mountains are also very famous all around the world.

The tourism in India did not have so much importance initially in the earlier
years after independence. The tourism in India gained weightage only after people or
natives in these local areas realized the true beauty and importance of the sight-seeing
places. Also, the increasing poverty along with idea to save the ancient heritage, this
business has started. People started earning from these services like tourism guiding
and lodging-boarding services.

The economy of India is the eleventh largest economy in the world by nominal
GDP and the fourth by purchasing power parity (PPP). Following strong economic
reforms from the socialist inspired economy of a post-independence Indian nation, the
country began to develop a fast paced economic growth, as free market principles
were initiated in 1990 for an International competition and foreign investment. India
is an emerging economic power with a very large pool of human and natural
resources, and a growing large pool of skilled professionals. Economists predict that
by 2020, India will be among the leading economies of the world.

The government of India understood the importance of tourism as an industry
in 1980’s. So tourism is a late-started industry in this country. Tourism brings
opportunity of infrastructure development. The overall development of any country
depends specially on the improvement of road, vehicles, communication, water
supply, airports and railway stations etc. Economic progress and industry
development depends completely on the overall development of country. And tourism
plays a major role on this overall infrastructural advancement. India's tourism
industry is experiencing a strong period of growth in high spending foreign tourists,
and coordinated government campaigns to promote “incredible India”. The tourism industry in India is substantial and vibrant, and the country is fast becoming a major global destination. India’s travel and tourism industry is one of the most profitable industries in the country, and also credited with contributing a substantial amount of foreign exchange. This is illustrated by the fact that the tourism industry in India generated about US 100 billion dollars in 2008 and that is expected to increase to US 275.5 billion dollars by 2018 at a 9.4% annual growth rate.\(^\text{13}\) India will be a tourism hotspot from 2009-2018, having the highest 10-year growth potential. The Travel and Tourism Competitiveness Report 2007 ranked tourism in India 6\(^\text{th}\) in terms of price competitiveness and 39\(^\text{th}\) in terms of safety and security. Despite short and medium term setbacks, such as shortage of hotel rooms, tourism revenues are expected to surge by 42% from 2007 to 2017. India has a growing medical tourism sector. The 2010 commonwealth games in Delhi have significantly boosted tourism in India.

From the above discussion, and observing the importance of tourism, it is clear that tourism industry in India has great potential for generating income and employment. This depends on the volume of tourist arrivals in India and in turn volume of tourist arrivals dependents on various factors like infrastructural development, transports cost, political stability etc. Hence, this study makes a moderate attempt to analyze the factors determining tourist arrivals to India. In the light of the above, this study investigates factors determining tourism for a period of 1991-2009.

\(^\text{13}\) World Travel and Tourism Council (WTTC).
4.2. EMPIRICAL LITERATURE AND ESTIMATION METHODOLOGY:

International trade is the most important player in economies. Little mention is made of tourism. Tourism is a significant source of export revenues for any country. It is important that policymakers and economists understand the factors affecting foreign/domestic tourism demand.

The tourism demand is characterized by many factors. The great role among them plays the macro determinants of demand. They are the social factors, technological factors, economic factors and political factors. There are the factors which has been investigated as responsible for International / domestic tourism demand. Like the studies by (Richa Dhariwal 2005), (Seetanah Boopen, et al. 2010), (Muhammad A. and Andrews D. 2008), (Aslan, et al. 2008), (Mas F. J. and Nicolau J. L. 2004), (Boopen and Seetanah 2005), (Naude, et al. 2005) etc. has investigated that social-political factors-communalism, terrorism, price and income sensitivities etc. are the factors which affect tourist flows. There results shows that tourists are sensitive to price changes and the level of development, infrastructure, distance, common border and language are also found to affect the tourist arrivals. Equally importance has been given to good management at tourist destinations and exchange rates for variations in tourist arrivals.

