

Economic and Environmental Costs of Tourism: Evidence from District Abbottabad

Ayesha Shujahi¹, Anwar Hussain², Farhat Konain Shujahi³

Article History:

Received Date:
27th February 2026

Revised Date:
29th May 2026

Accepted Date:
25th June 2026

Published:
30th June 2026

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Abstract

Tourism plays an important role in economic development however; it also cost the environment and local population. This study analyzes the economic and environmental cost related with tourism and its impacts on local residents in the district Abbottabad, Khyber Pakhtunkhwa, Pakistan. Primary as well as secondary data is used. The responses of respondents including local residents, tourists, hotel managers and shopkeepers associated with economic and environmental costs are being captured via Questionnaires and interviews. It is found that tourism increase traffic congestion, prices of good, littering and noise pollution. Tourism is a key source of livelihood for millions of people however; it should be sustainable to conserve environment.

Keywords: Abbottabad; Tourism; Congestion; Littering; Economic costs; Environmental Costs

JEL Classification Code: Q50, Q51, Q53

¹ Department of Environmental Economics, Pakistan Institute of Development Economics, P.O Box 1091 Islamabad 44000, Pakistan. Email: Shah_ash@hotmail.com

² Professor of Economics, University of Swat. (Corresponding author): anwar@uswat.edu.pk

³ School of Politics & International Relations, Quaid-I-Azam University, Islamabad. Email: konainshahqau@gmail.com



1. Introduction

Although tourism is a key source of economic development (Amin & Budilestari, 2025) but it also cost the environment. Tourism has become a key business and promotes local livelihoods particularly in those areas which do not have industries. Millions of tourists are engaged in this industry and contribute to gross domestic product (GDP) of a country. The increase in number of tourists has been noted from 25 million to 940 million since 1950 to 2010 (UNWTO, 2011). Presently, most of the developing countries are viewing tourism as an encouraging opportunity for economic and social growth but less attention is given to sustainable environment. However, this also has some negative impacts on the local residents like increase in pollution, noise and congestion. It puts additional burden on water, energy consumption and other natural resources. Social and economic challenges linked with tourism cannot be ignored. Tourism has worse effect on environment and local communities in case of mismanaged and unplanned tourism (UNWTO, 2011).

Tourism has a major role in the attainment of Millennium Development Goals (MDGs) specifically, MDG 7 which targets environmental sustainability (Smith, 2011). Accordingly, ecological conservation play significant role in tourism. Tourism has positive effects on environment by supporting protection through serving as an instrument to finance the preservation of natural surroundings (Connell, Page, & Bentley, 2009). Amin and Budilestari (2025) found that tourism not only have economic benefits but also promotes socio-cultural development. According to Archer, Cooper, and Ruhanen (2005), tourism has both positive and negative impacts however it depends on the number of tourists and level of development beyond which may costs the physical environment. Zhang, Li, Zhou, and Wu (2024) pointed out that tourists not only have economic benefits but also costs the society and natural environment. Jalloh (2021) also pointed out that tourism has many economic and social benefits, but it also costs the society and there is a need to promote sustainable tourism through proper tourism planning.

Alshuwaikhath (2005), argues that degradation and depletion of natural resources like water, soil and air occurs because of unplanned and huge development that keeps adverse effects on natural



ecosystem. Some of the researchers found that tourism development costs the natural capital and beauty of the recreational sites (Ghulam Rabbany, Afrin, Rahman, Islam, & Hoque, 2013)

Zusammenarbeit (2003), argues that tourism plays important role in local economies of many countries, especially developing countries where sustainability is instrumental meet the tourism goals linked with community. International Council for Local Environmental Initiatives (ICLEI) is member of UNEP, putting main stress on management and planning of tourism at the local level. Pakistan has strong base in natural capital with its long rich history, cultural diversity, glaciers, deserts, charming sceneries and mountain ranges. Recognizing the economic significance of tourism as a source of development; tourism industry is under focus since 1960s. This industry is improving but there are still many challenges such as lack of infrastructure, insecurity and facilities in the country (Zaman, Khan, Syed, & Ahmad, 2011).

Abbottabad is a popular city in Hazara region of Khyber Pakhtunkhwa province, in north-west of Pakistan. The city has attractive geographical location, scenic beauty, pleasant weather and diversity of flora and fauna, which attracts thousands of tourists every year. Tourism is the major component of this city's economy. It is also a transit point to most of the important regions of Pakistan. Some of the tourist destinations in and around Abbottabad are Ayubia, Thandiani, Shimla Hills, Ilyasi mosque, Harnoi (Dor watercourse valley) and Galliyat. The potential of Abbottabad as a tourist destination is suffering as a result of negligence, over construction, unplanned land use and pollution from transit traffic.

The previous studies conducted on tourism mainly focused on the economic impacts of tourism and ways to generate more economic benefits by developing tourism sector. The negative externality (Economic & environmental costs) of tourism are mostly ignored in Pakistan in general and particularly in district Abbottabad. This study adds to the existing literature by addressing the research questions; Does tourism affects the environment negatively? Does tourism affect local community in economic terms?



2. DATA AND METHODOLOGY

2.1 Study Area Profile

District Abbottabad is located in Khyber Pakhtunkhwa. The location of district Abbottabad at the base of Himalaya's lands, situated between 33° 50' and 34° 23' North, 73° 35' and 73° 31' East, In North, Abbottabad is bordered by Mansehra district, Muzaffarabad district in East, Haripur district in West while Islamabad Capital territory to the south.

2.2 Data Description

For this study primary as well as secondary data has been used. Questionnaire was designed for the collection of primary data collected from the respondents. Data was collected from the respondent via field survey. The last three years monthly data on prices, garbage, traffic congestion and number of tourist was obtained from Price control office, Municipal Corporation of Abbottabad, Traffic office and Pakistan Tourism Development Corporation (PTDC) respectively.

