

# The Impact of Coastal Tourism on India's Economic Growth

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## Abstract

The purpose of this research was to examine the impact that tourism has on the economy of Coastal India, with a focus on the Southern inlands of the country in Andaman and Nicobar Islands. (Sinha, 1992) The empirical model is estimated using the Granger causality model and the simultaneous equation model. Based on the results, it can be concluded that tourism investment has no bearing on economic growth, whereas the volume of visitors and the value added by the tourism industry both do. Using a second model, this research determined that economic growth, tourism's added value, tourism, and government tourism spending all have an effect on the number of tourists. According to the results of this research, government policy plays a significant influence in fostering the development of the tourism sector, which in turn contributes to overall economic growth.

**Keywords:** *Tourism, economy, growth, Coastal India*

## Introduction

Agriculture, forestry, fishing, and mining are all vital parts of the Andaman and Nicobar Islands' primary sector economy (Jacobs & Willson, 2012). Andaman and Nicobar Islands' natural resources have the potential to spur economic activity that could result in substantial value creation. More than that, Andaman and Nicobar Islands' rich natural resources and cultural variety make it an attractive tourist destination (Kumar, et.al, 2019). It is hoped that tourism will expand to become a major economic driver in the future. Community members from all walks of life can be drawn into the tourist industry, suggesting that everyone in the area can help bring about positive change in the field (Basiago, 1999; Yunis, 2009). This means the government must invest more heavily in the sector (Curristine, Lonti, & Joumard, 2007). The number of foreign visitors to Andaman and Nicobar Islands increased by 7.5%, to 9.4 million in 2021, according to official figures.

Government and businesses that rely, directly or indirectly, on the tourism industry stand to gain greatly from an increase in tourists. South Andaman province's hotels, restaurants, travel agencies, transportation, recreation, theme parks, amusement parks, and even its historic monuments would all profit from an increase

in tourist traffic. South Andaman Province's economy and employment prospects will improve and grow as more tourists visit the region (Jacobs & Willson, 2012).

Growth in the number of tourists visiting a country has been generally positive between the years 2006 and 2021. Domestic travel is up by an average of 29.37%, while international travel is up by an average of 6.25%. A growing number of domestic and international vacationers are choosing South Andaman as their destination of choice (Jacobs & Willson, 2012). Promoting and bettering tourism and tourist attractions through growth of the tourism sector is a strategy that helps both the local population and the government (Csapo, 2012). More visitors mean more money in the local economy thanks to the creation of new jobs (Chang, Khamkaev, & McAleer, 2010; Dritsakis, 2009). In addition, local and international tourist arrivals affect the country's income level, making the tourism industry a significant sector of the global economy that attracts millions of visitors each year (Li, Mahmood, Abdullah, & Chuan, 2013). The purpose of this research is to explore the connections between tourism and other economic factors in South Andaman. First, the study's model fits neatly into an empirical examination of economic growth models fueled by the expansion of tourism's potential; second, new theoretical research into the areas of fiscal and investment policy in Coastal India has been developed as a result of this work. The favourable effect of tourism on economic growth is supported by both single-country studies and global surveys. Phiri (2016), Cortes-Jimenez, Pulina, Prunera, and Artis (2009), Caglayan, Karymshakov, Aglayan, and Sak (2012), and Caglayan, Karymshakov, Aglayan, and Sak (2012) all report the same findings.

The study's methodology and the details of its models are presented in the next section. The ramifications of this study, as well as the results and present empirical estimations of those implications, are discussed in the third section. This concludes the final part.

## **Research Methods**

Utilizing secondary data published by the Tourist Information Center, Directorate of Tourism, Andaman and Nicobar Administration, Port Blair, the study data were compiled. The data consists of GDRP, the number of tourists (NT), tourism investment (INV), and government spending on tourism (ETS). 2006-2021 (15 years span) is the timeframe for research data collection. The data are presented in log format, with % as the number and Indian Rupees as the unit of measure. Utilizing the Granger causality test and the simultaneous equation model, researchers conduct their studies. Granger (1988); White and Pettenuzzo (2010). In the meantime, the simultaneous equation model employing the two-stage least square approach (2SLS) demands that error components in the resulting model satisfy certain classical assumptions. Among other assumptions, error must satisfy the assumptions of multicollinearity, homogeneity, and absence of autocorrelation (Myers, 1990). The Granger model of causation can be viewed as follows:

