

# Understanding the Dynamics of Length of Stay of Tourists in India through Interpretive Structure Modeling

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## Abstract

*The purpose of this research paper is to identify the different factors that affect the length of stay of tourists in India and developing a hierarchical relationship between those factors. The factors are grouped into different classifications which will help policymakers to focus on specially identified groups. Interpretive Structural Modeling (ISM) is used to develop the hierarchical relationship. MICMAC (cross-impact matrix multiplication applied for classification) analysis will be conducted to determine the driving as well as dependence power of the factors involved and to classify them into Driving, Dependent, Autonomous and Linkage factors. Different factors involved are identified from literature and then a questionnaire is prepared to verify whether there exists any relationship between variables. The MICMAC analysis finds that Age of tourist, purpose of visit and budget of tourist are among the driving forces which affect of other variables involved in the system. Average daily expenditure and pre planning of visit are dependents and knowledge of destination is autonomous factors. An ISM model is then prepared on the basis of partition level of factors.*

*This paper has implications for researchers as well as policymakers. Researchers need to carry out the demographic study of tourists so that the tourists could be divided on the basis of age, nationality, education. Similarly, investigation should be carried out to identify the purpose of visit that impacts length of stay. The policymakers must concentrate on strategies on those groups who stay or can be made to stay for longer length of period.*

**Keywords:** *Length of stay, ISM, MICMAC, .driving factor, dependent factor and autonomous factor.*

## Introduction

Tourism is an evergreen industry. Its development is not limited to any continent. The industry has witnessed development in each and every continent. Development of any industry is fruitful to the economy (Kumar, Shekhar, & Attri, 2018). There are countries such as Maldives, British Virgin Islands, Macau which have developed themselves through tourism industry. The contribution of tourism to GDP of such countries is more than

25%. Number of international and national tourist arrival is considered to be the important factor contributing in development of a nation through tourism industry. For tourism industry and for a nation to actually get benefit from the industry, there should be a confluence between the number of tourists as well as the length of stay. A country should simultaneously focus on increasing both the tourist arrival and the length of stay of tourists. This is because the time spent by the tourists will have proportionate impact on the amount of expenditure done at that place. Too much focus on number does not have many benefits. This can be explained with the help of following hypothetical situation.

Suppose, during a period, 1000 tourists visited a place with average length of stay of 3 days. Let

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us assume they all spent 1000 INR each day. So, total revenue generated from this during the period =  $1000 \times 3 \times 1000$  or INR 30 Lakh. Now, let us assume that due to heavy efforts by the agencies and government, there was 10% increase in number of tourists. Keeping other things constant, revenue generated will be  $1000 \times 1100 \times 3$  or INR 33 lakhs. Alternatively, when the Government focuses on increasing the average length of stay and the length of stay is increased from 3 days to 4 days. Then, this may marginally have an effect on number of tourist arrival and that number of tourist arrival reduces to 900. The revenue generated during the period will be  $1000 \times 4 \times 900$  or INR 36 Lakhs. Thus by changing the length of stay, there is increase in revenue generated through tourism industry.

If we talk about average length of stay in India, then it is not good. The table 1 depicts the average length of stay of tourist, domestic as well as foreign, during the last decade.

**Table:1 (in appendix)**

Average Length of stay of tourists in India (days)

As in table 1, the average length of stay for domestic tourists remains around 2.6 days and for foreign tourists is around 3.2 days. Since tourists do not spend much time, resultant earnings from the industry are not optimum. The problem lies in the vision of planning agencies. The average length of stay is not mentioned in the annual tourism reports of states. Only Goa periodically calculates the statistic and when last reported, it was around 5 days for domestic tourist and 9 days for foreign tourists. As we compare this with the last reported data of other South-east Asian countries, we find that more focus is required regarding length of stay while formulating policies. The average length of stay for various countries is as follows- Philippines 10.04 nights, Mauritius 9.6 nights, Singapore 3.5 days, South Africa 5.5 days, Malaysia 5.9 nights, Laos

8.3 days, Australia 3.6 nights, Switzerland 2 days, Nepal 13.1 days, Bhutan 6.93 nights, Sri Lanka 10.2 days and Spain 7.7 nights. It is interesting to observe that Asian countries score well in average length of stay because westerners and several Asian countries find it cheaper to stay owing to positive consequence of depreciated exchanges.

