

## FACTOR ANALYSIS OF NEGATIVE SOCIAL IMPACTS OF TOURISM

S. Nisthar

*Department of Local Government, Eastern Province, Trincomalee, Sri Lanka*  
[nisfi2014@gmail.com](mailto:nisfi2014@gmail.com)

### **Abstract**

The objective of this study is to find out the negative social impacts which are faced by the local community due to the presence of tourism sector in Panama Region of Sri Lanka, which is situated in the South Eastern coastline of Sri Lanka. Arugambay, Kottukal, Kudakalliya, Jalaldeen Squire, and Panama are the villages composed into Panama region. The sample size of this study is 530 members of the local community. Fiver Likert questionnaire is used to collect the data during the years of 2017 and 2018. The analysis of data consists of Reliability Test, Preliminary Analysis (Problem of Multicolinearity, The Kaiser-Meyer-Olkin of sampling adequacy and Bartlett's test of Sphericity), Factor Analysis (Factor Extraction, Communalities, Scree Plot, and Factor Rotation) by using SPSS v.20. Use of Drugs & Changes in Food Patterns, Worry about Discipline of Children, Exploitation of Children, and Malpractices of Women are the four factors or impacts extracted and outlined or identified as the negative social impacts of tourism within the study region.

**Key Words:** Panama Region, Factor Analysis, Negative Impacts, Tourism, Sri Lanka

### **1. Introduction**

The development of tourism sector in the respective countries generates some of the significant potentials in originating positive socio-economic, cultural benefits based on how the operations of tourism activities are developed and managed. On the other hand, some of the negative effects are also generated by the development of tourism sector within the local community concerned (Athula and Sandaruwani, 2016).

The resources such as Food, electricity, water supply, transport, and land, etc are limited in quantity. These limited resources are trapped into a higher pressure by the rapid growing tourism in the host community of the respective economy. As such, the host community may be affected by the negative impact of inflationary pressure in the host country on account of the demand increased on such limited resources (Kreag, 2001)

In common, there is a wide recognition that the local community connected with the development of tourism is playing two major roles. On one hand, the members of the local community are representing one of prime stakeholders because the positive and negative socio-economic impacts of tourism originally affect them first. Hence, understanding their attitudes and perceptions deeply on the development of tourism is instrumental to initiate a tourism development project. In addition, this understanding is important to sketch out the course of action that is responsive to their demands. Therefore, the betterment of the host community can be eminently guaranteed by this cause of action (Ap, 1992).

On the other hand host community that is positively disposed, friendly and hospitable will enhance tourists' experience (Fredline and Faulkner, 2000); further, the local community with its traditions, culture, and authenticity, is one of the main "attractions" for people whose travel reason is to experience and connect with the culture of their destinations (Murphy, 1985), thus meaning that the cohabitation and interaction host guest

is pivotal in shaping and co-creating the tourist experience. An opportunity used by Sri Lanka to increase the earning sources is the tourism industrial sector which attracts more to the country (Mustafa, 2019).

## **2. Literature Review**

Enemuo and Oduntan (2012) evaluated the social impact of tourism development on the lives of host communities of Osun- Oshogbo Sacred Grove in Osun State Nigeria. They found that the social impacts of tourism had been basically the consequences of either the development of the tourism industry or the presence of tourists in the destination. The interaction between the host and the tourists resulted in these impacts. Data for this research were collected using qualitative and quantitative methods. Simple frequency percentages, mean and Analysis of variance (ANOVA) derived from regression analysis were used to analyze the data collected for the study. The findings of the analysis implied that tourism development had significant effects on the social lives of the host communities and tourism development had significant effects on the sustainability of the socio-cultural lives of the host communities. This study found that tourism could contribute to social and cultural changes in host communities. This included changes in standard of living and their social lives. It concluded that the negative social impacts had been under-researched due to the difficulties in measurement and the indirect effects capable of threatening the survival of tourism destinations if measures and policies are not developed to address the negative issues.

Chauhan (2010) dealt with the analysis of tourism achievement of the State of Tamil Nadu and to emphasize the importance of various tourist places especially Kanyakumari and people's perception regarding the tourism to assess the impact of tourism on various developmental activities using descriptive method from the primary and secondary data collected from various sources. This study found that increase in the rate of crime and the social evils, environmental degradation as the negative impacts due to the tourism development in the area (Kanyakumari). Further, this study concluded with the positive and good impact of tourism as well such as increase in the income of the local people.