However, there appears to be not much study related to the determinants of tourism so far as India is concerned. Given the importance of this sector and the role it plays in the Indian economy, it is important to investigate the factors influencing tourism. So this section is meant for to investigate the factors affecting tourism demand in India.
In order to measure the tourism demand in India we have used the data related to the factors which are responsible to tourist arrivals. Data on tourist’s arrivals are obtained from the Ministry of Tourism Government of India. Data on real exchange rate, GDP, distance and infrastructure are collected from World Bank and IMF, Central Intelligence Agency (CIA) world fact book on line data base.

A useful tool in the determination of the tourism demand is a gravity model. For decades, social scientists have been using a modified version of Isaac Newton’s law of Gravitation to predict movement of people, information, and commodities between cities countries and even continents.

The gravity model, as social scientists refer to the modified law of gravitation, takes into account the population size of two places and their distance. Since larger places attract people, ideas and commodities more than smaller places and places closer together have a greater attraction, the gravity model incorporates these two features.

The empirical success of the gravity model has long been recognized in economic research. It has been used to explain various flows between countries such as commodity trade, migration, and tourism (Bergstrand 1985). Although empirically successful, gravity models have been criticized for being ad hoc. However, Anderson (1979) provides a theoretical framework for the gravity model. (Bergstrand 1985) provides empirical evidence that the gravity model is a reduced form from a partial equilibrium subsystem. The reduced form subsystem is part of a general equilibrium system with product differentiated by country of origin. Past studies that used the gravity model to estimate tourism demand for a given country or region include (Durbarry 2000) and (Lundgren 2004). Although a gravity model was not used,
(Moshirian 1993) and (Patsouratis et al. 2005) give an overview of the variables that determine tourism demand. (Shan and Wilson 2001) provide an empirical discussion of the causal relationship between International trade flows and tourism flows, where they suggest that estimates from past studies that ignored the linkage between trade and tourism were likely biased. Finally, (Naude and Sayman 2005) investigated the factors that determine tourist arrivals in Africa where they look at destination specific factors that attracted visitors to African countries.

The gravity model is used here to investigate relationship between tourist arrival and the determinants of tourism demand. The model is augmented with a number of variables to test whether they are relevant in explaining tourist arrivals between India with selected countries. These variables include GDP, Distance, Exchange Rate and Infrastructure Endowment and dummies.

Based on the literature, the gravity model used to measure the determinants of tourism at the India level can be specified as follows:

\[ T_{ij} = f(Y_j, ER_{ij}, TC_{ij}, INFRA_{ij}, A_{ij}) \] \hspace{1cm} (4.1)

Where \( T_{ij} \) is the number of tourist arrival in country \( i \) from country \( j \), \( Y_j \) is the income of the country \( j \), \( ER_{ij} \) is the exchange rate measured as units of country \( i \)'s currency per unit of country \( j \)'s currency, \( TC_{ij} \) is the transport cost between country \( i \) and country \( j \), \( INFRA_i \) and \( INFRA_j \) are the measures of infrastructures in country \( i \) and \( j \), and \( A_{ij} \) represents any other factor that determine the arrival of tourists from country \( i \) to country \( j \). Equation 4.1 is expressed in natural log form for estimation purposes as:

\[ \ln T_{ij} = \alpha_0 + \beta_1 \ln Y_j + \beta_2 \ln ER_{ij} + \beta_3 \ln TC_{ij} + \beta_4 \ln INFRA_i + \beta_5 \ln INFRA_j + \beta_6 \ln A_{ij} + E_{ij} \] \hspace{1cm} (4.2)
The GDP of the countries is taken as proxy for income. It is expected that tourist arrival increase as the income increases. GDP is an indicator of the level of development, which could promote tourist arrivals. The coefficient of GDP is expected to be positive. The exchange rate is defined as the price of the tourist generating countries currency in terms of the host countries currency. The coefficient of the real exchange rate is expected to be negative. Infrastructure is also expected to have positive impact on the tourist arrivals. For transport costs we have taken distance between the capital cities of India and the selected countries. The coefficient of distance is expected to be negative, more the distance between the countries the lesser will be the arrivals and vice versa.