This paper seeks to draw the attention of researchers as well as policymakers towards the concept of increasing the average length of stay of tourist. For this, an attempt has been made to understand the dynamics of length of stay. By developing a relationship among the factors determining the length of stay, the study tries to open dimensions for development of a flexible strategic crystal elements which can further boost development of the industry.

## Literature Review

Wurst, (1955) pointed out the technicalities and complexity in calculation of length of stay of tourists. The study emphasized upon counting the tourist turnover to accurately determine the length of stay of tourists. The complexity as per researchers arises when one tries to obtain large amount of data and group them into intervals. Thus, there is a need to be careful when collecting data in such cases.

Menezes, et al., (2008) examined determinants of length of stay of tourist in the Azores, Portugal. Several socio-demographic factors and trip attributes such as repeated visitation, type of flights were studied and a strong relationship was determined between them. It was found out that certain marketing strategies which focus on nature, remoteness and landscape increased the length of stay and those which focused on cultural aspect reduced the stay.

Barros & Machado (2010) found out that socio-demographic factors explained the length of stay

of the tourist. The characteristics of destination helped in moderating the length of stay. The study discussed various measures that could be adopted to increase the length of stay of tourists. It was concluded that age, nationality, education, budget, expenditure have an impact on the length of stay of tourists.

Parmar (2012) studied the emerging dimensions of tourism in the state of Himachal. The researcher argues that as tourism has several economic benefits, so, developing new avenues will also lead to increase in such benefits. The study focuses on the impact of services and facilities available to the tourists and the impact of these on the behavior of tourists such as their length of stay.

Thrane, (2012) states that tourist length of stay is a crucial factor for policymakers as it determines the expenditure tourists make. The study analyses how the nationality and other variables affect the length of tourist stay using econometric approach. The study highlights how age, spending pattern, nationality explain the variation in average length of stay among international tourists. The study also discussed the implications of findings for researcher's and policymakers.

Alejziak, (2013) attempts to identify the impact of strength of factors that cause non participation in the tourism activities. Some of the factors identified were lack of money, spending vacations at their residence, household obligations and lack of time. These factors not only reduce the length of stay of tourist, but might altogether restrict the tourism activity. The study also concluded that although accessibility of tourism products had increased, there were still a divide between the consumption of these products by the rich and the poor.

Ganzon & Fillone, (2014) explored the subject of length of tourist stay using regression analysis, cross-classification of variables and descriptive

analysis. Factors such as civil status, employment status, budget, and frequency of vacations in a year, the purpose of the trip and average expenditure were found to affect the length of stay. The study concluded that single tourists should be the focus of tourism industry as they contributed more in the foreign exchange earnings as they were likely to stay for longer lengths.

Šergo, Poropat, & Ružic, (2014) explored determinants of arrivals from different nations at a destination in Croatia. The study focused on interaction effect between individual characteristics of origin countries and relative prices on length of stay and other similar variables. Overcrowding and congestion of destination were the top reasons which lead to international tourist arrival in the country.

Rodríguez, et al. (2018) analysed determinants of length of stay by separating the same day visitors and tourists. The analysis of the findings was done using the five alternative Heckman selection models. The study concludes that same day visitors who belong to young age group have shorter stay while foreign tourists who come for business purposes usually have longer stay in the city. The implications for the policymakers are then discussed on the basis of findings.

## Objectives of study

The objectives of the study include-

- To determine the hierarchical relationship between the factors associated with length of stay of tourists.
- To identify the various causes of short length of stay of domestic tourists in India.
- To make suggestions for increasing the length of stay of tourists in India.