$$NT_i = \sum_{j=1}^m a_j NT_{t-j} + \sum_{j=1}^m b_j GDRP_{1-j} + \varepsilon_1$$

$$GDRP_i = \sum_{j=1}^m C_j GDRP_{t-j} + \sum_{j=1}^m d_j NT_{1-j} + \delta_1$$

$$INV_i = \sum_{j=1}^m e_j INV_{t-j} + \sum_{j=1}^m f_j GDRP_{1-j} + \mu_1$$

$$GDRP_i = \sum_{j=1}^m g_j GDRP_{t-j} + \sum_{j=1}^m h_j INV_{t-j} + \varepsilon_1$$

$$ETS_i = \sum_{j=1}^m l_j ETS_{t-j} + \sum_{j=1}^m k_j GDRP_{t-j} + \xi_1$$

$$GDRP_i = \sum_{j=1}^m l_j GDRP_{t-j} + \sum_{j=1}^m m_j ETS_{t-j} + \pi_1$$

As follows, the simultaneous equation model can be viewed:

$$LN GDRP_t = \alpha_{13} + \alpha_{11} LNNT + \alpha_{12} LNVAT + \alpha_{13} LNINV + \alpha_{14} LNETS + \varepsilon_{11}$$

$$LNNT_i = \gamma_{20} + \gamma_{21} LN GP + \gamma_{22} LNVAT_i + \gamma_{23} LNINV_i + \gamma_{24} LNETS_i + \varepsilon_{21}$$

where: NT is the number of tourists; INV is investment tourism sector, and GDRP is the gross domestic regional product; VAT is value-added of tourism; ETS is the government spending of the tourism sector in South Coast of India province, i.e., Andaman and Nicobar.

### Results-based discussion

Each year, the tourism sector's contribution to economic growth has expanded dramatically. The average contribution of commerce, hotels, and restaurants between 2006 and 2021 was 13.64 percent. This demonstrates that this industry has the potential to be one of the main contributors to the economy. In 2021, this industry made a large contribution of 45.85%. The rise is matched by an increase in the number of five-star hotels. In order to minimise the unemployment rate in Andaman and Nicobar, the expansion of this sector will have a ripple effect on other industries and can boost the average employment rate by 3.8%.

Year	Contribution Tourism Sector to GDRP	Contribution of Investment to GDRP	Contribution of Government-Expenditure to GDRP
2006	11.66	0.79	1.12
2007	11.94	1.25	1.13
2008	12.22	2.08	2.23
2009	12.42	2.54	1.69
2010	12.61	3.30	2.08
2011	12.95	3.97	2.18
2012	13.29	5.01	2.62
2013	13.69	6.27	3.82
2014	13.93	8.11	5.60
2015	13.80	9.49	5.63
2016	13.99	12.89	4.97
2017	14.16	17.29	4.45
2018	14.62	23.34	5.35
2019	15.26	31.41	5.40
2020	15.33	42.88	6.09
2021	16.43	45.83	6.84
Average	13.64	13.53	3.83

Table 1 The contribution of tourism to GDRP in Andaman and Nicobar, 2006-2021 (%)

Source: Andaman & Nicobar Tourism ([andamantourism.gov.in](http://andamantourism.gov.in))

Emerging tourism-based economy present an opportunity for the utilization of Andaman and Nicobar's cultural wealth and many aspects of the tourism sector, such as eateries, lodges, souvenirs, etc. which can be better developed into businesses to generate revenue and subsequently profits for the government and ultimately increase the employment level for the actual residents of the Andaman and Nicobar Islands. The average rate of employment expansion in this industry is 3.8%. It is anticipated that the region's resource development and use, as well as its tourism potential, will help to its economic development (Saner, Yiu, & Filadoro, 2015). Tourism is viewed as an activity with several dimensions of the circuit a growth process, with the development of the tourism industry involving numerous social, cultural, economic, and political elements (Chou, 2013). The initial step of this research is to examine Augmented Dickey-Fuller stationary test results (ADF). If the results of the ADF test suggest that the data at the level is not stationary, changes are done to obtain stationary

data. A typical method is differentiation, which involves reducing the value in a period by the value of the data from the preceding period. If movement continued, another distinction was formed.