4.3. RESULTS AND DISCUSSION:

The descriptive statistics of the variables are reported in Table 4.1. From 1991 to 2009, the mean number of arrivals for the study period was 120681.8 with a S.D of 149721.2. The greatest number of arrivals was 804933 and lowest was 3476. The mean value of GDP for India is 4.00e+11 with a S.D of 2.42e+11. The minimum value is 2800 and the maximum is 9.06e+11. The mean GDP for other countries is 1.35e+12 with a S.D of 2.28e+12. The maximum value was 1.32e+13 and the minimum value is 1100. The maximum distance between India and the originating countries was 13576.02 Km and the closest country was 1012.12 Km. The mean distance for all countries was 6456.595 Km with a S.D of 3537.856. The mean exchange rate for India was 39.85 units with a S.D of 7.491524. The minimum was 22.40 which indicated the highest value exchange rate currency, and the maximum exchange rate was 48.67 units, which indicates the least valuable currency. Similarly the mean exchange rate for all other countries was 118.32 units with a S.D of
354.9498, likewise the maximum and minimum was 2102.59 and .08 respectively.

Similarly for the internet users per 100 people in India, the mean, standard deviation, maximum and minimum values are 1.24, 1.459439, 4.53 and .000113 respectively. The values of the internet users per 100 people for other countries are 25.73, 27.46063 and 86.98 and 0. For the air transport in India the mean, S.D, maximum and minimum values are 250051.1, 144268.2, 592292 and 105300 respectively. Similarly, for the other countries air transport values are 941342.8, 2016835, 9969599 and 4324 respectively.

Table 4.1: Descriptive Statistics of Model Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourist arrival i</td>
<td>120681.8</td>
<td>149721.2</td>
<td>3476</td>
<td>804933</td>
</tr>
<tr>
<td>GDP i</td>
<td>4.00e+11</td>
<td>2.42e+11</td>
<td>2800</td>
<td>9.06e+11</td>
</tr>
<tr>
<td>GDP j</td>
<td>1.35e+12</td>
<td>2.28e+12</td>
<td>1100</td>
<td>1.32e+13</td>
</tr>
<tr>
<td>Distance</td>
<td>6456.595</td>
<td>3537.856</td>
<td>1012.12</td>
<td>13576.02</td>
</tr>
<tr>
<td>Exchange rate i</td>
<td>39.8599</td>
<td>7.491524</td>
<td>22.4094</td>
<td>48.679</td>
</tr>
<tr>
<td>Exchange rate j</td>
<td>118.3235</td>
<td>354.9498</td>
<td>.08</td>
<td>2102.591</td>
</tr>
<tr>
<td>Internet i</td>
<td>1.243677</td>
<td>1.459439</td>
<td>.000113</td>
<td>4.539613</td>
</tr>
<tr>
<td>Internet j</td>
<td>25.7342</td>
<td>27.46063</td>
<td>0</td>
<td>86.98135</td>
</tr>
<tr>
<td>Air transport i</td>
<td>250051.1</td>
<td>144268.2</td>
<td>105300</td>
<td>592292</td>
</tr>
<tr>
<td>Air transport j</td>
<td>941342.8</td>
<td>2016835</td>
<td>4324</td>
<td>9969599</td>
</tr>
</tbody>
</table>

The results of the estimation of equation 4.2 are presented in the Table 4.2. The equation is estimated by the method of fixed effects. Based on the model in order to study the determinants of tourism in India we have used tourist arrivals as a
dependent variable and GDP, Exchange Rate, TC, Infrastructure as independent variables.

As can be seen from the table 4.2, as we expected the influence of GDP of India on tourist arrivals has no significant influence. It implies that the level of GDP in India is low compared to the most of the countries selected for the present analysis; hence it has not influencing tourist arrivals. The GDP of the other countries has been significantly influencing on tourist arrivals to India. Since the increase in the income of those countries tend to motivate their people to visit the places of tourism in other countries. That is why in our analysis we have an expected positive coefficient for GDP of other countries and it is statistically significant at 5% level.