## Research Methodology

Data collected for the paper are from primary as well

as secondary sources. The secondary sources include research papers, articles, conference proceedings and other printed and published available resources regarding the subject. Primary data were collected from 100 people associated with tourism industry which include: industry experts, academicians and other stakeholders. Data were collected with the help of a structured questionnaire. A hierarchical relationship was developed between the factors associated with length of stay of tourists using Interpretive Structure Modeling technique. Then the factors were classified into driving, dependent, autonomous and linkage factor to understand their importance in the system.

#### **Understanding dynamics of length of tourist stay through Interpretive Structural Modelling Technique:**

For how long a tourist stays at a destination has its own implication. The economic contribution of tourism industry is undeniable (Kumar, Shekhar, & Attri, 2018). When a tourist visits a destination, it brings with itself economic development in that area by providing direct and indirect employment and also by providing livelihood in form of money spend by them. The amount of expenditure a tourist makes depends majorly on its length of stay. Thus, the focus of planning authorities should be on increasing the length of stay of tourists. In the following section, an attempt has been made for in-depth analysis of length of stay by examining the different factors which affect the phenomenon or are affected by it. Then, with the help of Interpretive Structure Modeling technique, a hierarchical relationship has been among factors and these factors are then classified into Driving, Dependence, Linkage and autonomous factors. This classification is important because the policies and strategies are developed keeping in mind the driving and linkage factors. This structure modeling helps in better understanding of the concept. In the

further sub section, the analysis of the modeling has been discussed in the form of implications for not only the policy makers, but also for the researchers., There is vast scope of research on the topic because not much of the work has been done with respect to average length of stay.

#### **Developing hierarchical relationship through ISM:**

Interpretive Structural Modeling Technique (ISM) is used to develop hierarchical relationship among different components of a factor. Thus, by developing an order or rank, the key factors are identified and by establishing the relationship between them, one can easily formulate the strategies. ISM has following steps-

Step 1- Identifying different factors which impact on the length of stay of tourists.

Table 2: Factors associated with Average Length of stay (in Appendix)

Step 2- Developing Self Structural Interaction Matrix (SSIM)

Table 3: Self-Structural Interaction Matrix (SSIM) (in Appendix)

Step 3- Converting SSIM in the form of 0 and 1 and develop initial reachability matrix.

Table 4: Initial Reachability Matrix (Pre Iteration) (in Appendix)

Step 4- Develop final reachability matrix after considering the rule of transitivity.

Table 5: Final Reachability Matrix (Post Transitivity Check) in appendix

Step 5- Developing Driving and Dependence Matrix from the Final Reachability Matrix-

From the final reachability matrix, a matrix is developed showing the driving power and dependence of each of the variable involved. On

the basis of it, the factors are classified into four categories for further analysis. These categories are- Autonomous, Linkage, Dependent and Driving factors.

### **Figure 1: Driving and Dependence Matrix in Appendix**

#### **Conclusion from Dependency and Reachability Matrix-**

- **Autonomous Factors-** These are those factors which have both low driving as well as low dependence power. For example- Knowledge about destination in this case. As these factors do not affect other factors, nor they get affected, they are not of major concern for the policy makers.
- **Linkage Factors-** These are factors having high driving power as well as dependence. These factors are of primary concern for the policy makers as change in these could lead to change in many of the other factors involved in the system. In this case, there is no variable that acts as Linkage variable.
- **Dependent Factors-** These are those factors which have high dependence and low driving power. These factors get affected by change in other factors, but change in them does not lead to change in many other factors. So, policymakers can easily alter policies for such factors. For example- Average daily expenditure and Pre planning of visit are dependent factors in this case.
- **Driving Factors-** These are those factors which have high driving power, but low dependence. These factors can be used by policy makers to introduce changes in the system. For example- Age of Tourist, Purpose of Visit and Budget of Tourist are driving factors.

Step 6:- Determining the partition level of different factors in reachability matrix.