Sharma et al. (2012) studied to find out the reason why the children worked in tourism industrial sector, to know the jeopardy involved if they worked with the tourism industrial activities using the research methodology of partly descriptive, partly exploratory and partly causal. The data used this study have been collected with the help of Books, Magazines, Newspapers, Research Journals, Research Articles, E-Journals, Report of Ministry of Tourism, UNWTO Report and Report of Ministry of Women and Child. This study also helps in measuring the effectiveness of labour laws and actions taken by the World Tourism Organization and International Labour Organization to alleviate this problem. To evaluate the real situation of child exploitation in the tourism industrial sector, in this paper information has been gathered through secondary sources like books, magazines (Yojna), WTO report, report of Ministry of Tourism, News paper and etc. For this purpose, two questions of research were prepared (a) increasing economic benefit of tourism industrial was attracting as well as abusing the future of India. (b) Child Exploitation laws enacted to eradicate the problem of child exploitation had reduced the number of child labourers in papers only not in actual. After analyzing the information and the figures it could be concluded that the problem of child exploitation and commercial sexual exploitation of children couldn't be solved easily unless the collective efforts have been made by State officials, NGO's, Civil Social workers and the employers of Tourism Industrial sector to eradicate it. Policies and legislations should not only formulate but implemented in right spirit. All other institutions and Government and must unite their hands together to bring end all forms of exploitation of children otherwise we will fail to secure the rights of our children who are the future of our India.

Potukuchi Thryambakam (2013) studied to understand the impact assessment of community oriented sustainable tourism industry on the society and to assess and analyze its positive and negative implications on the society in Maredumilli, East Godavari District of Andhra Pradesh and adjoining areas in India. This study was conducted using the convenient sampling method. He used 200 respondents to collect primary data by administering them a detailed questionnaire and different sources to collect secondary data. The collected data were analyzed by simple statistical tools in this study. He found that tourism was one of the growing industries in Andhra Pradesh. And also its high growth and development rates, considerable amount of employment generation, infrastructure development positively contributed to the social and economic development of the state. In addition population structure, transformation of forms and types of occupations, transformation of values, influence on traditional lifestyle, and modification of consumption patterns were some of the impact of tourism and benefits to tourists. Finally, he concluded with some of the issues of the tourism development such as benefits going to environmental damage, a small group of committees, tourism of sex and indigenous people becoming vulnerable.

### 3. Objective

The objective of this study is to find out the negative impacts which are faced by the local community due to the presence of tourism sector in Panama Region of Sri Lanka.

### 4. Methodology

Factor analysis refers to a technique that is statistically allowing the researchers to simplify the correlation relationship of continuous variables. The factor analysis provides consistent ways to simplify the correlation relationships and to recognize within them the common components of relationship between groups of variables (Ciaran, et. al. 2009). The sample size of this study is 530 members of the local community. Fiver Likert questionnaire is used to collect the data during the years of 2017 and 2018. The analysis of data consists of Reliability Test, Preliminary Analysis (Problem of Multicollinearity, The Kaiser-Meyer-Olkin of sampling adequacy and Bartlett’s test of Sphericity), Factor Analysis (Factor Extraction, Communalities, Scree Plot, and Factor Rotation) by using SPSS v.20. There are 27 exclusive questions in the questionnaire representing the negative social impacts of tourism. All these questions are analyzed in the Factor Analysis under the Principle Component method.

### 5. Data Analysis and Presentation

#### Reliability Test: Overall and Positive Social Impacts of Tourism

Table 5.1 below shows that the values of Cronbach Alpha for the individual items such as Overall Impact of Tourism Sector and Negative Social Impact of Tourism sector. It is found the coefficient of Cronbach Alpha is 0.979 for overall impacts (Socio Economic, Environmental, and Cultural) of tourism industrial sector which consist of 118 variables together. And also, the value of Cronbach Alpha of Negative Social Impact of Tourism sector is close to 0.9. It indicates the existence of the excellent internal consistency of the surveyed data. And also it is concluded that the amount of measurement error is very less.