Table 4.2: Estimates of the Gravity Model for Indian Tourists Inflows.

|       | Coef.  | Std.Err. | Z     | P>|z| |
|-------|--------|----------|-------|------|
| In \((GDP_i)\) | -0.0048255 | 0.0139 | -0.35 | 0.728 |
| In \((GDP_j)\) | 0.0715** | 0.0147 | 4.85 | 0.043 |
| In \((\text{distance})\) | -0.7899563*** | 0.3076 | -2.57 | 0.010 |
| In \((\text{Ex rate}_i)\) | -1.12016*** | 0.3362 | -3.33 | 0.001 |
| In \((\text{Ex rate}_j)\) | 0.0668276*** | 0.0156 | 4.26 | 0.000 |
| In \((\text{Internet}_i)\) | -0.0066344 | 0.0221 | -0.30 | 0.764 |
| In \((\text{Internet}_j)\) | 0.1178443*** | 0.0209 | 5.62 | 0.000 |
| In \((\text{Transport}_i)\) | 0.7137019*** | 0.1008 | 7.07 | 0.000 |
| In \((\text{Transport}_j)\) | 0.2194611*** | 0.054 | 4.00 | 0.000 |
| Dummy | 1.758053** | 0.8415 | 2.09 | 0.037 |
| constant | 9.557145*** | 3.2292 | 2.96 | 0.003 |
| R-sq= 0.4350 | Wald chi2= 673.50 | Prob = 0.0000 | Hausman Stat = 43.25 | No. Observa = 285 |

Note: *** indicates 1% level of significance, ** indicates 5% level of significance, * indicates 10% level of significance.
As per our priori expectation the influence of distance was negative. It has a negative coefficient and this is consistent with theory. This implies that as the distance increase travel cost also increase and it reduces numbers of tourist arrivals to India.

The negative coefficient for the exchange rate has been expected. Exchange rates are defined such that the larger the exchange rate value, the weaker the currency relative to the Indian rupee. This suggests that exchange rates should be inversely related to the number of arrivals because a weaker currency make visiting India more expensive. Hence the coefficient of exchange rate is negative and significant in determining the tourist arrivals to India.

So far as the infrastructure is concerned, we expect a positive coefficient. In our analysis we found that the coefficient of internet users in India is negative and is not significant showing that it has not so much influence on tourist arrivals. But the coefficient of internet users for the other countries is positive and significant means that it has a great influence on tourist arrivals to India. Similarly, the air transport infrastructure has positive coefficient and is significant. Thus the result reveals that infrastructure is a crucial factor for tourist arrivals.

To measure the difference in tourist attitude between the human races the study used a dummy variable which is significant and we got the positive coefficient means the racial difference among the races in tourist behaviour.
4.4. SUMMARY:

This section estimated International tourism demand for India. It applies the gravity model to Indian tourist arrival covering the period of 1991 to 2009 for fifteen countries VIZ. U.K., U.S.A, Canada, France, Germany, Srilanka, Japan, Australia, Malaysia, Nepal, Singapore, Italy, Netherlands, South Korea, China. Factors influencing on tourist arrivals are classified into economic, geographic and some social characterizes. GDP, exchange rate and infrastructure are the economic factors and distance is the geographic factor and finally we have taken the dummy for race which is the social factor. The model was estimated in order to determine whether there is really the significance of the variables selected for the determination of tourist arrivals to India from the fifteen countries. The results showed that GDP of India is not significant and the GDP of the other countries is significant and had a great influence on tourist arrival to India. Distance is associated with the decrease in tourist arrival. More the distance between India and the other country lesser will be the arrivals to India and vice versa. The results confirm the findings of previous studies that income, exchange rate, infrastructure and distance has vital role for the tourist arrival to any country and also to India. The result also implies that tourism demand in India mainly depends on the factor of tourism generating countries. Local factors of India are not effective in demand generation except the infrastructure of India.