### **Table 6: Final partition level of the factors (in Appendix)**

Step 7- Developing Di-graph for the factors.

Once, the partition level has been determined, the last step remaining is to develop the di-graph. This will show the hierarchy between the factors involved as well as how these factors have interrelated.

### **Figure 2: Di-graph showing hierarchical relationship among factors involved (in Appendix)**

#### **Implications for the Researchers-**

Researchers act as guiding tool for the policy makers. Through the research, they try to answer the questions and provide valuable inputs to the policy makers. Since this concept is not well investigated, it is the role of researcher to find out the right answers to the questions which would help in better policy formulation. This research raises following questions.

- An authentic study needs to be carried out to determine how the age of tourists impacts the length of stay. Whether there exists positive or negative correlation between two factors. Although there are studies regarding the same, but they show contradictory results.
- Similarly, there is a need to identify which type of tourists stay longer than the others. Researchers can carry out an analysis to find out reasons for which one type of tourist stays longer than the other.
- An interesting observation is that time of visit also determines the length of visit. Therefore, the nature of relationship must be investigated as it will help to create balance of demand between on and off seasons.
- Several studies have suggested that nationality also impacts the length of stay of tourists. Not much research has been done in this aspect in Indian context. So, how does nationality impacts

the length should be studied in detail. More focus should be on foreign tourists.

### **Implications for the policy makers-**

On the basis of information received from researchers, the policy makers should formulate strategies which would support the development of the industry. This research paper has put forward certain areas where the policy makers should focus their attention to increase the average length of stay.

- Age of Tourist is one of the driving factors. Now, the need is to study the demography of tourists visiting the state. The strategies to be developed then should focus more on the age group staying for longer length.
- Budget also determines the length of the stay of tourists. Thus, policymaker should ensure that the state remains competitive with respect to other states in terms of affordability.
- If tourists stay longer during the off season, then more number of tourists should be invited. For this, an effective marketing programme should be launched to promote niche tourism products which are not seasonal in nature.
- New Tourism products should be developed as not only these impact the length of stay, but these also improve available tourism infrastructure. If food tourism is being incorporated in tourism policy, then infrastructure related to this type, will automatically develop.
- If infrastructure is readily available and easily accessibility. This would reduce the average daily expenditure of the tourist and will make their stay longer.

### **Factors restricting the length of stay among Domestic Tourists in India-**

- **Unorganised Sector-** In India, around 75% people work in the unorganized sector. As their work

schedule is not organised, their trip are suddenly planned and executed in short time. This is one of the major reasons why average stay of domestic tourists in the country is so less.

- **Lack of Information-** Tourists depend on information about a destination either through the travel agencies or from social media or use of internet. Because of lack of promotion, not much information is available online. The lack of information forces a tourist to shorten the length of stay.
- **Lack of tourism circuits-** To make tourists stay, there must be products to keep them engage. For example, a person visiting a Shimla, in state of Himachal Pradesh, will visit and spend a maximum a day or two at that place and return. To make sure that tourist spend more time, there is need to develop circuits that are designed keeping in mind the mass tourism as well as community based tourism. Developing a circuit, attracts the tourist in staying more than intended time in particular state.
- **Scarcity of Resources-** Some destinations are over burdened and exhausted which limit the stay of tourists.

### **Conclusion and Suggestions**

From all the discussions, it is concluded that average length of stay does have an impact on the benefits derived from the tourism industry. Also, policies should be developed by taking concerns for the age of tourists, purpose of their visit, and timing of visit while simultaneously keeping the industry pocket friendly. Following suggestions are made with respect to increase the length of stay of tourists in country-

- **Development of theme based tourism circuit-** To encourage tourists to stay longer in the state, it is inevitable that theme based tourist circuits should be developed. These circuits should be such that

they connect all over the state. This would also ensure the holistic development of tourism industry in the state by ensuring the spread of benefits from industry reaching to the excluded section.