2.3 Sampling Design

The study also used primary data which was collected for 300 local resident, 270 tourist, 70 shopkeeper and 40 hotels managers. The shopkeepers and hotel managers were selected using purposive sampling technique while local residents and tourists were randomly selected. The sample size of local residents and tourists was calculated using sample size calculator which considers size of population, margin of error and confidence level. The standard confidence level 95% and margin of error 5 was used for the sample size calculation. Data was collected through structured questionnaires. Before conducting the actual survey, it was necessary to pre-test the questionnaire in the field. In pretesting survey the new questions arose and minor amendments were needed in the questionnaire. Questionnaire was re-developed in the light of pretesting.

2.4 Analytical tools

For the analysis of the data descriptive statistics such averages, percentages, graphs have been used. The details are given in subsequent section:



2.5 Impact of tourism on Congestion

Traffic congestion is a condition characterized by slower speed, traffic jam, longer trip time, and increased vehicles. For estimating the congestion, the Traffic Flow Unit method is used. Data on congestion (traffic count) in normal days, weekends, summer vacations and Eid Holidays is obtained from district police office, Abbottabad. The data is compared with the standards i.e. if the Traffic Flow Unit per hour is more than 800 for urban roads, then that is considered as congestion.

2.6 Impact of tourism on Littering

Monthly data on the number of trips or garbage lifting trollies for the year 2010-2014 is obtained from municipal committee, Abbottabad. Number of trips or garbage lifting trollies in peak months (June-August) are compared with normal months. The following Ordinary least square linear regression model was used to estimate the impact of number of tourists on the number of trips or garbage lifting trollies using monthly data ranging from 2010-2014. The proposed model is:

$$GLT = b_0 + b_1NT + U_i$$

Where GLT is the garbage lifting trollies per month, NT is the number of tourists per month and U_i is the stochastic term.

Although there are many factors which affect garbage but due to non-availability of data, these are not considered.

2.7 Impact of tourism on Noise

Primary data was gathered on normal days and weekends. Average was compared with National Environment quality standards. Accordingly, the maximum permissible limit is 85 decibel (Lundberg) (NEQS, 1993). In this study, the views of the experts from PTDC were utilized. According to them, tourists normally visit on Friday and Sunday afternoon, while 11.30 onward from Tuesday to Thursday. Therefore, in this study, the NoiseTube (NoiseTube is software, which measure the noise level) was used for one hour on the aforementioned timings only. If the average



dB turns out to be more than the standard (85 dB), then that is considered as noise pollution. This exercise is carried out on Alyasi masjid, Harnoe, Shimla Hills and Fwara Chowk Main Abbottabad.

2.8 Impact of tourism on prices

With the increase in the number of tourists, the prices of various goods was also affected. The local community definitely was also charged by these prices. Simple Price Indices were used. For this, monthly data from 2012-2014 on prices of major goods used by tourists was obtained from price control office, Abbottabad. The index is constructed as follows:

$$PI = \sum P_i / \sum P_o \times 100$$

Where PI is the Price index, P_i is the price in the current month and P_o is the base month price (Average of the sum of prices in each year).

The volatility in the prices was assessed with the normal months and peak month's prices. Further, this index is constructed for 25 items. The simple regression was also estimated to show the impact of number of tourists on the Price index, given as:

$$PI = b_o + b_1 NT + U_i$$

Where PI is the simple aggregative price index, NT is the number of tourists per month and U_i is the random term.

Due to non-availability of the data the other influencing factors of prices variation (PI) was not considered.

3. RESULTS AND DISCUSSIONS

3.1 Perceptions of the respondents about the effects of tourism

Table 1 shows details on the perceptions of the respondents such as local residents, tourists and shopkeepers for different variables including traffic congestion, noise pollution, prices of goods and garbage in linked with tourism. According to the respondents' perceptions, traffic congestion was seen highly due to tourism in district Abbottabad. They were also of the view that prices of



various goods also increased due to tourism. Both the tourists and the local residents were then charged by the higher prices. The shopkeeper also stated that prices increase in the study area due to increase in the number of tourists. Majority of the local residents also stated that the level of noise pollution also increases due to increased number of tourists. Garbage also increases due to increase number of tourists in District Abbottabad. In sum, according to the perceptions of the respondents, tourism impacts traffic congestion, prices, noise pollution and garbage.

Table 1 Perceptions of the respondents about the effect of tourism on prices and Environment

Respondents	Increase in traffic congestion		Increase in prices		Increase in Noise pollution		Increase in Garbage	
	Yes	No	Yes	No	Yes	No	Yes	No
Tourist	254	16	255	15	--	--	--	--
Local Resident	275	25	276	24	276	24	291	8
Shopkeeper	--	--	61	9	--	--	--	--

Source: Field Survey

3.2 Congestion and tourism in Abbottabad

3.2.1 Traffic count statistics

Table 2 shows the problem of traffic congestion. The hourly basis data on tourist months was obtained from traffic police office, Abbottabad. According to traffic flow unit method, traffic congestion exist, if number of vehicles per hour exceed than 800 for urban roads (NGFL, 2001). It is obvious from the table that number of vehicles per hour on normal, weekends, summer vacations and Eid holidays are exceeding the standard limit, which means problem of traffic congestion exist in the study area.