Table 5.1: Test of Reliability: Overall and Negative Social impacts

No.	No. of Items	Cronbach's Alpha	No. of Items
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01	Overall Impacts (Socio, Economic, Environment, Cultural,) of Tourism Industrial Sector	0.979	118
02	Negative Social Impact of Tourism Sector	0.958	27

Source: Surveyed data, 2017/2018

**Preliminary Analysis: Problem of Multicollinearity (Negative Social Impacts)**

Table 5.2 explains that there is no multicollinearity/singularity problem in the data used as the none of the value of correlation coefficients in the Correlation Matrix is found greater than 0.9.

The value of Determinant of the correlation matrix is another tool to delete one of the two variables which are causing the problem of multi-co-linearity from the variables or questions. The value of Determinant of the Correlation matrix of this set of items which represents the Negative Social Impacts of Tourism is 0.0001002 which is higher than the necessary value of 0.00001. Therefore, there is no problem of multi-co-linearity between these items designed under the Negative Social Impacts of Tourism. Accordingly, there is no need to remove any items or test questions of negative social impacts of tourism as the value of Determinant of R-matrix is higher than the required value of 0.00001.

Table 5.2: Test of Multicollinearity - Preliminary Analysis

No	Set of Items	No. of Items	Value of Significance (5%)	Determinant of R-matrix (~ > 0.00001)	Correlation Coefficient
01	Negative Social Impacts of Tourism	27	<i>Sig.</i> < 0.05	0.0001002	<i>R</i> < 0.9

Source: Surveyed data, 2017/2018

**Preliminary Analysis: The Kaiser-Meyer-Olkin of sampling adequacy and Bartlett’s test of sphericity**

Table 5.3 describes that for the data of negative social impacts of tourism, the value of KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) is 0.914 which covers the range of being excellent. In this study, the negative social impacts of tourism is used individually to find the value of KMO and to rethink of collecting some more relevant data to be included in this study.

Table 5.3: Test of KMO and Bartlett’s test of Sphericity

No	Set of Items	No. of Items	Value of KMO	Bartlett’s test of sphericity /significance (5%)
01	Negative Social Impacts of Tourism	27	0.914	0.000

Source: Surveyed data, 2017/2018

**Factor Analysis: Negative Social Impacts of Tourism**

Under Factor Analysis, the surveyed data of negative social impacts of tourism are restructured through 04 steps of techniques such as Factor Extraction, Communalities, Scree Plots, and Factor Rotation.

**Factor Extraction: Negative Social Impact of Tourism**

Table 5.4 shows the Eigen-values, the proportion of variance, and the number of components or factors associated with and after the extraction of factors. Before extraction, 27 linear components in connection with the negative social impacts of tourism have been identified by SPSS within the data sets. In terms of percentage of variance explained by each linear component or factor with Eigen values which are higher than 1, 04 factors or components are extracted by SPSS in relation to the negative social impacts of tourism.

According to Table 5.7, 49.466%, 12.113%, 8.397%, and 4.840% of total variance are explained by component 1, component 2, component 3, and component 4 respectively. Further, on the basis of the Eigen value which is more than 1 and the percentage of variance, 04 components are listed in ascending order by SPSS. The components or factors from 01 to 04 of Eigen values such as 13.356, 3.270, 2.262, and 1.307 which are more than the value of 01 are extracted for the appropriate analysis respectively.

**Table 5.4: Total Variance Explained – Negative Social Impact of Tourism**

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	13.356	49.466	49.466
2	3.270	12.113	61.578
3	2.267	8.397	69.975
4	1.307	4.840	74.815

Source: Survey Data – 2017/2018

**Communalities: Negative Social Impacts of Tourism**

Table 5.8 shows the table of values of communalities before and after the process of extraction. Four factors or components are extracted in connection with negative social impacts of tourism by SPSS at this stage. On the basis of Kaiser’s criterion, four factors or components can be extracted from the set of 27 variables which represent the Negative Social Impact of Tourism. But, this criterion will be only precise because the number of variables used in the factor analysis is less than 30 (i.e. 27), the sample size is more than 250 (i.e. 530) and the value of average communality is greater than 0.6 (i.e.  $20.202/27 = 0.75$ ). Thus, using all the 04 factors or components extracted in terms of the negative social impacts of tourism with the Eigen values greater than 1 is exactly appropriate.