- **Development of new products-** Tourist gets bored with same offerings. Tourists want to experience new and innovative tourism products. This monotony reduces their length of stay. With variety of products to choose from, they are happy to visit again. The agencies should focus on developing products which are based on resources of destination.

- **Using an effective Marketing Mix-** Marketing is most crucial aspect where tourism industry of India lags behind. The marketing mix used should be such that it draws attention of tourists, develop interest for the destination.

- **Focus on tourists with longer length of stay-** The industry should go for a complete image overhauling. It would require a shift in its vision and mission. Instead of focusing on tourist who belong visit for a purpose like **MICE** tourism, where length of visit is less, it should switch its focus to wellness tourism where length of stay is more. This does not mean to ignore tourism for purpose with shorter length. Instead, more attention is required to formulate dynamic policies for increasing length of stay.

- **Destination Discontinuity-** Increasing average length of stay is not possible in destinations which have scarcity of resources and are overburdened with tourists. For this, destinations which are underexplored must be identified and developed so as to suit needs of tourists. This would help in transferring the burden of some exhausted destinations and availability of resource would help in increasing length of stay.

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### Appendix 1

**Table 1: Average Length of stay of tourists in India (days)**

Length of stay	2006	2007	2009	2010	2011	2012	2013	2014	2015	2016
<b>Domestic</b>	2.6	2.6	3.0	2.8	2.8	2.7	2.7	2.5	N.A	2.8
<b>Foreign</b>	3.6	3.1	3.3	3.4	3.2	3.0	3.1	2.9	N.A	3.5

Source: (Ministry of Tourism Report for the respective years)

**Table 2: Factors associated with Average Length of stay**

S.No.	Factor	Code
1	Age of tourist	01
2	Purpose of Visit	02
3	Time of visit	03
4	Average daily expenditure	04
5	Tourism Infrastructure in destination	05
6	Knowledge about destination	06
7	Budget of the tourist	07
8	Pre Planning of visit	08
9	Variety of Tourism avenues availed	09

Source: Drawn from primary data

**Table 3: Self-Structural Interaction Matrix (SSIM)**

	01	02	03	04	05	06	07	08	09
01	-	V	V	V	O	O	V	V	V
02		-	V	V	O	O	V	V	V
03			-	V	O	O	X	V	V
04				-	A	O	A	A	A
05					-	O	O	V	X
06						-	O	V	O
07							-	V	V
08								-	A
09									-



Table 4: Initial Reachability Matrix (Pre Iteration)

	01	02	03	04	05	06	07	08	09
01	1	1	1	1	0	0	1	1	1
02	0	1	1	1	0	0	1	1	1
03	0	0	1	1	0	0	1	1	1
04	0	0	0	1	0	0	0	0	0
05	0	0	0	1	1	0	0	1	1
06	0	0	0	0	0	1	0	1	0
07	0	0	1	1	0	0	1	1	1
08	0	0	0	1	0	0	0	1	0
09	0	0	0	1	1	0	0	1	1

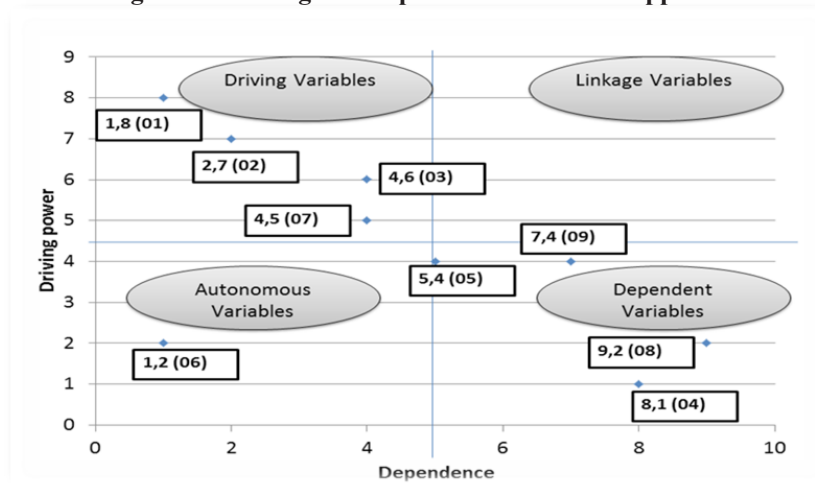
Table 5: Final Reachability Matrix (Post Transitivity Check)