Table 2 Average traffic count in district Abbottabad

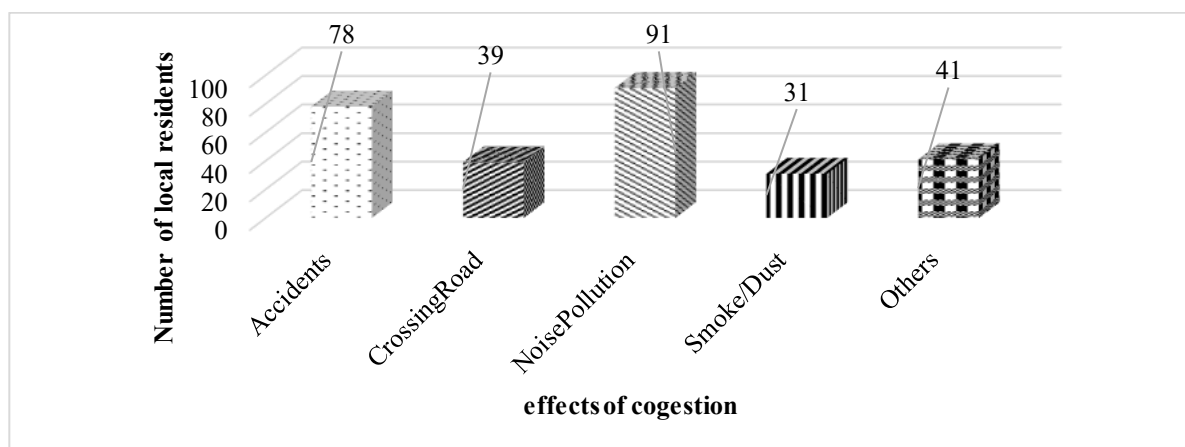
	Average	Vehicles per hours
Traffic counts on normal days	27500	1146
Traffic counts on weekends	35000	1458
Traffic counts on summer vocations	55000	2292
Traffic counts on Eid holidays	85000	3542

Source: Traffic Police office, 2014, Abbottabad

3.2.2 Perception on the effects of traffic congestions

In order to know the effects of the problem of traffic congestion due to increased number of tourists, the respondents were asked whether this problem creates further problems or not. These responses are reported in Figure 1, which shows different problems faced by local residents due to traffic congestion in tourist season. According to the responses, traffic congestion further creates problems of noise pollution, accidents, crossing road, smoke and dust. The frequency of Noise pollution is found higher as compared to other problems.

Figure 1 Responses of effects of congestion



3.2.3 Littering and tourism in Abbottabad

Simple linear Regression model was used to estimate the impact of number of tourist on garbage lifting trollies or number of trips. The result shows that one percent increase in number of tourist brings 0.02 percent increase in the garbage lifting trolleys (GLT). Its coefficient is also statistically significant at 1%, 5% and 10% level of significance.

Table 3 Regression results for the impact number of tourists on garbage lifting trolleys

Dependent Variable: Ln(GLT)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	5.358	0.039	138.395	0.000
ln(NT)	0.023	0.005	5.079	0.000
Diagnostics				
R-squared	0.431	Adjusted R-squared		
F-statistic	25.793	Prob (F-statistics)		0.000

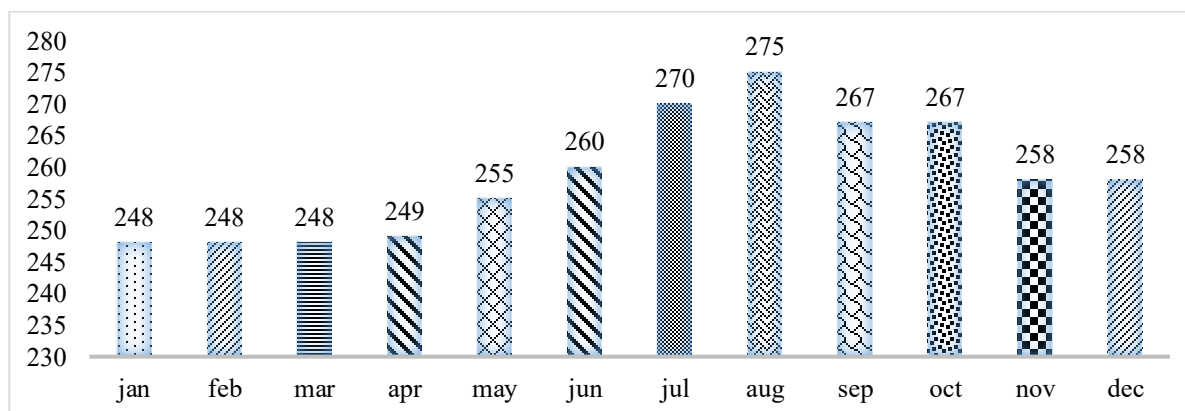
The data on littering, congestion, number of tourists, and prices of goods are showing increasing trends in the year 2014 compared to the past. Although tourism get decreased in Pakistan due to law and order situation in some places but in general tourism has been increased over the years. The number of tourists has increased by 20% in the year 2014 compared to the year 2013. Even within the year, the numbers of tourists vary over the months. In peak months (June-August), the number of tourists was 20736 per month in the year 2014 while in normal months (March-May) and (September-October), they were 4200 per month. The number of tourists in the months (November-February) those were 2100 per month in the year 2014 (PTDC, 2014).

In the peak tourists' months (June-August), the garbage collection in district Abbottabad also increased as compared to other months. The statistics in Figure 2 also shows that the number of



trips (Garbage) has increased during peak tourists' months and same trend is to be seen in the year 2013, 2012, 2011 and 2010.