The Indian tourism industry has an opportunity for increased growth given the natural attractions that India has to offer. A stable political environment, modernization of the transportation system, and development in infrastructure are needed for the country to take full advantage of its tourism potential. All our efforts must be made for the development of tourism industry all over the country as there is
hardly any state which does not possess some or the other site for the tourists. This is very necessary for the rapid development of our developing economy as the industry has great potential for generating employment at all levels, skilled and unskilled alike and is mainly directed towards earning foreign exchange. We need to develop the infrastructure of tourism, which in turn generate employment and increase the income level, and also increase the number of arrivals, an urgent need of the day.
SECTION (B)

DETERMINANTS OF TOURISM

IN JAMMU AND KASHMIR
4.5. INTRODUCTION:

Tourism is the basic and the most desirable human activity describing the praise and encouragement of the all people and government. The importance and significance of tourism could be understood from the observation of UNESCO, which says, “Tourism is a traditional instrument, which enables culture to the rehabilitated and made known to the rest of the world”. It is said that Tourism industry is smokeless industry and has become second to the petroleum industry in the world trade.

Tourist has as great educational significance. Contact between people of different races and nationalities widen ones outlook. Tourism, whether domestic or International has common economic significance in the sense that money earned in places visited large sums of transferred to the host economies where this money provided a source of income, a means of livelihood and amenities for the resident population. Purchasing power is generated in the receiving areas through the expenditure of visitors. Money received is spent and re-spent and this has a multiplier effect on the host country. International tourism is of great importance in International trade in the sense that it enters into the balance of payments of accounts of individual countries generating tourist traffic and export for countries receiving tourist traffic. For many countries is a major item in world trade. These countries exhibit faster growth in tourism than in trade of goods.

The Jammu and Kashmir economy depends mostly on traditional form of occupation. Unaffected and unaltered by modern day industrial developments and changing times, the indigenous traditional occupation of farming, animal husbandry, horticulture form the backbone of the economy of the state of Jammu and Kashmir.
The state affected by continued violence and insurgency, the economy of Jammu and Kashmir is an underdeveloped one. However, in the recent years, the government of Jammu and Kashmir has taken several significant steps to strengthen the financial condition of the state and improve the standard of living of the indigenous local inhabitants. The paradisiacal land of Jammu and Kashmir had faced severe crisis in the recent inflicted by constant insurgencies and terrorism threats. The youth of the state had lost confidence and did not have any thong to hold back on. At this juncture, the state government decided to promote the Jammu and Kashmir industries. This way they create job opportunities and build a positive picture of the state. They stressed more on the manufacturing industries of Jammu and Kashmir as it will help to generate revenue for the state. The revenue earning of the state of Jammu and Kashmir is largely dependent on the tourism industry.

The tourism industry in Jammu and Kashmir is supposed to be one of the most flourishing industries in the state. As there are not much industrial developments in the other sectors of this place so the industry related to tourism is considered with much seriousness by the state government.

Apart from agriculture economic activities of Jammu and Kashmir, the tourism is the most popular source of income. But these activities were hampered because of the massive political disturbance here. The tourist footfall in this region gradually decreased in and after the nineties. The economic structure of the state suffered a sudden downfall. There is no doubt that the state like Jammu and Kashmir had lot of potential for tourism. The slopes available at sonamarg, pahalgam and gulmarg provide scope for development of winter tourism. Bestowed with rich scenic beauty, the snow capped forests in winter draw a great chunk of tourists from all over
the world to Gulmarg the high altitude tourist resort in Kashmir valley. The ride of
cable car corporation (Gondola) has always been a special attraction for tourists. The
state government too is devoting full attention for developing sufficient infrastructure
to boost the tourist trade in the state. Tourism has a multiplier effect on income,
employment generation and gives tremendous fillip to the economy.

From the above discussion, and observing the importance of tourism, it is clear
that tourism of Jammu and Kashmir has great potential. Hence, this study makes a
moderate attempt to analyze the factors determining International tourist arrivals to
Jammu and Kashmir. The period of this study is from 1998 to 2007.