	01	02	03	04	05	06	07	08	09	Driving Power
01: Age	1	1	1	1	1*	0	1	1	1	08
02: Purpose	0	1	1	1	1*	0	1	1	1	07
03: Time of visit	0	0	1	1	1*	0	1	1	1	06
04: Av. daily exp.	0	0	0	1	0	0	0	0	0	01
05 Tourism .Infra	0	0	0	1	1	0	0	1	1	04
06 : Knowledge	0	0	0	0	0	1	0	1	0	02
07 :budget	0	0	1	1	0	0	1	1	1	05
08: Pre-Planning	0	0	0	1	0	0	0	1	0	02
09 : Variety of Tourism	0	0	0	1	1	0	0	1	1	04
Dependence	01	02	04	08	05	01	04	09	07	

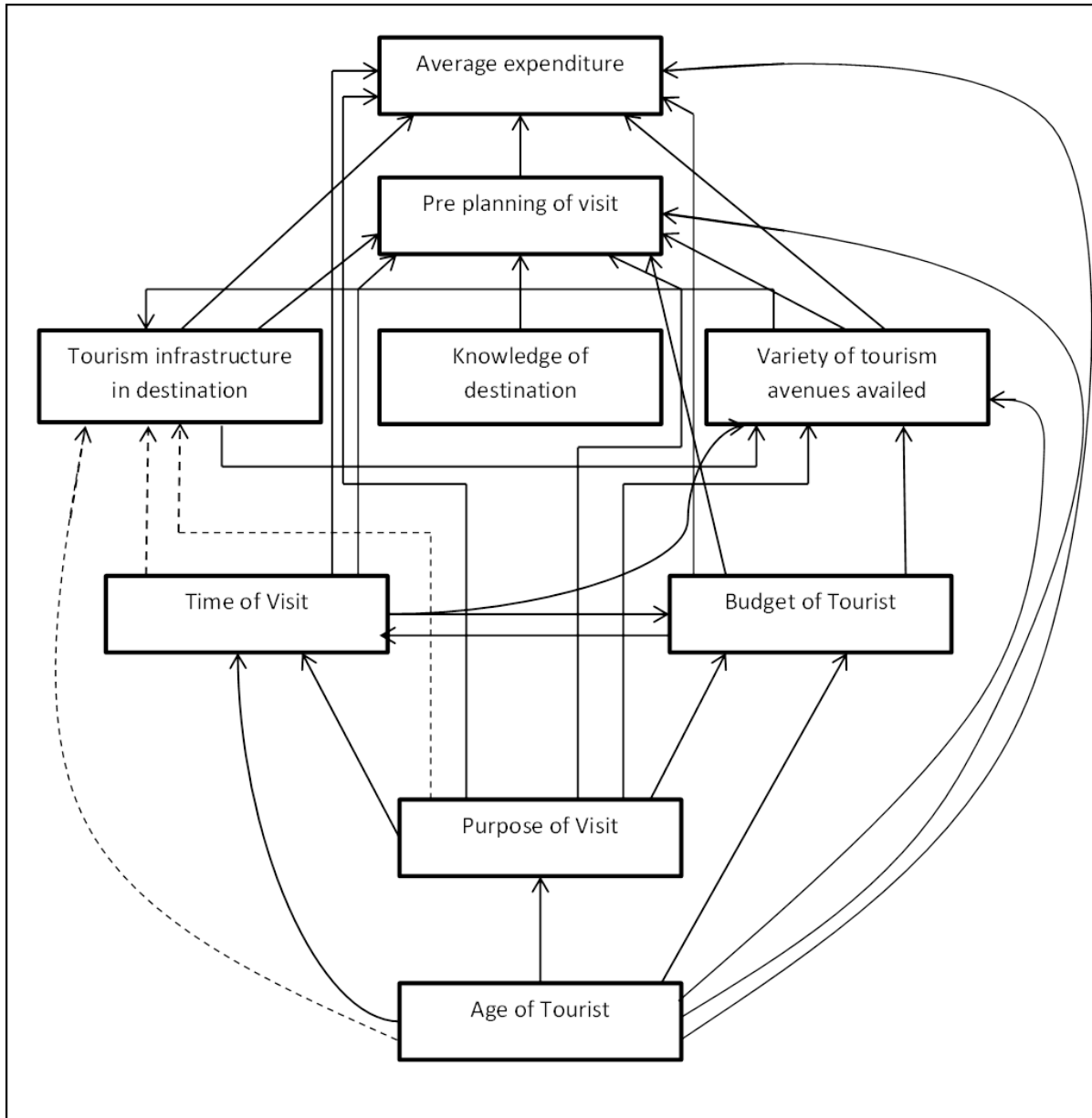
Table 6: Final partition level of the factors