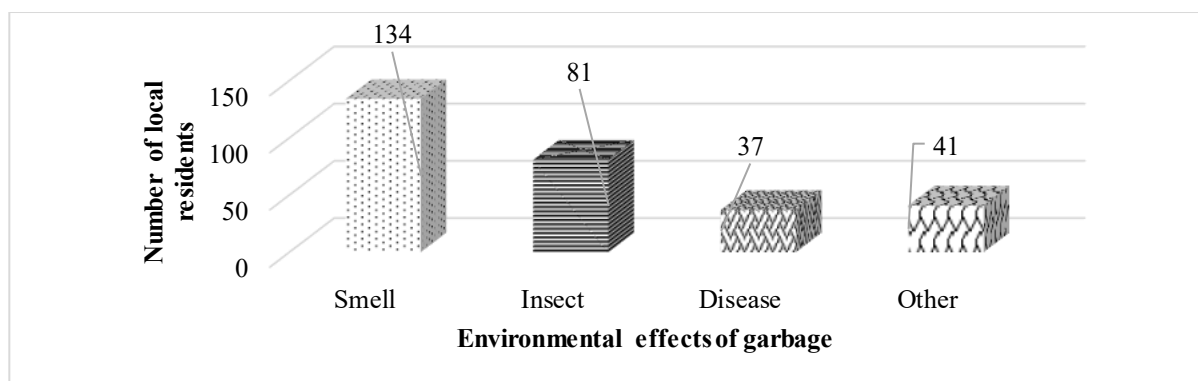
Figure: 2 Garbage Collections in the Year 2014



3.2.4 Environmental impacts of garbage

As many environmental effects are linked with excess garbage pollution. So, in order to know the problems, it was included in the field survey. Figure 3 shows the environmental problems linked with garbage pollution. Due to excess of garbage, environmental concerns which include smell, insects and mosquitoes, and infectious diseases are recorded by local residents in the study area. The responses of respondents against smell are found to have much higher frequency than other environmental problems.

Figure 3 Responses of environmental effects of garbage

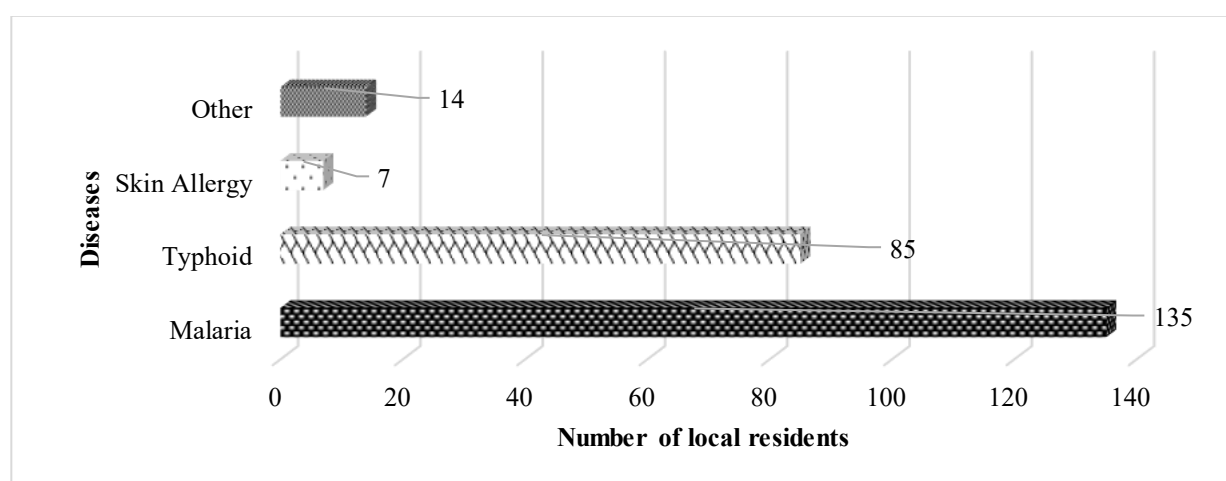


Source: Field survey

3.2.5 Health effect due to garbage

Health concerns or diseases linked with garbage were also taken into consideration. The figure (4) depicts the health problems linked with garbage pollution. Malaria, typhoid and skin allergy are common diseases recorded by local residents. Excess garbage causes environmental problems which lead to health issues. The responses against typhoid are reported much higher by locality after malaria. Asthma and skin diseases fall in the other category.

Figure 4 Health effects on local residents due to garbage



3.2.6 Health cost due to garbage

Table 4 depicts the costs of beard by local residents, linked with garbage pollution. Almost 85 responses were noted against Typhoid, 135 against malaria, 7 against skin allergy and 4 responses fall for the other category. The highest estimated average costs are noted against skin allergy while the lowest observed against malaria. Total numbers of observations are 231, out of 300 sample size of local residents, which shows that 69 respondents did not bear the cost.

Table 4 Health cost on local residents due to garbage

Cost Item	Amount in Rs. (Per Month)	No of observations
Typhoid	2615	85
Malaria	1609	135
Skin Allergy	1742	7
Other(Asthma, eyes problems)	3800	4
Total	9766	231

3.2.7 Preventive cost of garbage

Table 5 depicts the preventive cost by local residents against diseases like malaria and typhoid. About 221 respondents bear on average costs of Rs. 167 per month while the other 79 respondents did not bear any cost.

Table 5 Preventive cost on local residents due to Garbage

Cost item	Amount in Rs. (Per Month)	No of observations
Mosquito Spray / Mosquito Nets (Marchardani)	167	221
Total	167	221

Source: Field Survey

3.2.8 Garbage collection

The responses of hotel manager regarding garbage collection are being captured in the study via questionnaire. It is recorded that AMC role is not satisfactory in the study area. Mainly high frequency of local bodies are hired by hotels for the collection of garbage and after local bodies, own staff has high frequency in playing garbage duties.



3.2.9 Noise Pollution and tourism in Abbottabad

Primary data is gathered to measure noise pollution. According to NEQS, the maximum permissible limit is 85 dB and above this limit means the existence of noise pollution problem in the study area. The result shows that in the months of February and March, average noise value is below the standard which means that in normal months, this problem does not exist. But in the tourist months, i-e June, July and August, average value has been exceeded from standard value, which means that noise pollution exists in the study area.