**Table 5.5: Communalities – Negative Social Impacts of Tourism**

	Initial	Extraction
29. Tourism has increased mental stress	1.000	.377
30. Tourism has led to overcrowding	1.000	.522
31. The activities of prostitution have increased due to tourism	1.000	.792
32. Child abuse has increased due to tourism	1.000	.683
33. There is an increase in epidemic diseases due to tourism	1.000	.745
34. Because of tourism, number of beggars has increased	1.000	.847
35. Street children have increased because of tourism	1.000	.892
36. Child labour has increased due to tourism	1.000	.863
37. Tourism causes a lower quality of life for local residents	1.000	.688

38. Use of hard drugs increases due to tourism	1.000	.775
39. Arrival of tourists prevents the consumption of water by local people	1.000	.815
40. Arrival of tourists prevents the consumption of electricity by local people	1.000	.803
41. Arrival of tourists prevents the use of land by local people	1.000	.797
42. Tourism has increased sexual harassment	1.000	.769
43. The dress code of local residents has changed due to tourism	1.000	.750
44. The food pattern of the local residents has changed because of tourism	1.000	.785
45. The local residents are controlled to have the relationship with tourists	1.000	.763
46. Tourism has led to rowdy and delinquent/criminal behaviour	1.000	.768
47. Tourism development has increased migration from the other areas to Panama region	1.000	.712
48. Crime level increases due to tourism	1.000	.691
49. Tourism has led to the increase in overall cost of living	1.000	.726
50. Rate of raping has increased due to tourism	1.000	.777
51. Parents are in terror of the disciplines of their children	1.000	.763
52. A group of people has been socially marginalized in the society due to tourism	1.000	.756
53. The conflicts between tourists and local residents increases	1.000	.754
54. Excessive drinking alcohol increases due to tourism	1.000	.762
55. Police protection is required in the Paanamai region due to tourism	1.000	.772
Extraction Method: Principal Component Analysis.		

Source: Survey Data – 2017/2018

### Scree Plot: Negative Social Impact of Tourism

According to Kaiser’s criterion all the 04 factors or components with the Eigen values greater than 1 can be retained through the analysis of diagrammatic explanation of Scree Plot. Accordingly, the number of variables used in this analysis is less than 30 (i.e. 27), the sample size used in this study is more than 250 (i.e. 530), and the average value of communalities is greater than 0.6 ( $20.202/27 = 0.75$ ). Therefore, the analysis of Total Variance Explained and the analysis of Scree Plot can be used in this study for the process of factor extraction. Further, the analysis of Scree Plot also makes sure the number of the exact factor extraction (04 factors or components) from the negative social impacts of tourism as per Figure 5.2.

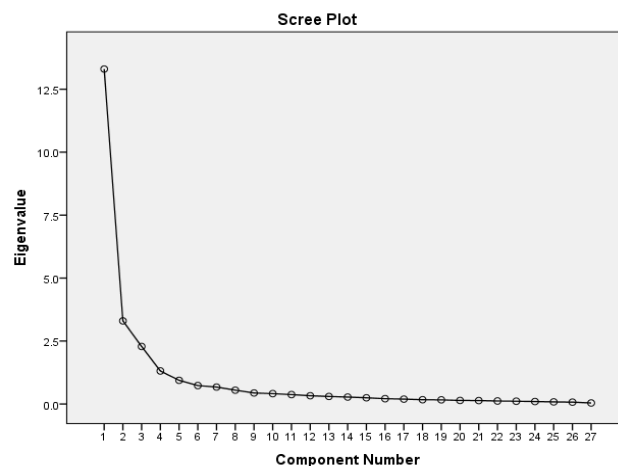


Figure 5.1: Scree Plot – Negative Social Impact of Tourism

Source: Survey Data – 2017/2018

**Factor Rotation: Negative Social Impact of Tourism**

Table 5.9 shows the rotated component matrix of the factor loadings for each of negative social impacts of tourism. The variables (negative social impacts of tourism) are listed in the ascending order of size of their factor loadings. According to Table 5.9, the four factors or components are rotated with each of the factor loadings. These 04 components or factors are labeled on the basis of the same information along with the aid of the supportive eminent perceptions of the respondents.