S.No	Factor	Partition Level
1	Age of tourist	Sixth
2	Purpose of Visit	Fifth
3	Time of visit	Fourth
4	Average daily expenditure	First
5	Tourism Infrastructure in destination	Third
6	Knowledge about destination	Third
7	Budget of the tourist	Fourth
8	Pre Planning of visit	Second
9	Variety of Tourism avenues availed	Third

Figure 1: Driving and Dependence Matrix in Appendix



**Figure 2: Di-graph showing hierarchical relationship among factors involved**



## Appendix 2

Iteration tables to determine the partition level of the factors

### Iteration Table 1

Factor Code	Driving Power	Dependence	Set	Partition Level
01	1,2,3,4,5,7,8,9	1	1	
02	2,3,4,5,7,8,9	1,2	2	
03	3,4,5,7,8,9	1,2,3,7	3,7	
04	4	1,2,3,4,5,7,8,9	4	First
05	4,5,8,9	1,2,3,5,9	5,9	
06	6,8	6	6	
07	3,4,7,8,9	1,2,3,7	3,7	
08	4,8	1,2,3,5,6,7,8	8	
09	4,5,8,9	1,2,3,5,7,9	5,9	

### Iteration Table 2

Factor Code	Driving Power	Dependence	Set	Partition Level
01	1,2,3,5,7,8,9	1	1	
02	2,3,5,7,8,9	1,2	2	
03	3,5,7,8,9	1,2,3,7	3,7	
05	5,8,9	1,2,3,5,9	5,9	
06	6,8	6	6	
07	3,7,8,9	1,2,3,7	3,7	
08	8	1,2,3,5,6,7,8	8	Second
09	5,8,9	1,2,3,5,7,9	5,9	

### Iteration Table 3

Factor Code	Driving Power	Dependence	Set	Partition Level
01	1,2,3,5,7,9	1	1	
02	2,3,5,7,9	1,2	2	
03	3,5,7,9	1,2,3,7	3,7	
05	5,9	1,2,3,5,9	5,9	Third
06	6	6	6	Third
07	3,7,9	1,2,3,7	3,7	
09	5,9	1,2,3,5,7,9	5,9	Third

### Iteration Table 4

Factor Code	Driving Power	Dependence	Set	Partition Level
01	1,2,3,7	1	1	
02	2,3,7	1,2	2	
03	3,7	1,2,3,7	3,7	Fourth
07	3,7	1,2,3,7	3,7	Fourth

### Iteration Table 5

Factor Code	Driving Power	Dependence	Set	Partition Level
01	1,2	1	1	
02	2	1,2	2	Fifth

### Iteration Table 6

Factor Code	Driving Power	Dependence	Set	Partition Level
01	1	1	1	Sixth