Table 6 Noise pollution statistics at tourist spots in normal and tourist months

Sites	Average Noise dB In Feb 2015	Average Noise dB in March 2015	Average Noise dB In June 2015	Average Noise dB in July 2015	Average Noise dB in August 2015
Alyasi masjid	58.2	77.0	87.2	86.7	89.0
Harnoe	60.1	81.5	86.1	86.5	91.0
Shimla Hills	50.4	72.0	87.4	87.0	94.0
Fwara Chowk	68.0	77.0	88.0	90.0	97.7

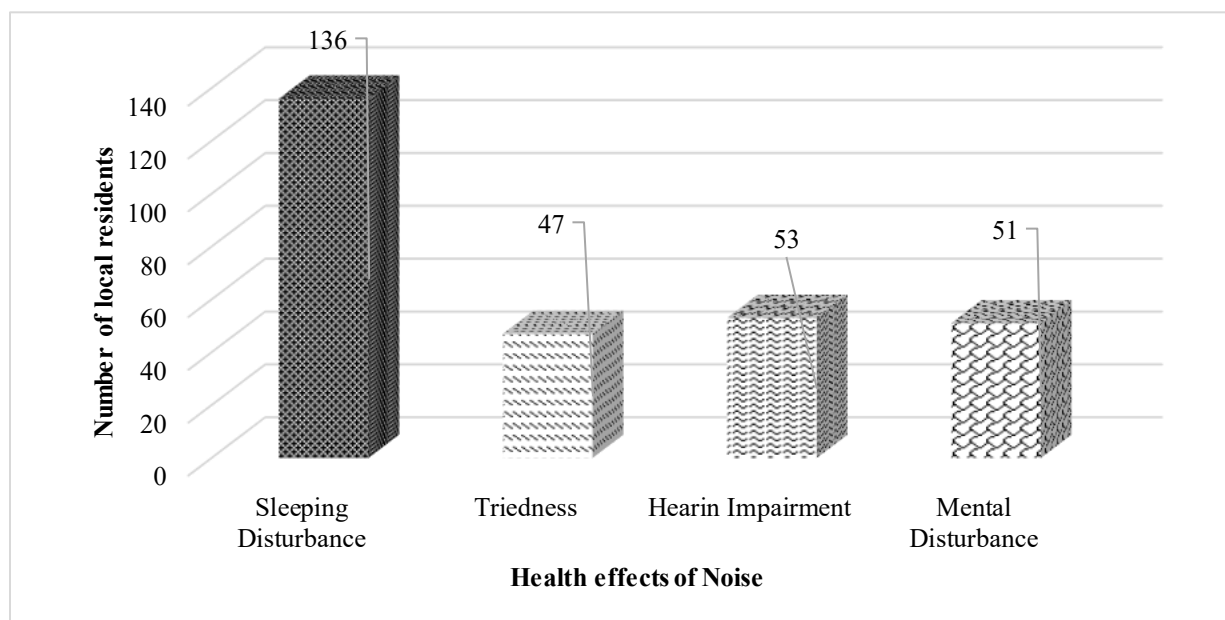
Source Field survey

3.2.10 Effects of noise pollution on health

As many health problems are linked with noise pollution, the respondents were asked to report their effects on health. These responses are given in Figure 5 showing the frequency or responses of the health problems reported by local residents, linked with noise pollution. Sleeping disturbance, tiredness, hearing impairment and mental disturbances are commonly noted. The response against sleeping disturbance is recorded much higher among the other health issues.



Figure-5 Responses to the health effects of noise pollution



3.2.11 Costs paid by Local Residents due to noise pollution

Table 7 depicts the cost of beard by local people, related to noise pollution. Almost 12 observations are noted against hearing impairment, and 43 against mental and sleeping disturbance. The highest average estimated cost is noted against hearing impairment. Total numbers of observations noted are 55, while the other 245 respondents did not bear any cost.

Table 7 Health Cost due to noise pollution

Cost item	Amount in Rs. (Per Month)	No of observations
Hearing impairment	1770	12
Patient mental disturbance / sleeping disturbance	458	43
Total	2228	55

Source: Field Survey



3.2.12 Problems faced by Tourist in the study area

The problems faced by tourists in the study area are captured via questionnaire. Responses against noise, littering and lack of availability of rooms or over booking are recorded commonly. The responses to noise and littering are found to be much higher. Tourists mainly benefit from noise and littering, same as local residents and these problems exist in the study area.

3.2.13 Price fluctuation and tourism in Abbottabad

The result shows that one percent increase in number of tourists brings 2.2 percent change in prices. The value of t-Statistic is 2.0 which show that result is significant.

Table 8 Regression results of the Impact of Tourism on Price Fluctuations

Dependent Variable: Ln(PI)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.419	0.096	45.658	0.000
Ln(NT)	0.022	0.012	1.912	0.064
Diagnostics				
R-squared	0.097	Adjusted R-squared		0.070
F-statistic	3.656	Prob(F-statistic)		0.064

It is very obvious in table (9) that prices of different commodities like pakory, rice, pulses, red beans and gram etc. remain the same from January to May in the year 2014, as these are the normal tourists' months while in June-August (peak months), the prices get increased between 10 to 20 percent. In September and October (normal months), the prices of these commodities decreased by 10 percent. So, it is obvious from the data that Peak months of tourism have strong influence on prices. The local community is also priced at those prices and according to our primary analysis, same trend is to be observed. It is observed that prices usually increase in tourists' months, but due to factors of dishonesty, shopkeepers charge more than the increased prices for different goods which affect the local residents.