ADF test results were compared to McKinnon's critical value. If the value of t-statistic ADF is less than the crucial value McKinnon, it is said that the data is stationary, and vice versa. If the value of the ADF t-statistic is greater than the McKinnon critical value, it is assumed that the data are stationary. In table 2, the results of the ADF unit root test indicate that the variables NT, INV, ETS, and PDRB are not stationary. Hence, it is ideal for the testing to be conducted based on the process of First-Order differentiation. At the 5% of significance level, the Unit-Root test on the first difference indicates that all the variables used in this study are stationary (Refer Table 2). It indicates that all variables in this study can be used for the analysis of time series and previously described equation models can be evaluated using a Granger Causality model.

**Table 2. Results for the Unit-Root test by taking first differences into consideration**

Variables used	t-statistics (ADF)	McKinnon-Critical Value(ADF)	Unit-Root Test
D(LNGDRP)	-3.965197	-4.131990	*stationary
		-3.144920	
		-2.713751	
		-4.057910	
D(LNNT)	-3.904796	-3.119910	*stationary
		-2.701103	
		-4.297073	
D(LNVAT)	-5.657879	-3.212696	*stationary
		-2.747676	
		-4.057910	
D(LNINV)	-2.993583	-3.119910	*stationary
		-2.701103	
		-4.121990	
D(LNETS)	-3.562420	-3.144920	*stationary
		-2.713751	

Note: \* indicates that the stationary level is at 5%. The value for maximum lag is 2

In order to find the value for the ideal lag period, varied reaction lengths to the past and other endogenous variables have been used in this study. Using Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike-Information Criterion (AIC), Schwarz-Information Criterion (SC), and Hannan-Quinn to determine lag in this study (HQ). The determination of the full-length lag is shown in Table 3.

**Table 3. Optimal lag length determination**

Lag value	LogL value	LR	FPE	AIC	SC	HQ
0	-969.6200	NA	1.33e+60	149.7877	149.9615	149.7520
1	-876.1065	115.0936	1.04e+55	137.8625	138.7317	137.6839
2	-759.6393	71.67210*	6.12e+48*	122.4060*	123.9705*	122.0845*

\* Denotes the number of lag optimum

Table 3 describes the best lag according to the criteria of LR, FPE, and AIC; the shortest and most designated lag is marked with an asterisk (\*); hence, the Granger Causality Test will utilise the lag 2 in the upcoming analysis phase.

The results of the Granger causality test indicate there is no two-way relationship between the number of tourists and economic growth in the first model (table 4). However, the Model-1 is rejected of the null hypothesis, and so the hypothesis can be represented as tourism-led-growth (TLGH). The outcomes of this study indicate that the rate of change in the number of tourists will affect economic growth. (Li et al. (2013). Tourism as an economic growth engine is consistent with the findings of Brida et al. (2013) and Phiri (2016). Therefore, the creation of tourist sector strategy to promote economic growth in Andaman and Nicobar Islands is highly appropriate.

**Table 4. Granger causality test: Estimation Results**

Null Hypothesis	F-Statistic	Probability
LNNT is independent of Granger Cause LNGDRP	0.81977	0.4744
LNGDRP is independent of Granger Cause LNNT	3.21396	0.0945 *
LNINV is independent of Granger Cause LNGDRP	3.98683	0.0629 *
LNGDRP is independent of Granger Cause LNINV	15.0254	0.0020 **
LNETS is independent of Granger Cause LNGDRP	3.23549	0.0934 *
LNGDRP is independent of Granger Cause LNET	3.96593	0.0636 *

Note: \*\* and \* denote the rejection of the null hypothesis at 5%

The second model also demonstrates a unidirectional causality relationship between the investment in the tourism sector and the development of the tourism sector. Statistically, economic growth can also lead to a rise

in tourism sector investment at a 10% significance level, while the tourism sector investment variable can cause or promote economic growth at a 5% significance level. By investment causation, the tourism industry is more influential in encouraging economic growth. It supports the Investment-led-growth hypothesis (ILGH) more (Dreger & Herzer, 2011). Investments to assist the tourism industry include not only a rise in the number of accommodations, but also an increase in the number of other service sectors, such as transportation and the provision of culinary specialties. In other words, the increased investment in the tourism sector will have multiplier effects and contribute value to other sectors. In economic theory, investment as a component of aggregate demand will have an effect on the growth of the economy's output; this is consistent with the contribution of tourist sector investment to economic output (GDRP), which experiences annual growth (Ekanayake & Long, 2012). The study further examined the link between the economic growth and government spending in the tourism industry. Three models of Granger causality estimate a 10% significance level for the relationship between economic growth and government spending in the two-way tourist industry.