4.6. EMPIRICAL LITERATURE AND ESTIMATION METHODOLOGY:

In this section so far as the International tourism demand is concerned, the
studies like (Marcio, et al. 2005), (Sung Yong Park & Sang Young Jei 2010), (Eilat Y.
& Einav L. 2004), (Lim C. & McAleer M. 2001), (Muchapondwa E. and Pimhidzai
2010), (Alper A., et al. 2008), (Muchapondwa E. & Pimhidzai O. 2008), (Boopen,
Seetanah 2005), (Chaiboonsri C., et al. 2008) and has discussed about determinants of
International tourism flow. Income has been regarded as a fundamental factor for
tourism demand, some finding illustrates that the specific characteristics of a
particular origin country should be taken into account to develop policies or plans for
tourism industries. Among other things, that political risk is very important for
tourism, and that exchange rates matter mainly for tourism to developed countries.
Taste formation, transport costs, changes in global income and certain specific events
have a significant impact on International tourism demand which implies that the
improvement of International tourism infrastructure (in order to reduce travel costs
and enhance the quality of services to tourists) so as to reinforce taste formation are important for attracting more International tourists. Also the studies suggested that if the tourist destinations are maintained with good management system, such as maintaining the amenities of the tourism products, keeping good accessibility to the tourism products, keep a good image of tourism products, keeping the right price of tourism products and keeping the competitiveness of tourism products, then not only will International tourists revisit but also the numbers of tourists traveling will increase. Apart from this tourism has a significant contribution towards peace building.

In order to measure the tourism demand in Jammu and Kashmir we have used the secondary data related to the factors which are responsible to tourist arrivals. The data for the period of 1991 to 1997 and for the period 2008 to 2009 was not available for the variables which we have selected for this study. That is why we have taken the time period from 1998 to 2007. Data on tourist arrivals are obtained from the Source: Directorate of Tourism Kashmir/Jammu. Data on GDP/NSDP, distance and infrastructure are collected form World Bank, IMF, Central Intelligence Agency (CIA) world fact book on line data base and Digest of statistics Jammu and Kashmir.

The gravity model is used here again to investigate relationship between tourist arrival and the determinants of tourism demand. The model is augmented with a number of variables to test whether they are relevant in explaining tourist arrivals between Jammu and Kashmir with selected countries. These variables include GDP of other countries and SDP of Jammu and Kashmir, Distance, and Infrastructure Endowment Based on the literature, the gravity model used here to measure the determinant of tourist at the Jammu and Kashmir level can be specified as follows:
Where $T_{ij}$ is the number of tourist arrival in State$_i$ from country$_j$, $Y_j$ is the income of the country$_j$, $ER_{ij}$ is the exchange rate measured as units of country$_i$'s currency per unit of country$_j$'s currency. $TC_{ij}$ is the transport cost between State$_i$ and country$_j$, INFRA$_i$ and INFRA$_j$ are the measures of infrastructures in State$_i$ and country$_j$, and $A_{ij}$ represents any other factor that determines the arrival of tourists to State$_i$ from country$_j$. Equation 4.3 is expressed in natural log form as for estimation purposes as:

$$\ln{T_{ij}} = \alpha_0 + \beta_1 \ln{Y_i} + \beta_2 \ln{Y_j} + \beta_3 \ln{ER_{ij}} + \beta_4 \ln{TC_{ij}} + \beta_5 \ln{INFRA_i} + E_{ij} \quad (4.4)$$

This section also used panel data for the analysis. As already mentioned in the previous section in this chapter there are two widely used methods of estimation of panel data found in empirical studies i.e., Fixed effects and Random effects and among the fixed and random effect methods of panel data estimation, the fixed effect model is appropriate for our analysis which is supported by the Hausman test. Hence we have reported and discussed only the results of fixed effect model in this study too.

### 4.7. RESULTS AND DISCUSSION:

The results of the estimation of equation 4.4 are presented in the Table 4.3. The equation is estimated by the method of fixed effects. Based on the model in order to study the determinants of International tourism in Jammu and Kashmir we have used tourist arrivals as a dependent variable and GDP, SDP, Exchange Rate, TC, Infrastructure as independent variables.