Table 9 The Impact of number of Tourists on Price Fluctuations

Month	2012		2013		2014	
	Price Index	Average Number of Tourist	Price Index	Average Number of Tourist	Price Index	Average Number of Tourist
Jan	88.75	1270.00	95.43	1524.00	107.24	1829.00
Feb	88.75	1310.00	95.43	1572.00	107.24	1886.00
Mar	88.75	2160.00	95.43	2592.00	107.24	3110.00
Apr	88.75	3024.00	95.43	3629.00	107.24	4355.00
May	88.75	3600.00	95.43	4320.00	107.24	5184.00
Jun	95.51	12,672.00	96.01	15,206.00	111.23	18,247.00
Jul	100.00	14,688.00	102.33	17,626.00	107.24	21,151.00
Aug	100.00	17,280.00	102.33	20,736.00	107.54	24,883.00
Sep	96.56	2590.00	100.00	3110.00	107.54	3732.00
Oct	96.56	3600.00	100.00	4320.00	107.00	5184.00
Nov	96.56	1728.00	100.00	2074.00	109.40	2489.00
Dec	96.56	979.00	100.00	1174.00	111.24	1408.00

Source: Authors' calculations

3.2.14 Price fluctuated commodities

In tourism season, prices of different commodities get higher and the responses of the local residents against fluctuated commodities are depicted in this table (10). The recorded responses show that there are many fluctuations in the prices of commodities in tourist months that affect not only tourists but also local residents. The responses are ranked according to frequency.



Table 10 Responses of local residents of price fluctuation

Commodities	Frequency	Ranking
Fruit	97	1
Vegetables	74	2
Cold Drink	52	3
Junk Food	26	4
Bakery	19	5
Other Item	21	6

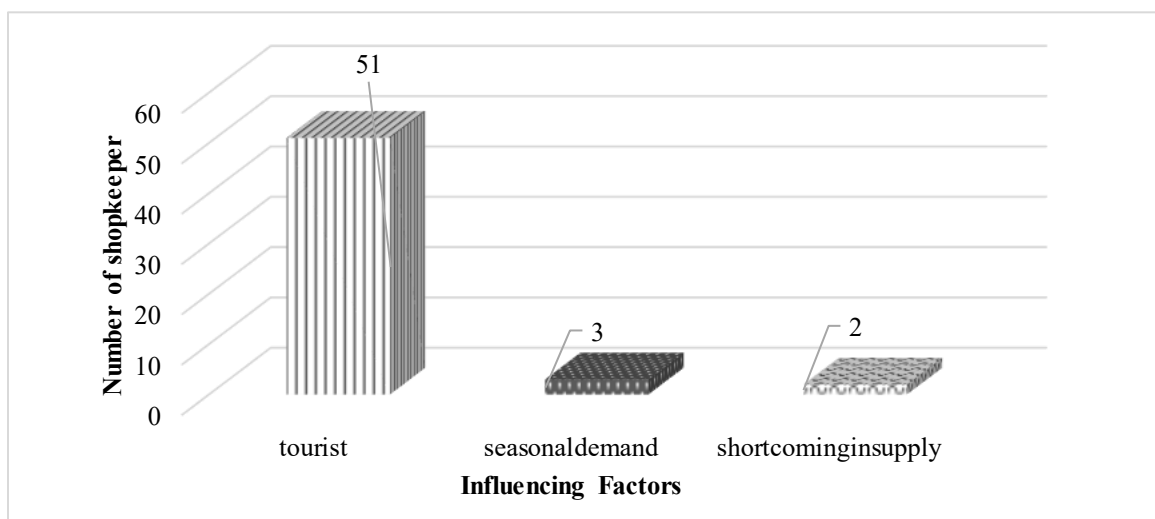
Source: Field Survey

3.2.15 Influencing factors of Price increase

The figure 6 is showing the influencing factor which keep great effect on prices of goods in tourist months i-e June, July and august. The number of tourists is found to have higher frequency comparative to seasonal demand, less supply and higher benefit prices. As number of tourist increases in tourist areas, their consumption demands also get high and higher prices are charged in order to get maximum benefit in tourism season.



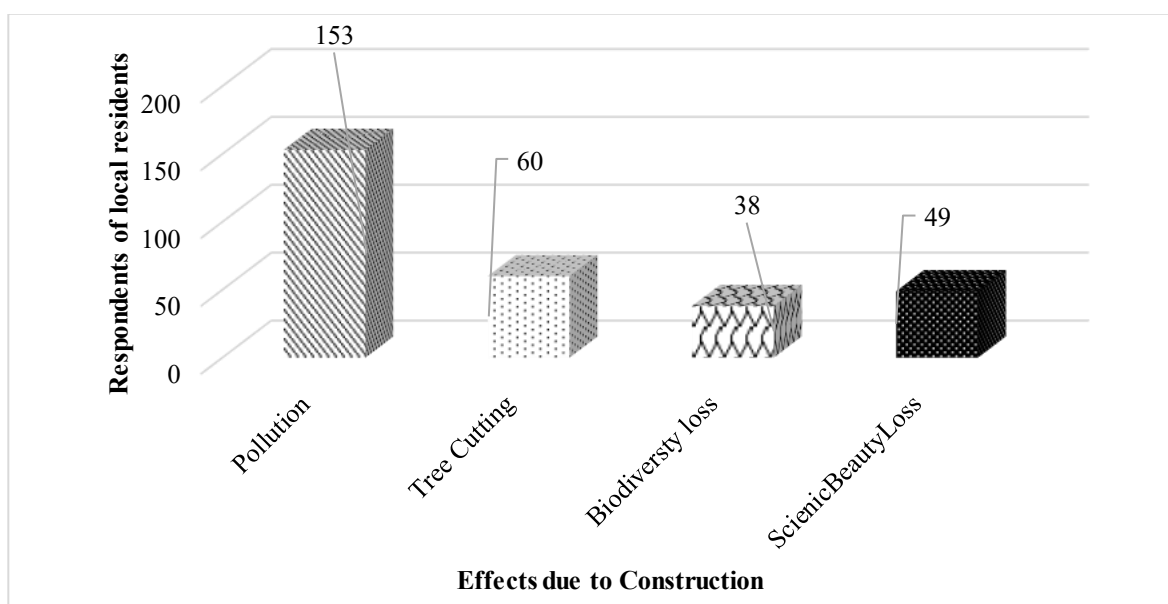
Figure 6 Shopkeeper responses of increase in prices



3.2.16 Environmental effects due to construction

This graph depicts the environmental effects linked with construction. Due to unplanned and illegal construction, environment gets damaged. The recorded problems associated with construction are pollution, tress cutting, biodiversity and loss of scenic beauty. The responses to pollution are noted to be much higher by the respondents or local residents. So apart from tourists, it is noted that there are some other factors too which contribute in the environment degradation.