Statistically, the results of the study show that the growth in economy may lead to an increase in the governmental expenditure with regard to the tourism sector and an increase in government spending with regard to the tourism sector contributes to economic expansion. But a statistically significant increase in government spending on the tourism sector has a greater impact on fostering economic growth (Chou, 2013). Therefore, the government's objective of boosting expenditure in the tourist sector is correct, particularly in terms of improving tourism promotion and infrastructure (Chou, 2013). Theoretically, the increase in output will stimulate economic growth and have a direct impact on the reception area's improvement. A further growth in regional income will stimulate government spending increases.

Government spending is a tool used in influencing the trajectory of the economy. This indicates that in this study, the number of tourists, investment, and government spending in the tourism sector in the region are elements driving economic growth, which in turn will have an effect on the development of the tourism sector in Andaman and Nicobar Islands. Reddy (2005); Reddy (2007)

According to the simultaneous equation model, the number of tourists, the added value of the tourism sector, investment, and government spending in the tourism sector have had a substantial impact on economic growth (table 5). This conclusion is consistent with the findings of Akan, Arslan, and Cem (2007). Additionally, the quantity of travellers, the added value of the tourism sector, and government spending influence tourism sector economic growth in part.

<b>Variables used</b>	<b>Model-1</b>	<b>Model-2</b>
C (constants)	62.4985**	12.6752**
	(15.57497)	(3.70724)
LNNT (number of tourist)	0.07259**	
	(0.02686)	
LNGDRP (economic growth)		0.24772**
		(0.08211)
LNVAT (value-addition due to tourism)	0.18763**	0.32805**
	(0.08444)	(0.12177)
LNINV (investment)	0.03814	0.19585
	(0.05426)	(0.12069)
LNETS (government spending)	0.09076**	0.15247**
	(0.03589)	(0.00440)
<b>R</b>	<b>0.99357</b>	<b>0.93567</b>
<b>F-test</b>	<b>34.1002</b>	<b>33.8564</b>

Note: \*\* and \* denote the significance levels of 5% and 10% respectively.

Despite the fact that tourism industry investments have a negligible impact on economic growth, it is anticipated that private sector investment in the tourism sector will remain low as long as the infrastructure in the Andaman and Nicobar Islands remains insufficient. Nonetheless, other variables, such as the added value of the tourism sector and government investment on the tourism sector, demonstrated a favourable link with economic growth. This condition is anticipated to increase the growth of these variables, leading to a rise in economic growth.

In Table 5, the second model's estimation findings indicate that economic growth, the value-added of the tourism sector, investment, and government spending on the tourism sector have all had a substantial impact on the number of visitors who visit the Andaman and Nicobar Islands. In addition, at the 5% significance level, the economic growth, the added value of the tourism sector, investment, and government expenditure of the tourism sector are variables that influence the number of tourists visiting the Andaman and Nicobar Islands. We discovered that the variable investment had an effect on the growing number of tourists.

## Conclusion

In this article, we looked at how tourism and economic growth in India's Andaman and Nicobar Islands affect each other. In this study, we found that the number of tourists has an effect on economic growth, but that investment tourism has an effect on economic growth in both directions. On the other hand, we also found that spending on tourism and economic growth are linked in two ways. The study also found that the number of tourists, the value-added of the tourism sector, and the amount of money the government spends on tourism



have a big impact on economic growth. However, investments in the tourism sector don't have a big impact on economic growth in the Andaman and Nicobar Islands (Ghosh, 1998) In the second model, we found that the number of tourists is strongly affected by economic growth, the value-added of the tourism sector, investment, and government spending on the tourism sector. All of the variables were linked in a good way. The good effects show how important it is for the government to support potential development sites in the country and increase the demand for domestic and international travel. India can learn from the world's experiences, both good and bad, to fix the mistakes they've made because they don't pay as much attention to the tourism industry and the need for new ways to promote tourism (Chou, 2013). As well as coming up with a plan to limit the negative effects of tourism on the growth of natural resources and social and cultural life (Leitao&Hahbaz, 2016).

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