Table 5.6: Rotated Component Matrix – Negative Social Impact of Tourism

	Component			
	1	2	3	4
44. The food pattern of the local residents has changed because of tourism	.832			
42. Tourism has increased sexual harassment	.825			
40. Arrival of tourists prevents the consumption of electricity by local people	.814			
39. Arrival of tourists prevents the consumption of water by local people	.806			
43. The dress code of local residents has changed due to tourism	.801			
38. Use of hard drugs increases due to tourism	.782			
46. Tourism has led to rowdy and delinquent/criminal behaviour	.778			
45. The local residents are controlled to have the relationship with tourists	.766			
41. Arrival of tourists prevents the use of land by local people	.759			
37. Tourism causes a lower quality of life for local residents	.749			
53. The conflicts between tourists and local residents increases		.838		
51. Parents are in terror of the disciplines of their children		.829		
54. Excessive drinking alcohol increases due to tourism		.820		
52. A group of people has been socially marginalized in the society due to tourism		.812		
50. Rate of raping has increased due to tourism		.809		
55. Police protection is required in the Panama region due to tourism		.796		
49. Tourism has led to the increase in overall cost of living		.768		
48. Crime level increases due to tourism		.737		
47. Tourism development has increased migration from the other areas to Panama region		.658		
35. Street children have increased because of tourism			.861	
36. Child labour has increased due to tourism			.846	
34. Because of tourism, number of beggars has increased			.836	
33. There is an increase in epidemic diseases due to tourism			.797	
31. The activities of prostitution have increased due to tourism				.869

32. Child abuse has increased due to tourism				.729
30. Tourism has led to overcrowding				.671
29. Tourism has increased mental stress				
Extraction Method: Principal Component Analysis.				
Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 6 iterations.				

Source: Survey Data – 2017/2018

Accordingly and according to Table 5.6, the components or factors from 1 to 4 extracted in connection with the negative social impacts of tourism are labeled as Use of drugs & Changes in Food Patterns, Worry about Discipline of Children, Exploitation of Children, and Malpractices of Women respectively.

**Summary: Factor Analysis – Negative Social Impacts**

From the above factor analysis, there are number of variables extracted under the Principle Component Method from each of the respective impacts of the tourism. Four variables are extracted from the Negative Social Impact of Tourism and also four variables are extracted from the negative impacts of tourism. It is summarized in the following table 5.7:

Table 5.7: Summary of the Extracted Variables

Impacts of Tourism (Social/Negative)	Variables/Impacts Extracted	No. of Variables/Impacts
Negative Social Impact of tourism	01. Use of Drugs & Changes in Food Patterns	04
	02. Worry about Discipline of Children	
	03. Exploitation of Children	
	04. Malpractices of Women	

Source: Survey Data – 2017/2018

**Reliability Test of the Extracted/Identified Variables (Negative Social Impacts)**

Table 5.8 shows the overall internal consistency of the data surveyed to extract all of the variables (negative social impacts) from the above factor analysis in this study is good because the value of Cronbach’s Alpha is greater than 0.8 on average. Hence, it explains the extent to which all the variables (negative social impacts) identified in this study measure the same concept or construct and therefore, the connectivity of the inter-relatedness of each variable of negative social impacts is highly ensured within this test. The interconnectedness of the each variable is good as the value of Cronbach’s Alpha is greater than almost 0.8.

Table 5.8: Reliability test of the identified variables: Negative Social Impacts

Impacts of Tourism development (Negative)	Variables Extracted	Cronbach’s Alpha
Negative Social Impacts of tourism development	01. Use of drugs & Changes in Food Patterns	0.961
	02. Worry about Discipline of Children	0.950
	03. Exploitation of Children	0.933
	04. Malpractices of Women	0.747



Source: Survey Data – 2017/2018

## **6. Findings and Conclusion**

One of the parts of the social impacts of tourism is negative social impacts. As per the factor analysis, this study discloses that four variables or factors or impacts such as Use of Drugs & Changes in Food Patterns, Worry about Discipline of Children, Exploitation of Children, and Malpractices of Women are identified as the negative social impacts of tourism sector in the Panama region of Sri Lanka. They directly play major roles on Total Impact of Tourism on the local community in the respective region. The factor analysis extracts and confirms the principle components of four negative social impacts originated due to the presence of the tourism sector in Panama region of Sri Lanka.

## **7. Recommendation**

The negative social factors or impacts which are generated due to the presence of tourism sector in the respective region should be considered by the local policy makers on behalf of the government. Accordingly, they should be precautionary and well aware of the seriousness of the negative social impacts among the local community.

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