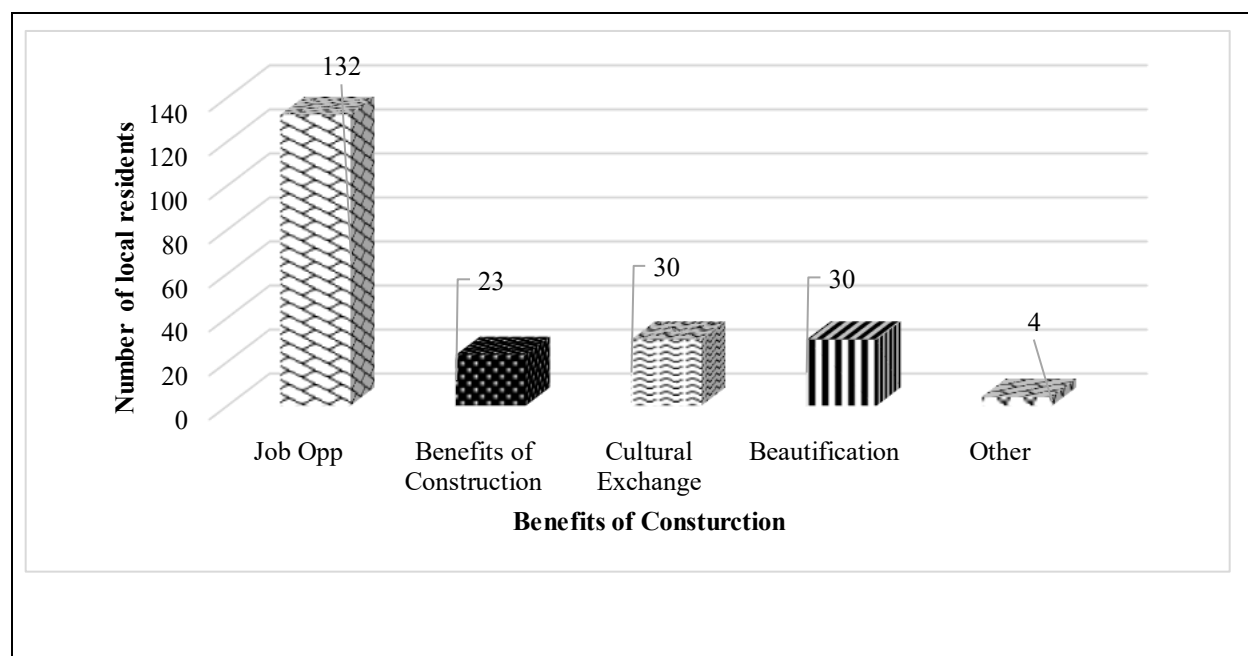
Figure 7 Environmental effects of construction



3.2.17 Economic benefits of construction

Due to tourism expansion, community leads to many economic benefits. Figure 8 covers the responses of local residents linked with economic benefits. Tourism is considered as source of job opportunities by higher frequency of respondents. Facilities linked with construction like proper roads and cultural exchange are also captured.

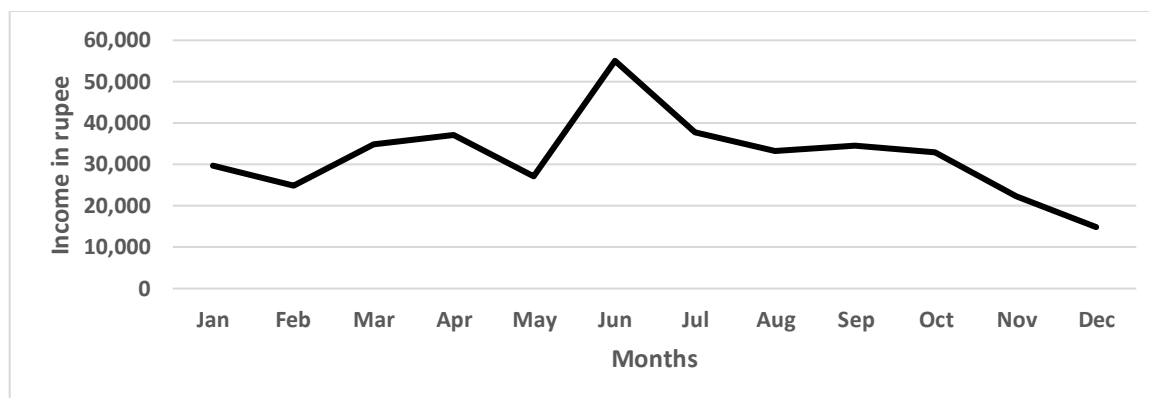
Figure 8 Benefits of Construction



3.2.18 Tourist Busiest Months and Monthly variation in the benefits of the shopkeeper

The responses of the shopkeeper's busiest tourism months are also captured via questionnaire. June, July and August are found to be main tourism season but among these, frequency of tourist visits or tourists' arrival is recorded to be much higher in the month of July. Figure 9 depicts the benefits of shopkeepers in normal and tourist months. It is very clear that higher fluctuations and higher benefits are noted in tourist months comparatively normal months. The number of tourists is found to be an influencing factor, and it is obvious that tourists mainly visit the tourist spots, and prices of commodities are recorded higher in this location, so shopkeepers benefit more in tourist months.