As can be seen from the table 4.3, The GDP of the other countries and SDP of the state has been significantly influencing on tourist arrivals to Jammu and Kashmir. Since the increase in the income of those countries tend to motivate their people to
visit the places of tourism in other countries. That is why in our analysis we have an expected positive relationship between income and tourist arrival and it is statistically significant at 5% level.

As per our priori expectation the influence of distance was negative. It has a negative coefficient and this is consistent with theory. This implies that as the distance increase travel cost also increase and it reduces numbers of tourist arrivals to Jammu and Kashmir.

We expect the negative coefficient for exchange rate. Exchange rates are defined such that the larger the exchange rate value, the weaker the currency relative to the Indian rupee. This suggests that exchange rates should be inversely related to the number of arrivals because a weaker currency make visiting India more expensive. Hence the coefficient of exchange rate is negative and significant in determining the tourist arrivals to India.

So far as the infrastructure is concerned, we expect a positive coefficient. In our analysis we found that the coefficient of telephone connections in Jammu and Kashmir and the other countries is positive and is significant showing that it has very much influence on tourist arrivals and the coefficient of road network for the other countries is positive and significant means that it has a great influence on tourist arrivals to Jammu and Kashmir but the coefficient of road network for the state is negative means that it has not so much influenced the tourist arrivals to Jammu and Kashmir but it is significant

This study shows that both the economic variables and the geographical factors are important for increasing the number of tourist arrivals. So we can say that
there is a great policy implication. This study can help the state to know how important the development of the infrastructure is for receiving the more number of arrivals. If the state increases the telecommunication network and increase the road network there is no doubt that the tourism industry will grow and ultimately the income of the state.

Table 4.3: Estimates of the Gravity Model for International Tourist Inflows to Jammu and Kashmir:

Dependent variable: Tourist Arrivals

| Explanatory Variable | Coefficient  | Std.Err.  | Z     | P>|z| |
|----------------------|--------------|-----------|-------|------|
| Ln (SDP i)           | 1.061176**   | .492324   | 2.16  | 0.034|
| Ln( GDP j)          | .7420524**   | .3553179  | 2.09  | 0.040|
| Ln (distance)       | -.6943**     | .2058514  | -3.37 | 0.048|
| LnEX. (J)           | .1239855**   | .049168   | 2.52  | 0.014|
| LnTEL.C.(I)         | .1381371**   | .0596006  | 2.32  | 0.023|
| LnTEL.C.(J)         | .6334243     | .5102027  | 1.24  | 0.218|
| LnROAD L.(I)        | -.656526***  | .18947    | -3.46 | 0.002|
| LnROAD L.(J)        | .729688**    | .29541    | 2.47  | 0.038|
| -CONS               | -2.284251    | 12.60651  | -0.18 | 0.857|

R-sq = 0.5278

Hausman Stat = 47.43
Prob = 0.0000
F value = 9.31
No. of Obs. = 100

Note: *** indicates 1% level of significance, ** indicates 5% level of significance, * indicates 10% level of significance.
4.8. SUMMARY:

This section estimated determinants of International tourist arrival to Jammu and Kashmir. The study applies the gravity model to International tourist arrival covering the period of 1998 to 2007 for ten countries viz. Canada, U.S.A., France, Germany, Netherland, Itlay, Malaysia, Japan, Australia, U.K. Factors influencing on tourist arrivals are classified as economic and geographic factors. GDP, exchange rate and infrastructure are the economic factors and distance is the geographic factor. The study was carried out in order to determine whether there is really the significance of the variables selected for the determination of tourist arrivals to Jammu and Kashmir from the selected countries. The results showed that income of other countries and the income of Jammu and Kashmir are significant and had a great influence on tourist arrival to Jammu and Kashmir. Distance is associated with the decrease in tourist arrival. More the distance between Jammu and Kashmir and the other country lesser will be the arrivals to Jammu and Kashmir and vice versa. The results confirm the findings of previous studies that income, exchange rate, infrastructure and distance has vital role for the tourist arrival to Jammu and Kashmir. The results also implies that tourism demand in J&K is mainly depends on the factor of tourism generating countries. Local factors are not effective in demand generation except the infrastructure.