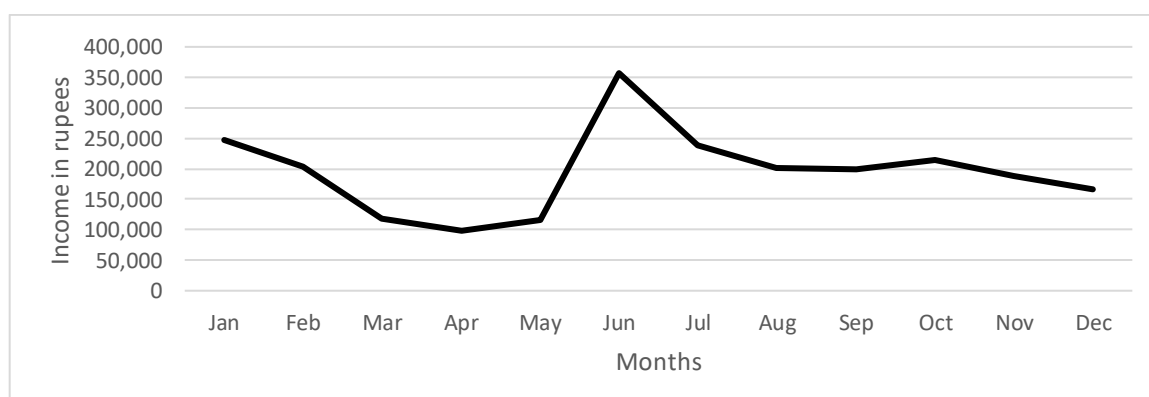
Figure 9 Comparison of normal and tourist month of shopkeepers



3.2.19 Hotel managers' information about the tourism months and Monthly income of the of hotels

The responses of the hotel managers regarding busiest months are captured via questionnaire. June, July and august are found to be season months but arrival is found to be much higher in the month of July. There are many influencing factors like good weather and summer vacations, but high number of tourists is found in month of July. This graph shows responses regarding the income benefits of hotels in tourist months comparatively normal months. It is obvious that benefited fluctuations are higher in tourist months as compared to normal. It is recorded that higher frequency of tourists mainly visits with families and stay in hotels. So profit in tourist months is much higher than normal months.

Figure 10 Monthly Income of the hotels



4. Conclusion and Recommendations

The main objective of this study was to assess the Economic and Environmental Costs of tourism in District Abbottabad. The findings revealed that tourism has economic as well as environmental costs and it affects not only the tourists but also the local residents. It was found that tourism affects prices of goods, traffic congestion, littering and noise pollution. Due to garbage pollution, the local residents bear the health cost. For this purpose, the provincial government should keep checks on AMC. Zebra crossing must be introduced in order to avoid the issues linked with traffic congestion, like accidents and road crossing etc. Government should act against illegal and unplanned construction. The government should take quick action on lack of parking, road maintenance, road expansion and availability of traffic police in order to reduce the problems linked with high traffic congestion and noise pollution. Government should emphasize awareness programs to address key environmental challenges in the study area.

Conflict of interest

Authors have no conflict of interest

Funding Sources

The authors received no funding to conduct this study

Data Availability

All the data is available in the manuscript. And the datasets used and or analyzed during the current study are available from the corresponding author on reasonable request.

Authors contributions

All authors have contributed to various sections of this manuscript.



References

- Alshuwaikhat, H. M. (2005). Strategic environmental assessment can help solve environmental impact assessment failures in developing countries. *Environmental Impact Assessment Review*, 25(4), 307-317.
- Amin, A. F., & Budilestari, W. (2025). The Triple Impact of Tourism: Economic Growth, Cultural Dynamics, and Environmental Change. *Journal Magister Ilmu Ekonomi Universitas Palangka Raya: GROWTH*, 11(1), 19-26.
- Archer, B., Cooper, C., & Ruhanen, L. (2005). The positive and negative impacts of tourism. *Global tourism*, 3(1), 79-102.
- Connell, J., Page, S. J., & Bentley, T. (2009). Towards sustainable tourism planning in New Zealand: Monitoring local government planning under the Resource Management Act. *Tourism Management*, 30(6), 867-877.
- Ghulam Rabbany, M., Afrin, S., Rahman, A., Islam, F., & Hoque, F. (2013). Environmental effects of tourism. *American Journal of Environment, Energy and Power Research*, 1(7), 117-130.
- Jalloh, S. A. (2021). A review of the economic, social and environmental impacts of tourism development. *American Journal of Theoretical and Applied Business*, 7(2), 39-46.
- Lundberg, E. (2011). Evaluation of tourism impacts—a sustainable development perspective: Gothenburg: School of Economics, Business and Law.
- NGFL. (2001). National Grid for Learning, 2015, from <http://www.taw.org.uk/demo/geography/geographyassociation/traffic/activity02.htm>
- Smith, S. L. (2011). Tourism statistics *International Encyclopedia of Statistical Science* (pp. 1612-1613): Springer.
- UNWTO. (2011). UNWTO tourism highlights.
- Zaman, K., Khan, A. J., Syed, S., & Ahmad, F. (2011). Students' perception toward social, economic and environmental impacts of tourism in Chitral-Pakistan. *Journal of International Academic Research*, 11(1).
- Zhang, Y., Li, S., Zhou, Q., & Wu, F. (2024). The economic benefits and environmental costs of trans-eastern tourism in China. *Environmental Impact Assessment Review*, 108, 107603.
- Zusammenarbeit, D. G. f. T. (2003). *A manual for water and waste management: what the tourism industry can do to improve its performance*: United Nations Environment Programme.

